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# LOCAL MITIGATION PLAN REVIEW TOOL 2022

The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA's evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan's strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool*.

| | | |
|---|---|---|
| **Jurisdiction:** Region 9, West Virginia | **Title of Plan:** Berkeley and Morgan County 2022 Hazard Mitigation Plan Update | **Date of Plan:** |
| **Local Point of Contact:** Rachel Snavely | | **Address:** 400 W. Stephen St., Suite 301 Martinsburg WV 25401 |
| **Title:** Executive Director | | |
| **Agency:** Region 9 Planning and Development Council | | |
| **Phone Number:** (304) 263-1743 | | **E-Mail:** rsnavely@region9wv.com |

| | | |
|---|---|---|
| **State Reviewer:** | **Title:** | **Date:** |

| | | |
|---|---|---|
| **FEMA Reviewer:** | **Title:** | **Date:** |
| **Date Received in FEMA Region** ***(insert #)*** | | |
| **Plan Not Approved** | | |
| **Plan Approvable Pending Adoption** | | |
| **Plan Approved** | | |

## SECTION 1:

## REGULATION CHECKLIST

**INSTRUCTIONS:** The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been 'Met' or 'Not Met.' The 'Required Revisions' summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is 'Not Met.' Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this *Plan Review Guide* in Section 4, Regulation Checklist.

| **1. REGULATION CHECKLIST**<br>**Regulation** (44 CFR 201.6 Local Mitigation Plans) | **Location in Plan** (section and/or page number) | **Met** | **Not Met** |
|---|---|---|---|
| **ELEMENT A. PLANNING PROCESS** | | | |
| A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1)) | Section 3 Pgs 26-41 | | |
| A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2)) | Section 3.4-3.5 Pgs 34-39 | | |
| A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1)) | Section 3.4 Pgs 34-38 | | |
| A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3)) | Section 5.2 Pgs 235-253 | | |
| A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii)) | Section 7.3 Pg 308-309 | | |
| A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i)) | Section 7.2 Pgs 307-308 | | |
| **ELEMENT A: REQUIRED REVISIONS** | | | |
| **ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT** | | | |

| 1. REGULATION CHECKLIST<br>**Regulation** (44 CFR 201.6 Local Mitigation Plans) | Location in Plan (section and/or page number) | Met | Not Met |
|---|---|---|---|
| B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i)) | Sections: 4.3.1.1 - 4.3.14.2 | | |
| B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i)) | Sections: 4.3.1.3 - 4.3.14.4 | | |
| B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii)) | Sections: 4.3.1.5 - 4.3.14.5 | | |
| B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii)) | Section 4.3.4 Pgs 91-93 | | |
| **ELEMENT B: REQUIRED REVISIONS** | | | |
| **ELEMENT C. MITIGATION STRATEGY** | | | |
| C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3)) | Section 5 Pgs 234-253 | | |
| C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii)) | Section 4.3.4 Pgs 91-93 Section 5.2.1 Pgs 240-242; Section 6 Pg 254; 268; 273; 286; 289 | | |
| C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i)) | Section 6.2 Pgs 266-269 | | |
| C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii)) | Section 6.4 Pgs 270-306 | | |
| C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii)) | Section 6.4 Pgs 293-306 | | |
| C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii)) | Section 5.2.5 Pgs 250-253 | | |
| **ELEMENT C: REQUIRED REVISIONS** | | | |
| **ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION** (applicable to plan updates only) | | | |

| 1. REGULATION CHECKLIST<br>**Regulation** (44 CFR 201.6 Local Mitigation Plans) | Location in Plan (section and/or page number) | Met | Not Met |
|---|---|---|---|
| D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3)) | Section 4.4.4 Pgs 232-234 | | |
| D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3)) | Section 6.1 Pgs 253-264 | | |
| D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3)) | Section 4.4.2 Pgs 226-228; Section 6.4 Pgs 270-306 | | |
| **ELEMENT D: REQUIRED REVISIONS** | | | |
| **ELEMENT E. PLAN ADOPTION** | | | |
| E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5)) | Section 8 Pgs 309-314 | | |
| E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5)) | Section 8 Pgs 310-313 | | |
| **ELEMENT E: REQUIRED REVISIONS** | | | |
| **OPTIONAL: HIGH HAZARD POTENTIAL DAM RISKS** | | | |
| HHPD1. Did Element A4 (planning process) describe the incorporation of existing plans, studies, reports, and technical information for eligible high hazard potential dams? | Section 5.2.2 Pgs 242-245 | | |
| HHPD2. Did Element B3 (risk assessment) address eligible high hazard potential dams in the risk assessment? | Appendix H | | |
| HHPD3. Did Element C3 (mitigation goals) include mitigation goals to reduce long-term vulnerabilities from eligible high hazard potential dams that pose an unacceptable risk to the public? | Section 6.2 Pg 265 | | |
| HHPD4. Did Elements C4-C5 (mitigation actions) address HHPDs prioritize mitigation actions to reduce vulnerabilities from eligible high hazard potential dams that pose an unacceptable risk to the public? | Section 6.4 Pgs 282; 291 | | |
| **REQUIRED REVISIONS** | | | |
| **ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)** | | | |
| F1. | | | |
| F2. | | | |
| **ELEMENT F: REQUIRED REVISIONS** | | | |

## SECTION 2:
## PLAN ASSESSMENT

**INSTRUCTIONS**: The purpose of the Plan Assessment is to offer the local community more comprehensive feedback to the community on the quality and utility of the plan in a narrative format. The audience for the Plan Assessment is not only the plan developer/local community planner, but also elected officials, local departments and agencies, and others involved in implementing the Local Mitigation Plan. The Plan Assessment must be completed by FEMA. The Assessment is an opportunity for FEMA to provide feedback and information to the community on: 1) suggested improvements to the Plan; 2) specific sections in the Plan where the community has gone above and beyond minimum requirements; 3) recommendations for plan implementation; and 4) ongoing partnership(s) and information on other FEMA programs, specifically RiskMAP and Hazard Mitigation Assistance programs. The Plan Assessment is divided into two sections:

1. Plan Strengths and Opportunities for Improvement
2. Resources for Implementing Your Approved Plan

***Plan Strengths and Opportunities for Improvement*** is organized according to the plan Elements listed in the Regulation Checklist. Each Element includes a series of italicized bulleted items that are suggested topics for consideration while evaluating plans, but it is not intended to be a comprehensive list. FEMA Mitigation Planners are not required to answer each bullet item and should use them as a guide to paraphrase their own written assessment (2-3 sentences) of each Element.

The Plan Assessment must not reiterate the required revisions from the Regulation Checklist or be regulatory in nature and should be open-ended and to provide the community with suggestions for improvements or recommended revisions. The recommended revisions are suggestions for improvement and are not required to be made for the Plan to meet Federal regulatory requirements. The italicized text should be deleted once FEMA has added comments regarding strengths of the plan and potential improvements for future plan revisions. It is recommended that the Plan Assessment be a short synopsis of the overall strengths and weaknesses of the Plan (no longer than two pages), rather than a complete recap section by section.

***Resources for Implementing Your Approved Plan*** provides a place for FEMA to offer information, data sources and general suggestions on the plan implementation and maintenance process. Information on other possible sources of assistance including, but not limited to, existing publications, grant funding or training opportunities, can be provided. States may add state and local resources, if available.

## A. Plan Strengths and Opportunities for Improvement

This section provides a discussion of the strengths of the plan document and identifies areas where these could be improved beyond minimum requirements.

### Element A: Planning Process

*How does the Plan go above and beyond minimum requirements to document the planning process with respect to:*

- *Involvement of stakeholders (elected officials/decision makers, plan implementers, business owners, academic institutions, utility companies, water/sanitation districts, etc.);*
- *Involvement of Planning, Emergency Management, Public Works Departments or other planning agencies (i.e., regional planning councils);*
- *Diverse methods of participation (meetings, surveys, online, etc.); and*
- *Reflective of an open and inclusive public involvement process.*

### Element B: Hazard Identification and Risk Assessment

*In addition to the requirements listed in the Regulation Checklist, 44 CFR 201.6 Local Mitigation Plans identifies additional elements that should be included as part of a plan's risk assessment. The plan should describe vulnerability in terms of:*

1) *A general description of land uses and future development trends within the community so that mitigation options can be considered in future land use decisions;*
2) *The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas; and*
3) *A description of potential dollar losses to vulnerable structures, and a description of the methodology used to prepare the estimate.*

*How does the Plan go above and beyond minimum requirements to document the Hazard Identification and Risk Assessment with respect to:*

- *Use of best available data (flood maps, HAZUS, flood studies) to describe significant hazards;*
- *Communication of risk on people, property, and infrastructure to the public (through tables, charts, maps, photos, etc.);*
- *Incorporation of techniques and methodologies to estimate dollar losses to vulnerable structures;*
- *Incorporation of Risk MAP products (i.e., depth grids, Flood Risk Report, Changes Since Last FIRM, Areas of Mitigation Interest, etc.); and*
- *Identification of any data gaps that can be filled as new data became available.*

### Element C: Mitigation Strategy

*How does the Plan go above and beyond minimum requirements to document the Mitigation Strategy with respect to:*

- *Key problems identified in, and linkages to, the vulnerability assessment;*
- *Serving as a blueprint for reducing potential losses identified in the Hazard Identification and Risk Assessment;*
- *Plan content flow from the risk assessment (problem identification) to goal setting to mitigation action development;*
- *An understanding of mitigation principles (diversity of actions that include structural projects, preventative measures, outreach activities, property protection measures, post-disaster actions, etc);*
- *Specific mitigation actions for each participating jurisdiction that reflects their unique risks and capabilities;*
- *Integration of mitigation actions with existing local authorities, policies, programs, and resources; and*
- *Discussion of existing programs (including the NFIP), plans, and policies that could be used to implement mitigation, as well as document past projects.*

### Element D: Plan Update, Evaluation, and Implementation (*Plan Updates Only*)

*How does the Plan go above and beyond minimum requirements to document the 5-year Evaluation and Implementation measures with respect to:*

- *Status of previously recommended mitigation actions;*
- *Identification of barriers or obstacles to successful implementation or completion of mitigation actions, along with possible solutions for overcoming risk;*
- *Documentation of annual reviews and committee involvement;*
- *Identification of a lead person to take ownership of, and champion the Plan;*
- *Reducing risks from natural hazards and serving as a guide for decisions makers as they commit resources to reducing the effects of natural hazards;*
- *An approach to evaluating future conditions (i.e. socio-economic, environmental, demographic, change in built environment etc.);*
- *Discussion of how changing conditions and opportunities could impact community resilience in the long term; and*
- *Discussion of how the mitigation goals and actions support the long-term community vision for increased resilience.*

### B. Resources for Implementing Your Approved Plan

*Ideas may be offered on moving the mitigation plan forward and continuing the relationship with key mitigation stakeholders such as the following:*

- *What FEMA assistance (funding) programs are available (for example, Hazard Mitigation Assistance (HMA)) to the jurisdiction(s) to assist with implementing the mitigation actions?*
- *What other Federal programs (National Flood Insurance Program (NFIP), Community Rating System (CRS), Risk MAP, etc.) may provide assistance for mitigation activities?*
- *What publications, technical guidance or other resources are available to the jurisdiction(s) relevant to the identified mitigation actions?*
- *Are there upcoming trainings/workshops (Benefit-Cost Analysis (BCA), HMA, etc.) to assist the jurisdictions(s)?*
- *What mitigation actions can be funded by other Federal agencies (for example, U.S. Forest Service, National Oceanic and Atmospheric Administration (NOAA), Environmental Protection Agency (EPA) Smart Growth, Housing and Urban Development (HUD) Sustainable Communities, etc.) and/or state and local agencies?*

## SECTION 3:
## MULTI-JURISDICTION SUMMARY SHEET (OPTIONAL)

**INSTRUCTIONS**: For multi-jurisdictional plans, a Multi-jurisdiction Summary Spreadsheet may be completed by listing each participating jurisdiction, which required Elements for each jurisdiction were 'Met' or 'Not Met,' and when the adoption resolutions were received. This Summary Sheet does not imply that a mini-plan be developed for each jurisdiction; it should be used as an optional worksheet to ensure that each jurisdiction participating in the Plan has been documented and has met the requirements for those Elements (A through E).

| MULTI-JURISDICTION SUMMARY SHEET | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Requirements Met (Y/N) | | | | | |
| # | Jurisdiction Name | Jurisdiction Type | Plan POC | Mailing Address | Email | Phone | A. Planning Process | B. Hazard Identification & Risk Assessment | C. Mitigation Strategy | D. Plan Review, Evaluation & Implementation | E. Plan Adoption | F. State Require-ments |
| 1 | Berkeley | County | | | | | | | | | | |
| 2 | Morgan | County | | | | | | | | | | |
| 3 | Martinsburg | City | | | | | | | | | | |
| 4 | Bath | Town | | | | | | | | | | |
| 5 | Paw Paw | Town | | | | | | | | | | |
| 6 | Hedgesville | Town | | | | | | | | | | |

## C. Meeting, Adoption, and Other Participation Documentation


Appendix C-1 Berkeley County Kick-off Meeting Materials (May 4, 2021)

Appendix C-2 Morgan County Kick-off Meeting Materials (May 4, 2021)

Appendix C-3 Berkeley County Risk Assessment/Mitigation Workshop Materials (June 15, 2021)

Appendix C-4 Morgan County Risk Assessment/Mitigation Workshop Materials (June 15, 2021)

Appendix C-5 Watershed Group Gathering Meeting (June 8, 2021)

Appendix C-6 Berkeley County Public Meeting Materials and Comments (Aug 24, 2021)

Appendix C-7 Morgan County Public Meeting Materials and Comments (Aug 24, 2021)

Appendix C-8 Berkeley County Hazard and Risk Identification Worksheets

Appendix C-9 Morgan County Hazard and Risk Identification Worksheets

Appendix C-10 Berkeley County Capability Assessment Worksheets

Appendix C-11 Morgan County Capability Risk Assessment Worksheets

Appendix C-12 Berkeley County Mitigation Action Review Worksheets

Appendix C-13 Morgan County Mitigation Action Review Worksheets

Appendix C-14 Berkeley County New Mitigation Action Forms

Appendix C-15 Morgan County New Mitigation Action Forms

Appendix C-16 Berkeley County NFIP Compliance Worksheets

Appendix C-17 Morgan County NFIP Compliance Worksheets

Appendix C-18 Region 9 HMP Public Survey

Appendix C-19 Radio Interview on Eastern Panhandle Talk with Rob and Dave (June 18, 2021)

Appendix C-20 Radio Interview on Panhandle Live (June 29, 2021)

Appendix C-21 The Journal Article Regarding Public Meeting

Appendix C-22 Morgan Messenger Article Regarding Public Meeting

## Appendix C-1 Berkeley County Kick-off Meeting Materials (May 4, 2021)

## Welt, Angela

**Subject:** Berkeley and Morgan County Hazard Mitigation Plan (MJHMP) Update Kickoff Meeting

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**From:** Matthew Pennington <mpennington@region9wv.com>
**Sent:** Tuesday, April 13, 2021 4:16:47 PM
**To:** R Davis <rdavis@townofpawpaw.com>; Jennifer Wishmyer <jobrien@region9wv.com>; Rachel Snavely <rsnavely@region9wv.com>; adavis@berkeleywv.org <adavis@berkeleywv.org>; bill.g.kearns@wv.gov <bill.g.kearns@wv.gov>; Mark S. Baldwin <MBaldwin@cityofmartinsburg.org>; James Barnhart <jbarnhart@berkeleywv.org>; ceg511@yahoo.com <ceg511@yahoo.com>; bclark@morgancountywv.gov <bclark@morgancountywv.gov>; Randy Lilly <rlilly@berkeleywv.org>; hjohnson@cityofmartinsburg.org <hjohnson@cityofmartinsburg.org>; Dick Myers <dmyers@morgancountywv.gov>; Stefanie Allemong <sallemong@morgancountywv.gov>; jennifer.r.schetrompf@wv.gov <jennifer.r.schetrompf@wv.gov>; Scott Merki <asst5@aol.com>; 'Jim Ouellet' <jouellet@berkeleywater.org>; Curtis Keller <cbkeller@bcpssd.com>; Zach Walburn <zwalburn@bcpssd.com>; Doug Copenhaver <dcopenhaver@berkeleywv.org>; Eddie Gochenour <egochenour@berkeleywv.org>; Heather Williams <hwilliams@berkeleywv.org>; bross@berkeleywv.org <bross@berkeleywv.org>; bcostello@berkeleywv.org <bcostello@berkeleywv.org>; cwinebrenner@bceaa.com <cwinebrenner@bceaa.com>; jswisher@berkeleywv.org <jswisher@berkeleywv.org>; Mark Schiavone <berkeley@wvfp.org>; gsrhoe@comcast.net <gsrhoe@comcast.net>; kpetrucci@cityofmartinsburg.org <kpetrucci@cityofmartinsburg.org>; Jared Tomlin <JTomlin@cityofmartinsburg.org>; jdhummingbird@martinsburgfire.org <jdhummingbird@martinsburgfire.org>; ablake@cityofmartinsburg.org <ablake@cityofmartinsburg.org>; g_swartwood@martinsburgpd.org <g_swartwood@martinsburgpd.org>; jkelly@cityofmartinsburg.org <jkelly@cityofmartinsburg.org>; Jeff Wilkerson <JWilkerson@cityofmartinsburg.org>; Ron Jainniney <Water.Town@hotmail.com>; jwhitacre@berkeleywv.org <jwhitacre@berkeleywv.org>; Steven DeRidder <sderidder@berkeleywater.org>; nharmon@berkeleywv.org <nharmon@berkeleywv.org>
**Subject:** Berkeley and Morgan County Hazard Mitigation Plan (MJHMP) Update Kickoff Meeting

Good Afternoon,

The Eastern Panhandle Regional Planning & Development Council (Region 9) invites you to participate in a kick-off meeting for the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) 2022 Update for Berkeley and Morgan County.

The Federal Emergency Management Agency (FEMA) and the West Virginia Department of Homeland Security and Emergency Management (WV DHSEM) requires this plan to be eligible for federal hazard mitigation funding and technical assistance programs.

Region 9 is scheduling separate project kick-off meetings with each Steering Committee representing Morgan and Berkeley counties. The meetings will be on **Tuesday May 4, 2021** at the following locations and times:

**Morgan County Steering Committee**

**Location:** Blue Ridge Community and Technical College

The Pines Opportunity Center

109 War Memorial Dr,

Berkeley Springs, WV 25411

**Time:** 9:00 am – 11:00 am

**Berkeley County Steering Committee**

**Location:** Berkeley County Sheriff's Department

Training Room

510 S Raleigh Street

Martinsburg, WV 25401

**Time:** 1:00 pm – 3:00 pm

Please respond to the following SurveyMonkey link to indicate whether you would prefer to attend the meeting in-person or virtually via Zoom:

https://www.surveymonkey.com/r/52MWG35

The kick-off meeting will be facilitated by our technical consultant Michael Baker International and will address the project scope of work, schedule, roles and responsibilities, and overall requirements and outcomes. The kick-off meeting will be the first of a series of meetings that will be held throughout 2021 for the purpose of updating the MJHMP prior to expiration of the current plan in February 2022. Your participation is extremely important and critical to the planning process. Additionally, please feel free to forward this invitation to other appropriate members of your organization or agency.

Region 9 extends our sincere thanks and appreciation for your time and active participation in the planning process. If you would like to access the current 2017 MJHMP prior to the meeting , please visit http://www.region9wv.com/plans---studies.html

Sincerely,

Region 9 Staff

# MEETING AGENDA

| | |
|---|---|
| Date: | Tuesday May 4, 2021 |
| Time: | 1:00 – 3:00 PM |
| Location: | Berkeley County Sheriff's Department (Training Room); 510 S. Raleigh Street; Martinsburg, WV 25401<br>Zoom Meeting \| Meeting ID: 850 3502 0720 |
| Meeting Name: | Region 9 Multi-Jurisdictional Hazard Mitigation Plan 2022 Update Kick-Off Meeting |

| Topic: | Time: |
|---|---|
| 1. Welcome and Introductions<br>o Berkeley County Steering Committee<br>o Eastern Panhandle Regional Planning and Development Council (Region 9)<br>o Michael Baker International | 1:00 PM |
| 2. Project Overview | 1:05 PM |
| 3. Hazard Mitigation Planning Process<br>o Community Profile<br>o Planning Process<br>o Risk Assessment<br>▪ Exercise: Hazard-Risk Evaluation<br>o Capability Assessment<br>▪ Exercise: Capability Assessment Survey<br>▪ Exercise: NFIP Survey<br>o Mitigation Strategy<br>o Plan Maintenance | 1:25 PM |
| 4. Participation and Engagement | 2:20 PM |
| 5. Next Steps and Action Items | 2:50 PM |

Visit the project website at http://www.region9wv.com/plans---studies.html

*Questions? Comments? Contact:*

*Rachel Snavely rsnavely@region9wv.com (304) 263-1743*

*Troy Truax Troy.Truax@mbakerintl.com, (717) 213-6241*

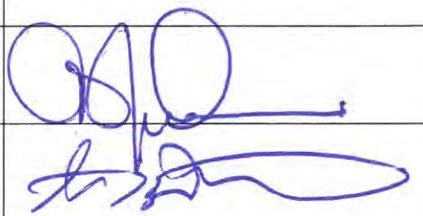
Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

# Kick-Off Meeting – Berkeley County

May 4, 2021 | 1:00pm – 3:00pm

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Baldwin, Mark | City of Martinsburg | City Manager | mbaldwin@cityofmartinsburg.org | |
| Barnhart, James | Berkeley County Council | Council Person | jbarnhart@berkeleywv.org | |
| Bartoldson, Elaine | Eastern Panhandle Transit Authority | | ebartoldson@gmail.com | |
| Bisom, Kriston | WV Conservation Agency | | | |
| Blake, Andy | City of Martinsburg | Asst. City Manager | ablake@cityofmartinsburg.org | |
| Bobo, Elaine | Berkeley County Board of Ed. | | ebobo@k12.wv.us | |
| Boots, Monique | Berkeley County Council | | mboots@berkeleywv.org | |
| Brown, Rob | Orgill | | rbrown@orgill.com | |
| Butts, Margaret | Clorox | | margaret.butts@clorox.com | |
| Combs, Tina | Berkeley County Chamber of Commerce | | tina@berkeleycounty.org | |

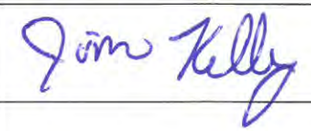
# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Copenhaver, Doug | Berkeley County | Council President | dcopenhaver@berkeleywv.org | |
| Costello, Brian | Berkeley County Emergency Ambulance Authority | EMS Director | bcostello@berkeleywv.org | |
| Cullen, Sherye | Rust-Oleum | | scullen@rustoleum.com | |
| Davis, Alan | Berkeley County | County Administrator | adavis@berkeleywv.org |  |
| DeRidder, Steve | Berkeley County Public Service Water District (PSSD) | | sderidder@berkeleywater.org | |
| Diehl, Nicolas | Eastern WV Regional Airport | Executive Director | nic@flymrb.com | |
| Donaldson, Kurt | WVU GIS Tech Center | Senior Project Manager | kurt.donaldson@mail.wvu.edu | |
| Farthing, Shane | City of Martinsburg | Economic Development Director | sfarthing@cityofmartinsburg.org | |
| Gano, Carey | Town of Hedgesville | Mayor | ceg511@yahoo.com | |
| Garnett, Casey | FEMA Region 3 | Hazard Mitigation Community Planner | casey.garnett@fema.dhs.gov | |
| Gochenour, Eddie | Berkeley County | County Commissioner | egochenour@berkeleywv.org | |

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

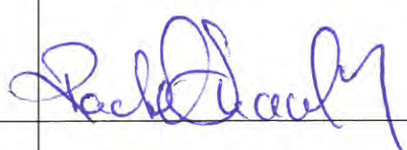
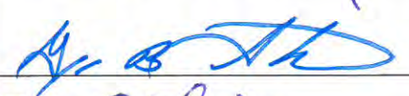
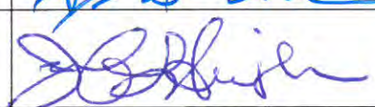
| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Golden, Jim | Berkeley County | | jgolden@berkeleywv.org | |
| Good, Ronnie | Town of Hedgesville | | | |
| Hamilton, Sandy | Berkeley County Development Authority | Executive Director | shamilton@developmentauthority.com | |
| Harmon, Nathan | Berkeley County | Sheriff | nharmon@berkeleywv.org |  |
| Hoffmaster, Laura | Berkeley County | | lhoffmaster@berkeleywv.org | |
| Howard, Lesley | Argos | | lhower@argos-us.com | |
| Hower, Lesley | Argos | | lhower@argos-us.com | |
| Hummingbird, J.D. | Martinsburg Fire Department | Fire Chief | jdhummingbird@martinsburgfire.org |  |
| Hull, Cynthia | Blue Ridge CTC | | chull@blueridgectc.edu | |
| Jennifer Wishmyer | Eastern Panhandle Regional Planning & Development Council | Assistant Director | jwishmyer@region9wv.com | |
| Johnson, Harriet | City of Martinsburg | Mayor | hjohnson@cityofmartinsburg.org | |

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

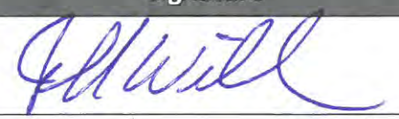
| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Kearns, Bill | Berkeley County Health Dept | Executive Director | bill.g.kearns@wv.gov | |
| Keith, Dana | City of Martinsburg | City Planner | dkeith@cityofmartinsburg.org | |
| Keller, Curtis | Berkeley County PSSD | | cbkeller@bcpssd.com | |
| Kelly, Jim | City of Martinsburg | Utility Director | jkelly@cityofmartinsburg.org |  |
| Klein, Jim | Shepherd-Martinsburg Center | | jklein@shepherd.edu | |
| Lilly, Randy | Berkeley County Office of Homeland Security & Emergency Management | | rlilly@berkeleywv.org |  |
| Marino, Todd | QuadGraphics | | todd.marino@qg.com | |
| Obrien, Steve | Proctor & Gamble | | obrien.sf@pg.com | |
| Ouellet, Jim | Berkeley County PSSD | Executive Director | jouellet@berkeleywater.org | |
| Pennington, Matthew | Eastern Panhandle Regional Planning & Development Council | Environmental Program Coordinator | mpennington@region9wv.com | |
| Petrucci, Kim | City of Martinsburg | City Engineer | kpetrucci@cityofmartinsburg.org | |

May 4, 2021 1:00-3:00pm

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Rhoe, Greg | Berkeley County Public Service Water District | Chairman | gsrhoe@comcast.net | |
| Ross, Brian | Berkeley County | Engineering Director | bross@berkeleywv.org | |
| Rude, Randall | EcoLab | | Randall.Rude@ecolab.com | |
| Schiavone, Mark | Berkeley County Farmland Protection Board | Executive Director | berkeley@wvfp.org | |
| Schreiner, Allan | Knauff Insulation | | allan.schreiner@knaufinsulation.com | |
| Snavely, Rachel | Eastern Panhandle Regional Planning & Development Council | Executive Director | rsnavely@region9wv.com |  |
| Swartwood, George | City of Martinsburg | Police Chief | g_swartwood@martinsburgpd.org |  |
| Swisher, Jennifer | Berkeley County | Central Dispatch | jswisher@berkeleywv.org |  |
| Tomlin, Jarred | City of Martinsburg | Stormwater Coordinator | jtomlin@cityofmartinsburg.org | |
| VanMetre, Donna | James Rumsey Technical Institute | | dvanmetre@k12.wv.us | |
| Walburn, Zach | Berkeley County | County Administrator | zwalburn@bcpssd.com | |

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Wilkerson, Jeff | City of Martinsburg | Public Works Director | jwilkerson@cityofmartinsburg.org |  |
| Williams, Heather | Berkeley County | Planning Director | hwilliams@berkeleywv.org |  |
| Winebrenner, Chad | Berkeley County Emergency Ambulance Authority | EMS Chief | cwinebrenner@bceaa.com | |
| Truax, Troy | Michael Baker Intl. | Planning Director | Troy.Truax@mbakerintl.com | |
| Welt. Angela | Michael Baker Intl. | Project Manager – Environmental | awelt@mbakerint.com | |
| Asselin, Kelly | Michael Baker Intl. | Environmental Associate | Kelly.asselin@mbakerintl.com | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
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May 4, 2021

1:00-3:00pm

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Kurt Donaldson | GIS Tech Ctr. | | | Zoom |
| Sarah Holt | | | | 〃 |
| Casey Garnett | Fema | | | 〃 |
| Kim Petrucci | Mtsb. City Engineer | | | 〃 |
| Zach Walburn | Berk. Co. Stormwater | | | 〃 |
| Jennifer Cotting | [redacted] | | | 〃 |
| Jared Tomblin | City Mtsbo Stormwater | | | 〃 |
| Mgneesh Sharma [redacted] | GIS Tech | | | 〃 |
| | | | | |
| | | | | |
| | | | | |

May 4, 2021

1:00-3:00pm



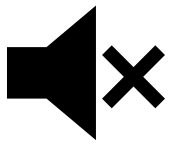
# Berkeley and Morgan Counties
# R9 Multi-Jurisdictional Hazard Mitigation Plan 2022 Update

Michael Baker INTERNATIONAL

Region 9

**Kick-Off Meeting**
**May 4, 2021**

- All attendees are currently muted to reduce background noise.



- Submit your questions <u>at any time</u> during the presentation by:
  - Using the Zoom “Chat”

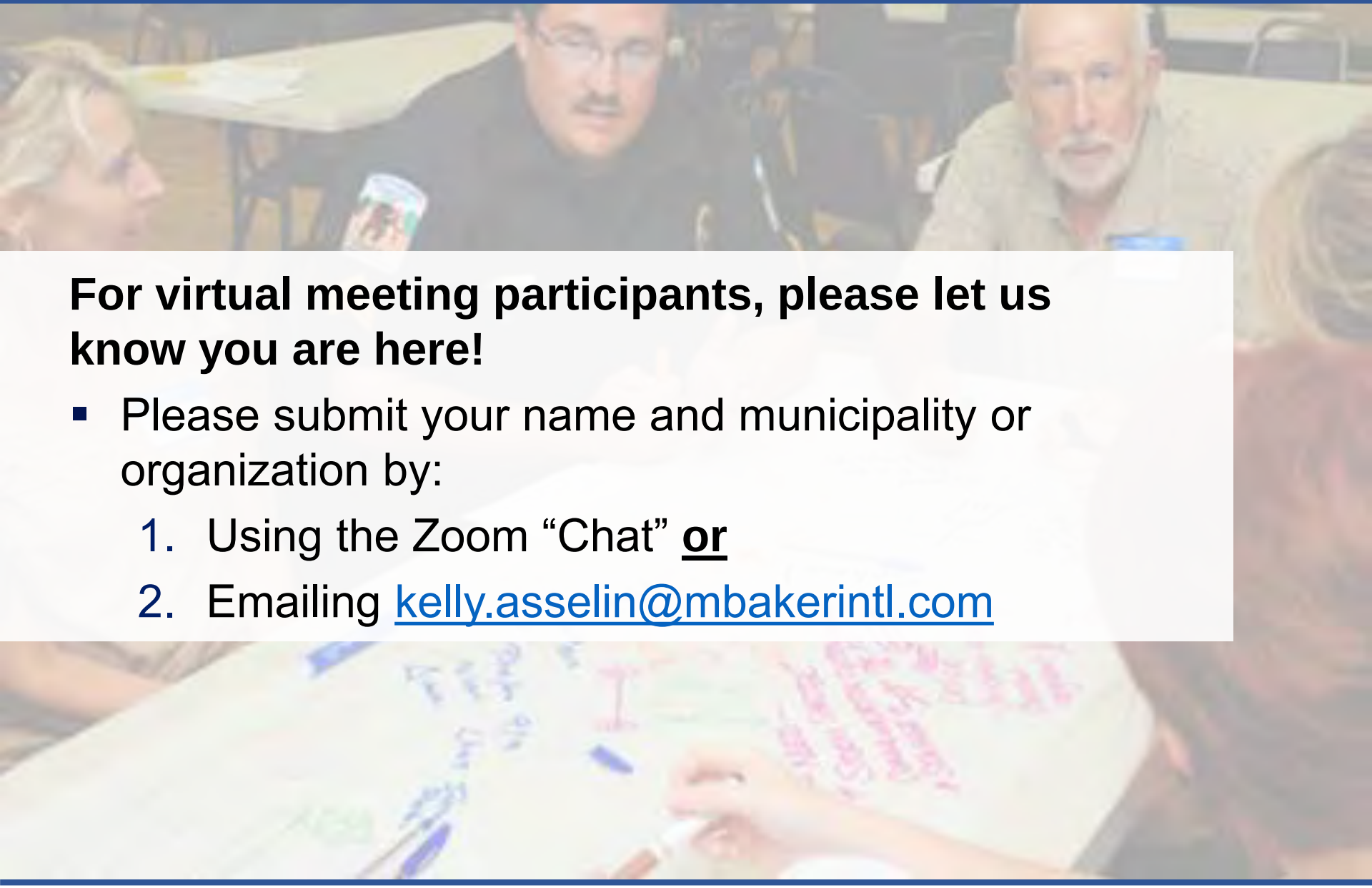


- We will be recording this meeting to share with anyone unable to attend.



# Agenda

- Welcome and Introductions
- Project Overview
- Hazard Mitigation Planning Process
  - Community Profile
  - Planning Process
  - Risk Assessment
  - Capability Assessment
  - Mitigation Strategy
  - Plan Maintenance
- Participation and Engagement
- Next Steps and Action Items



**For virtual meeting participants, please let us know you are here!**

- Please submit your name and municipality or organization by:
  1. Using the Zoom “Chat” **or**
  2. Emailing kelly.asselin@mbakerintl.com

# Hazard Mitigation Overview



# 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 Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) is a community-driven, living document that communities use to reduce their vulnerability to hazards.
- Counties and municipalities must adopt a FEMA-approved plan to be eligible for certain Hazard Mitigation Assistance (HMA) funds.
- HMA funds may be used to augment local mitigation activities already being accomplished and can leverage other funding sources.






## Hazard Mitigation Grant Program (HMGP)

*Assists in implementing long-term hazard mitigation planning and projects following a Presidential major disaster declaration.*

## Building Resilient Infrastructure & Communities (BRIC)

*BRIC will support communities as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards.*

*BRIC is a new FEMA pre-disaster hazard mitigation program that replaces the existing Pre-Disaster Mitigation (PDM) program.*

## Flood Mitigation Assistance (FMA) Program

*Provides funds for planning and projects to reduce or eliminate risk of repetitive flood damage to buildings that are insured annually under the NFIP.*

# FEMA Hazard Mitigation Grants

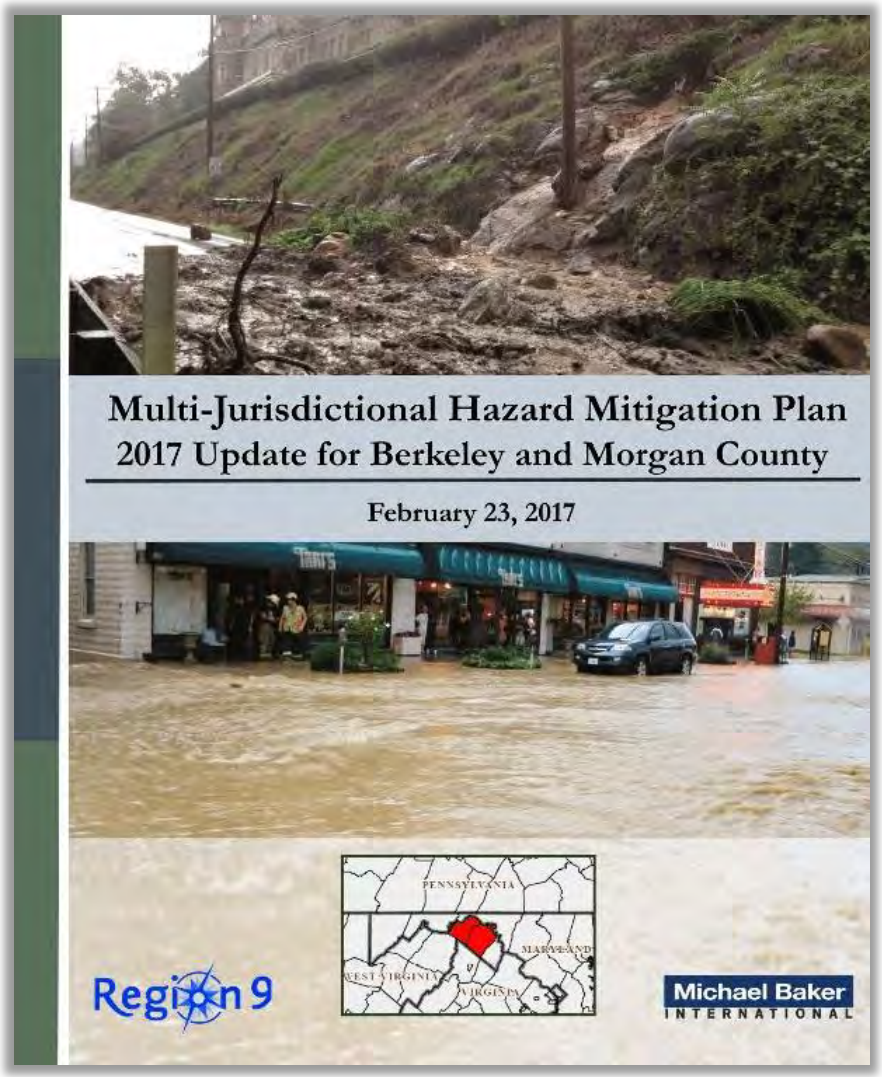
| Mitigation Projects |
| --- |
| Property Acquisition and Structure Relocation |
| Structure Elevation |
| Mitigation Reconstruction |
| Dry Floodproofing of Historic Residential Structures |
| Dry Floodproofing of Non-residential Structures |
| Generators |
| Localized Flood Risk Reduction Projects |
| Non-Localized Flood Risk Reduction Projects |
| Structural Retrofitting of Existing Buildings |
| Non-structural Retrofitting of Existing Buildings and Facilities |
| Safe Room Construction |
| Wind Retrofit for One- and Two-Family Residences |
| Infrastructure Retrofit |
| Soil Stabilization |
| Wildfire Mitigation |
| Post-Disaster Code Enforcement |
| Advance Assistance |
| 5 Percent Initiative Projects |
| Aquifer and Storage Recovery |
| Flood Diversion and Storage |
| Floodplain and Stream Restoration |
| Green Infrastructure |
| Miscellaneous/Other |

## FEMA HMA Grant Program Eligible Activities

| Mitigation Activity | HMA Program | | |
|---|---|---|---|
| | HMGP | BRIC | FMA |
| 1.Mitigation Projects | ✓ | ✓ | ✓ |
| Property Acquisition and Structure Demolition | ✓ | ✓ | ✓ |
| Property Acquisition and Structure Relocation | ✓ | ✓ | ✓ |
| Structure Elevation | ✓ | ✓ | ✓ |
| Mitigation Reconstruction | ✓ | ✓ | ✓ |
| Dry Floodproofing of Historic Residential Structures | ✓ | ✓ | ✓ |
| Dry Floodproofing of Non-residential Structures | ✓ | ✓ | ✓ |
| Generators | ✓ | ✓ | |
| Localized Flood Risk Reduction Projects | ✓ | ✓ | ✓ |
| Non-Localized Flood Risk Reduction Projects | ✓ | ✓ | |
| Structural Retrofitting of Existing Buildings | ✓ | ✓ | ✓ |
| Non-structural Retrofitting of Existing Buildings and Facilities | ✓ | ✓ | ✓ |
| Safe Room Construction | ✓ | ✓ | |
| Wind Retrofit for One- and Two-Family Residences | ✓ | ✓ | |
| Infrastructure Retrofit | ✓ | ✓ | ✓ |
| Soil Stabilization | ✓ | ✓ | ✓ |
| Wildfire Mitigation | ✓ | ✓ | |
| Post-Disaster Code Enforcement | ✓ | | |
| Advance Assistance | ✓ | | |
| 5 Percent Initiative Projects | ✓ | | |
| Aquifer and Storage Recovery | ✓ | ✓ | ✓ |
| Flood Diversion and Storage | ✓ | ✓ | ✓ |
| Floodplain and Stream Restoration | ✓ | ✓ | ✓ |
| Green Infrastructure | ✓ | ✓ | ✓ |
| Miscellaneous/Other | ✓ | ✓ | ✓ |
| 2.Hazard Mitigation Planning | ✓ | ✓ | ✓ |
| 3.Technical Assistance | | | ✓ |
| 4. Management Costs | ✓ | ✓ | ✓ |

# Hazard Mitigation Planning Process






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

- Geography and Environment
- Community Facts
- Population and Demographics
- Land Use and Development



- Multi-Jurisdictional Hazard Mitigation Planning Team
- Municipal participation
- Public and stakeholder participation
- Key meetings:
  - **Kick-Off:** today
  - **Risk Assessment and Mitigation Solutions Workshop:** June
  - **Draft Plan Review Public Meeting:** Late August
- Draft and Final Plan development
- Conduct WVEM review
- Obtain FEMA Approval Pending Adoption (APA)
- County and municipal adoption

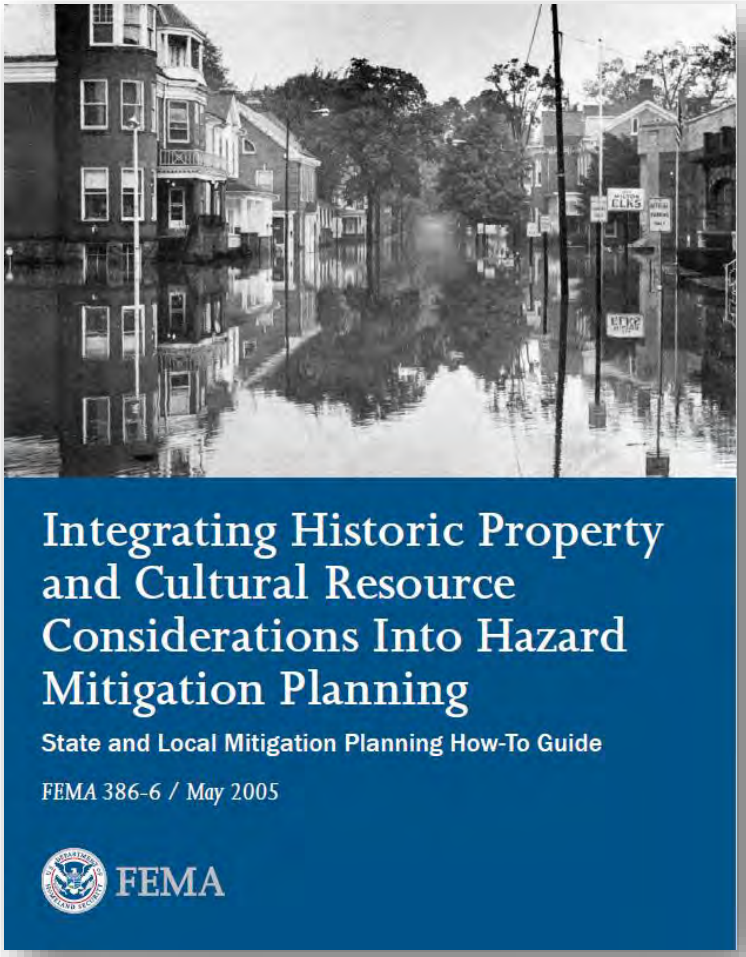
# Planning Process

| Task | 2021 | | | | | | | | | | | 2022 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | JAN | FEB | MAR |
| **Project Coordination & Management** | | | | | | | | | | | | | |
| Quarterly Status Reports to WVEM | | | | | | | | | | | | | |
| **Meetings** | | | | | | | | | | | | | |
| HMPT Project Initiation Meeting | | | | | | | | | | | | | |
| HMPT and Steering Committee Meetings | | | | | | | | | | | | | |
| Draft Plan Public Meetings | | | | | | | | | | | | | |
| **Planning Process** | | | | | | | | | | | | | |
| Community Profile and Asset Inventory | | | | | | | | | | | | | |
| Hazard Identification and Risk Assessment | | | | | | | | | | | | | |
| Capability Assessment | | | | | | | | | | | | | |
| Mitigation Strategy | | | | | | | | | | | | | |
| Plan Maintenance | | | | | | | | | | | | | |
| Writing the Plan Document | | | | | | | | | | | | | |
| **Plan Approval and Adoption** | | | | | | | | | | | | | |
| WVEM Review and Edits | | | | | | | | | | | | | |
| FEMA Review, Edits, and APA | | | | | | | | | | | | | |
| Plan Adoption | | | | | | | | | | | | | |

The Planning Team:

- County Representatives
- Municipal Officials
- Agency and organization stakeholder representatives
- Other suggestions?






MJHMP Update Process:

- Update and add hazard profiles
- Consider historic and cultural resources
- Update goals, objectives, and actions
- Highlight mitigation successes

# Hazard Identification and Risk Assessment Overview

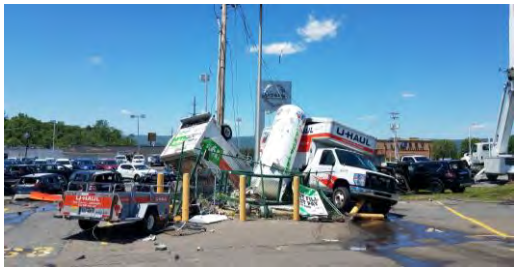
- Describe update process
- Confirm existing and identify new hazards
- Assess risk and vulnerability
- Profile hazards
- Rank hazards



- Identify new hazards
- Hazard profile includes:
  - Location and extent
  - Range of magnitude
  - Past occurrence
  - Future occurrence
  - Vulnerability assessment









- FEMA Hazus Flood Modeling
- Calculates physical damage and economic loss due to coastal and/or riverine inundation
- Losses are calculated using functions that relate the depth and type of flooding to the degree of damage for various categories of buildings






# 2017 Hazard Rankings

| Morgan County Hazards Profiled in the 2017 MJHMP | Calculated Risk Factor |
|---|---|
| Flooding | **2.6** |
| Utility Interruption | **2.4** |
| Epidemic | **2.4** |
| Winter Storm | **2.3** |
| Hazardous Materials | **2.3** |
| Wind Storm, Tornado | **2.2** |
| Hailstorm | **2.2** |
| Transportation Accidents | **2.2** |
| Hurricane, Tropical Storm, Nor'easter | **2.2** |
| Source Water Contamination | **2.0** |
| Wildfire | **2.0** |

| Morgan County Hazards Profiled in the 2017 MJHMP | Calculated Risk Factor |
|---|---|
| Drought | **1.9** |
| Dam and Levee Failure | **1.9** |
| Terrorism | **1.4** |
| Extreme Temperature | **1.4** |
| Infestation | **1.4** |
| Thunderstorm, Lightning Strike | **1.3** |
| Earthquake | **1.3** |
| Land Subsidence | **1.3** |
| Radon Exposure | **1.0** |

# 2017 Hazard Rankings

| Berkeley County Hazards Profiled in the 2017 MJHMP | Calculated Risk Factor |
|---|---|
| Source Water Contamination | **3.7** |
| Winter Storm | **3.6** |
| Transportation Accidents | **3.6** |
| Wind Storm, Tornado | **3.5** |
| Thunderstorm, Lightning Strike | **3.5** |
| Hazardous Materials | **3.4** |
| Terrorism | **2.9** |
| Hurricane, Tropical Storm, Nor'easter | **2.9** |
| Radon Exposure | **2.6** |
| Extreme Temperature | **2.2** |
| Flooding | **2.2** |

| Berkeley County Hazards Profiled in the 2017 MJHMP | Calculated Risk Factor |
|---|---|
| Epidemic | **1.9** |
| Drought | **1.8** |
| Utility Interruption | **1.5** |
| Wildfire | **1.2** |
| Hailstorm | **1.2** |
| Earthquake | **1.0** |
| Land Subsidence | **1.0** |
| Infestation | **1.0** |
| Dam and Levee Failure | **1.0** |

# Exercise 1: Hazard-Risk Evaluation

- This exercise allows you to evaluate previously profiled hazards and to identify any new hazards that may exist.
  - PART I: Note any changes in frequency, magnitude or geographic extent by placing a “NC”, “I” or “D” in the blue column.
  - PART II: Evaluate list of hazards NOT profiled in existing MJHMP.
- **Please complete and submit form today.**






- Planning and Regulatory
- Administrative and Technical
- Financial
- Education and Outreach

*Consider the alignment opportunities between the HMP and CEDS to strengthen the region's economic resilience.*

# Exercises 2 and 3: Capability Assessment Survey & NFIP Survey

- Capability Assessment Survey & NFIP Survey
  - Information used to evaluate jurisdictional capabilities and plan development
  - One Capability Assessment Survey per jurisdiction
  - One NFIP Survey per jurisdiction
  - Agency stakeholders are encouraged to participate too.



**Community Rating System Premium Discounts**

| Class | Premium Discount SFHA* | Non-SFHA |
|---|---|---|
| 1 | 45% | 10% |
| 2 | 40% | 10% |
| 3 | 35% | 10% |
| 4 | 30% | 10% |
| 5 | 25% | 10% |
| 6 | 20% | 10% |
| 7 | 15% | 5% |
| 8 | 10% | 5% |
| 9 | 5% | 5% |
| 10 | 0 | 0 |

* Special Flood Hazard Area. Non-SFHA premium reductions apply to B, C, D, X, A99, and AR Zones.

- CRS recognizes and encourages community floodplain management activities that exceed minimum NFIP standards.
- Point rating system that can reduce flood insurance premiums by 5% - 45%.

- Goals and Objectives
- Mitigation Techniques
- Mitigation Action Plan



## 2017 Region 9 Mitigation Goals

- Support communities in lessening flood risk by encouraging them to maintain compliance with the National Flood Insurance Program (NFIP) and undertaking buyout projects when funding is available; Perform annual checks regarding NFIP Compliance.
- Support Counties in performing annual HMP strategies review.

## 2017 Berkeley County Mitigation Goals

- 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.
- Reduce the current and future risks in Berkeley County.
- Improve emergency preparedness and response in Berkeley County, Martinsburg, and Hedgesville.
- Promote hazard mitigation as a public value in recognition of its importance to the health, safety and welfare of the population.

## 2017 Morgan County Mitigation Goals

- Minimize flood damages and risks from flood hazards in Morgan County.
- Reduce the current and future risks from hazards in Morgan County.
- Improve emergency preparedness in Morgan County, Bath, and Paw Paw.
- Reduce the potential impact of natural and man-made disasters on private property.
- Reduce the potential impact of natural disasters on the county's historic treasures.

## 2022 Mitigation Action Plan:

- Each municipality must have at least one mitigation action.
- Actions for stakeholder organizations are strongly encouraged.
- There must be at least one mitigation action for each profiled hazard.
- Mitigation actions should be realistic and sustainable.






## Update Approach:

- Consider revisions and additions to goals and objectives.
- Document status of 2017 mitigation actions and identify new actions.
- Assess hazard mitigation goals, objectives, and actions as they relate to reducing loss of life and property from natural and human-made hazards.




- FEMA mitigation planning guidance identifies four types of mitigation activities:
  - Plans and Regulations
  - Structure and Infrastructure Projects
  - Natural Systems Protection
  - Education and Awareness Programs
- As well as ideas for mitigation projects



- Government authorities, policies, or codes that influence the way land and buildings are developed and built such as:
  - Comprehensive Plans
  - Subdivision Regulations
  - Building Codes and Enforcement
  - Capital improvement Programs
  - Stormwater Management Plans
  - Emergency Operations Plans



- Modifying existing structures and infrastructure to remove from a hazard area
- Construction of manmade structures to reduce impacts of hazards

- 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
  - Wetland restoration and preservation



# Education and Awareness Programs



- National preventative programs
- Mailings to hazard-prone communities
- Websites with maps and information
- Presentations to community groups
- Radio or TV spots

- Monitoring, evaluating and updating the plan (Annual Reviews)
- Incorporation into other planning mechanisms
- Continued public involvement



- How has the nature of hazard risk changed in the last five years? Is there new development?
- Are the current resources to implement mitigation actions sufficient?
- Are the fiscal, administrative, political, public support, capability, etc. sufficient?

- Are there additional resources that would help you?
- Overall, what are the biggest obstacles to completing mitigation actions?
- Are there any goals for this planning process that weren't already addressed today?

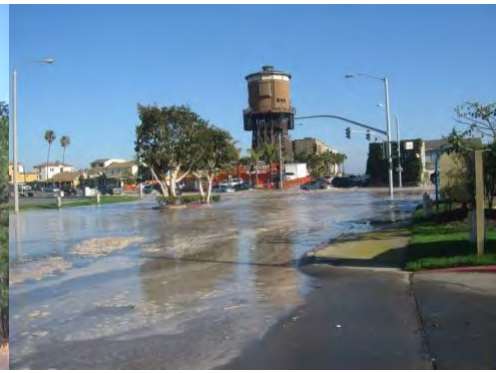
# Participation and Engagement



Jurisdictional Participation Requirements

- Attend meeting(s)
- Provide local information
- Develop mitigation action(s)



Visit: http://www.region9wv.com/plans---studies.html

*Online home of the planning process*



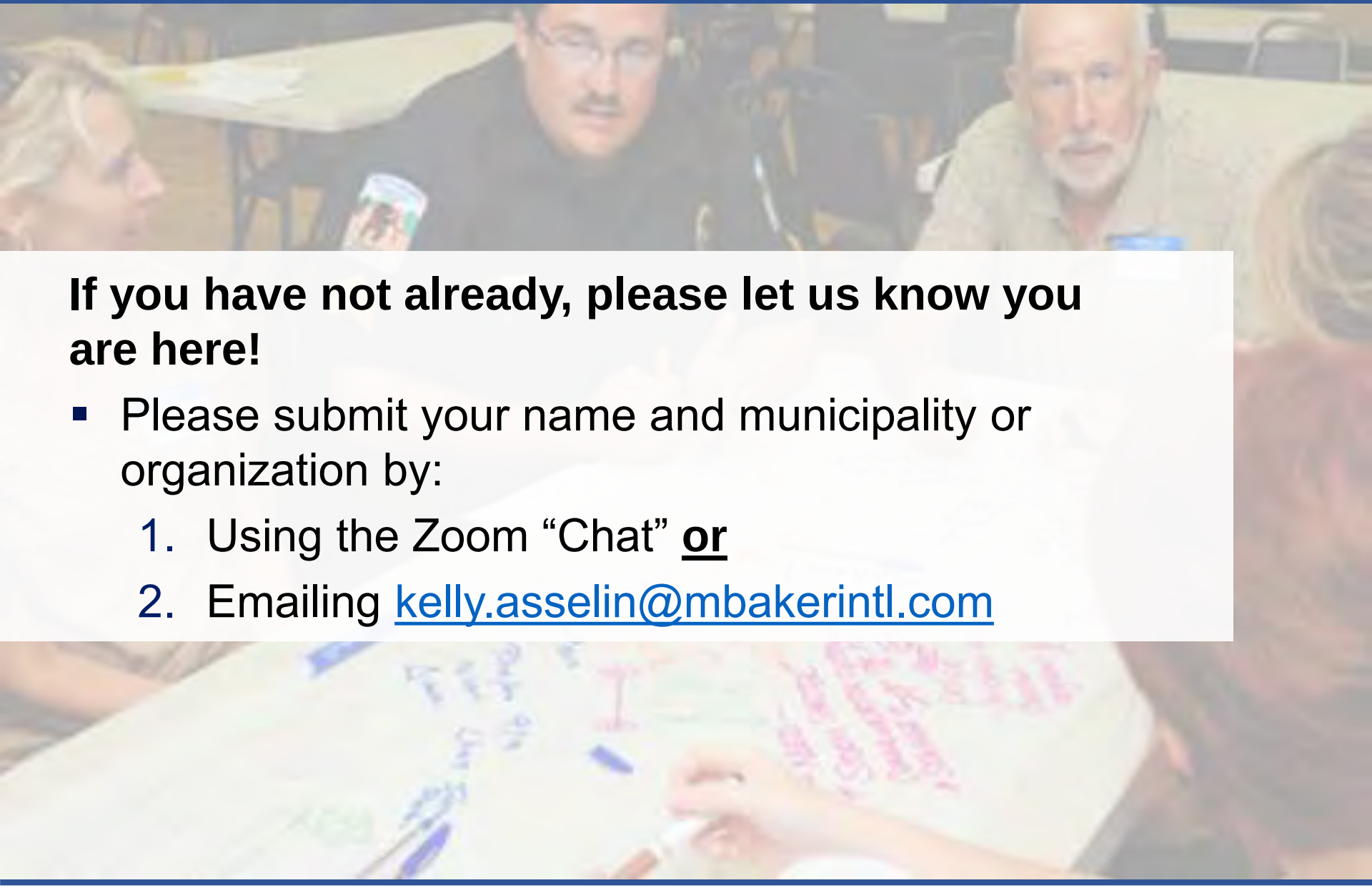
# Next Steps and Action Items



| Task | Dates |
|---|---|
| Kick-Off Meeting | Today |
| Risk Assessment and Vulnerability Analysis | April-June |
| Risk Assessment and Mitigation Solutions Workshop | Late June |
| Mitigation Strategy Development | July-September |
| Plan Review Public Meeting | Late August |
| Deliver to WVEM for Review | October |
| Deliver to FEMA for Review | November |
| Distribute to Counties and Municipalities for Adoption | February |

- **Municipalities and Other Stakeholders:**
  - Complete Hazard-Risk Evaluation Form
  - Complete Capability Assessment Survey
  - Complete NFIP Survey
  - Check out project website
- **Project Team:**
  - Kick-off Meeting Summary
  - Update project website with meeting materials
  - Contact and distribute forms to municipalities who were unable to attend
  - Community and Hazard Profiles

**Next Meeting: late June (date TBD)**



**If you have not already, please let us know you are here!**

- Please submit your name and municipality or organization by:
  1. Using the Zoom “Chat” **or**
  2. Emailing kelly.asselin@mbakerintl.com

# Questions?



Rachel Snavely

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Troy D. Truax, AICP

Project Manager, Michael Baker International

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# Berkeley County Kick-Off Meeting Summary

May 4, 2021

1:00pm-3:00pm

Please View the Meeting Recording Here:
https://us02web.zoom.us/rec/share/4eM6JL789V2NAcnzqRoJOdA75MmiajVaWIFsBa-TRejGnoWEKMTnmrdPBN_6AGw.eE5nESN_QVDv6VTw Passcode: dHD2%QgS

## Attendees

Alan Davis – Berkeley County

Steve DeRidder – Berkeley County Public Service Water District

Nathan Harmon – Berkeley County

Randy Lilly - Berkeley County

Jennifer Swisher – Berkeley County

Heather Williams - Berkeley County

Zach Walburn – Berkeley County

Andy Blake – The City of Martinsburg

George Swartwood- The City of Martinsburg

Jeff Wilkerson - The City of Martinsburg

J.D. Hummingbird – The City of Martinsburg

Jared Tomlin - The City of Martinsburg

Jim Kelly - The City of Martinsburg

Kim Petrucci - The City of Martinsburg

Jennifer Cotting – University of Maryland

Casey Garett - FEMA

Matthew Pennington – Region 9

David Deamer – Region 9

Rachel Snavely – Region 9

Kurt Donaldson – WVU GIS Tech Center

Maneesh Sharma - WVU GIS Tech Center

Sarah Holt

Troy Truax – Michael Baker International

Angela Welt - Michael Baker International

Kelly Asselin - Michael Baker International

## Agenda

1. Welcome and Introductions
2. Project Overview
3. Hazard Mitigation Planning Process
    a. Community Profile
    b. Planning Process
    c. Risk Assessment Overview and Hazard Review
        i. Exercise #1: Risk Evaluation and Identification
    d. Capability Assessment
        i. Exercise #2: Capability Assessment Survey
        ii. Exercise #3: National Flood Insurance Program Survey
    e. Mitigation Strategy Overview
    f. Plan Maintenance
4. Participation and Engagement
5. Next Steps and Action Items

## Welcome and Introductions

Troy Truax, a hazard mitigation planning consultant with Michael Baker International (MBI), welcomed all members of the Berkeley County Multi-Jurisdictional Hazard Mitigation Planning Team (HMPT) and asked participants to introduce themselves. He also requested that everyone indicate which community or organization they represented and note whether they participated in the last Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) Update. See the attached Sign In Sheets for the meeting attendees.

## Project Overview

Troy defined hazard mitigation and described the purpose of the MJHMP Update, including:

- Identifying projects that will reduce risk, both day to day and in a disaster situation
- Identifying potential funding sources for mitigation projects
- Maintaining eligibility for certain mitigation funding through the Federal Emergency Management Agency (FEMA)

Troy reviewed the three types of Hazard Mitigation Assistance (HMA) funding available to counties: Hazard Mitigation Grant Program (HMGP), Building Resilient Infrastructure and Communities (BRIC) (replaced the previous Pre-Disaster Mitigation (PDM) program), and Flood Mitigation Assistance (FMA) Program.

Troy stressed that this Update will be led by the County but will be multi-jurisdictional in nature. To achieve full participation, each municipality is asked to attend at least one meeting, complete at least one worksheet, and provide at least one mitigation action for the 2022 MJHMP. Without active participation, a municipality may be limited in adoption of the plan and therefore may be limited in obtaining grant funding available over the next five years.

Troy discussed a sample list of mitigation projects for HMPT members to consider including or consider what the status of current projects in the County are. He also covered a reference checklist of funding sources for mitigation projects and other hazard mitigation planning processes from the list of funding sources above.

Matt Pennington, Region 9, asked if there were any miscellaneous/other projects not listed in the mitigation projects list. Troy responded that routine maintenance of culverts and clearing drain storms to mitigate flooding, importantly in rural communities where this is often overlooked, as an example of a miscellaneous project.

Kurt Donaldson noted a low-cost mitigation measure: wet floodproofing – flood vents.

Troy also reviewed the outline and contents of the 2017 MJHMP, and that the Standard Operating Guide (SOG) for PEMA will be the standard template for the 2022 plan. Troy emphasized FEMA Region 3 is familiar with the PA SOG, so it is suitable to use in Region 9. Additionally, Troy stressed the potential partnerships in the room, with supportive hazard mitigation relationships possible between the municipalities, County, state agencies, and other organizations in the room, and stated West Virginia GIS Technical Center will be performing Hazus for the Update. He also stated there are many advantages of the Community Economic Development Strategy (CEDS) and MJHMP updates aligning.

Troy stressed the importance of plan maintenance, annually at a minimum, and noted that the discussions could occur at regularly scheduled meetings of the LEPC, Planning Commission, or other entities.

## Hazard Mitigation Planning Process

Troy reviewed the timeline and planning process for the 2022 MJHMP Update. This Update is being led by stakeholders invited from each municipality within the County, including county representatives, state agencies, local businesses and nonprofits, schools, the hospital, utility providers, emergency service providers, and many others, to represent a broad array of perspectives. The plan is set to be adopted by February 2022. He also stressed the importance of participation and asked about whether any additional stakeholders should be included on the HMPT, and for attendees to provide their name, organization, and email.

Troy asked attendees to provide photographs to Rachel, Matt, or MBI staff of vaccination clinics, flood events, etc. so that we can include some photos in the MJHMP. Troy noted that it would be helpful to include a location, date, and associated event (e.g. hurricane name).

## Risk Assessment Overview and Hazard Review

Troy reviewed the hazards profile in the 2017 MJHMP and their risk rankings:

### High Ranked Hazards

- Source Water Contamination

- Winter Storm
- Transportation Accidents
- Windstorm, Tornado
- Hazardous Materials
- Terrorism
- Hurricane, Tropical Storm, Nor'easter
- Radon Exposure

### Moderate Ranked Hazards

- Extreme Temperature
- Flooding

### Low Ranked Hazards

- Epidemic
- Drought
- Utility Interruption
- Wildfire
- Hailstorm
- Earthquake
- Land Subsidence
- Dam and Levee Failure

Troy asked the HMPT whether any hazards excluded from the last MJHMP Update should be profiled in the 2022 MJHMP. He also asked whether the risks associated with hazards profiled in the 2017 MJHMP have changed over the past five years. The HMPT completed an exercise on these topics.

Regarding the exercise, Kurt Donaldson asked if some hazards could overlap? He stated it appears that the $51 million Sewage Treatment Plant along Tuscarora Creek in Martinsburg may be more vulnerable to flooding than shown on current flood maps. Does a major flood affect the sewage treatment plant and thus also a potential cause for source water contamination?

Troy responded that hazards could overlap, and often do.

Jared Tomlin also responded that the wastewater treatment plant in Martinsburg was able to handle the massive increase in water treatment in the floods of 2018, which was a 100+ year event.

## Capability Assessment and Mitigation Strategy Overview

Troy described the capability assessment and how it relates to implementing the mitigation strategy. The HMPT then conducted two activities to assess existing capabilities and to detail NFIP compliance measures. With these worksheets, Troy led a discussion of the following:

- New or updated planning or regulatory tools and programs
- Available staff resources to assist with hazard mitigation planning and implementation efforts
- Changes in local planning, regulatory, administrative, technical, fiscal, political, and outreach capabilities
- Berkeley County's GIS capabilities and new datasets
- There are Community Rating System (CRS) municipalities in Morgan County. CRS communities may qualify to receive reduced flood insurance premiums in exchange for floodplain management activities which exceed the minimum standards of the National Flood Insurance Program (NFIP).

Troy explained goals, objectives, and actions. Troy stated there is a High Hazard Potential Dam in Frederick County VA, with an inundation area affecting Berkeley County. Alan Davis, Berkeley County Administrator, will ask the dam owner if they have any planned capital improvements that would request HMGP grant funding for the project. MBI will determine when the Fredrick County HMP will be updated next. MBI will coordinate with the relevant parties to add a goal about the High Hazard Potential Dam to the HMP if there is not already one.

Troy also discussed the four types of mitigation techniques (Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, and Education and Awareness Programs) and described the process for reviewing mitigation actions from the 2017 MJHMP and developing new actions, which will be a focus of the Risk Assessment and Mitigation Solutions Workshop in June 2021. Troy provided examples of new actions such as, projects relating to private or non-profit sectors, buyout of repetitive loss private properties in the floodplain, updates to Emergency Operations Plans, CEDs, and stormwater management plans, and identifying vulnerable populations. In addition to the municipalities, Troy encouraged the stakeholders at the meeting to submit mitigation actions as well.

Troy noted that only one Capability worksheet is needed per jurisdiction and requested response by Friday May 28, 2021 if possible.

Kurt added that "Hedgesville" is the one community in Region 9 which does not have any mapped Special Flood Hazard Areas.

Matt spoke about recent projects addressing source water contamination and recommended mentioning this success in Update. He mentioned Berkeley County has also made great strides with opioid epidemic mitigation, and Troy suggested asking frontline workers and organizations for this effort to provide information on their successes and best practices.

Alan mentioned each region of WV has a hazmat response team. This was identified as a resource and should be included in the Update.

Matt mentioned that Region 9 is working with watershed groups on projects that restore floodplains in local tributaries. Troy stated zoning codes require riparian buffer protection, subdivision codes, and ordinances should be examined for this project/action. He is coordination with conservation district and other agencies for this project.

Matt asked how education and awareness programs and strategies can be improved, specifically in rural communities. He talked about using the COVID-19 pandemic as a case study for what methods worked well, and where there were shortcomings in communication. He mentioned general distrust of information on Facebook by community members, as well as communities without internet being barriers to telecommunication methods. Troy suggested looking into more print and press services, such as hard copy newspaper.

Troy noted that municipalities should start adopting the MJHMP as soon as FEMA issues Approval Pending Adoption.

## Next Steps and Action Items

Troy reviewed the project timeline, which is shown below:

| Task | Dates |
|---|---|
| Full Project Timeline | March 2021 – March 2022 |
| Kick-Off Meeting | May 4, 2021 |
| Risk Assessment and Mitigation Solutions Workshop | June 2021 |
| Draft Plan Review Public Meeting | August 2021 |
| Deliver to WVEM for Review | October 2021 |
| Deliver to FEMA for Review | November 2021 |
| Distribute to Municipalities for Adoption | February 2022 |

Troy encouraged the HMPT to visit the project website to review the 2017 MJHMP. Troy encouraged participants to email Rachel Snavely at rsnavely@region9wv.com, Matt Pennington at mpennington@region9wv.com, or Kelly Asselin at kelly.asselin@mbakerintl.com to obtain meeting materials or copies of forms if needed.

The project website can be found at: http://www.region9wv.com/plans---studies.html.

Matt and Rachel will post information about this HMP Update on the R9 Facebook page.

The hazard mitigation consultant will draft a meeting summary and will post all the meeting materials to the project website. A blank Mitigation Action Form and action examples will also be posted to the website. The consultant will also email the municipal contacts who were unable to attend the meeting, to provide the worksheets to them.

**The meeting concluded at 2:45pm.**

# FEMA REGION 3
# HAZARD MITIGATION PLAN GUIDANCE
## Checking In On The NFIP



Whether you are here as a requirement for hazard mitigation planning (44 CFR 201.6(c)(3)ii) or to take strategic action as a floodplain administrator, this document is intended for you and any other staff/ partners necessary to help you fill in the questions for each section. Being a part of the National Flood Insurance Program (NFIP) unlocks a lot of valuable resources and connections to state and federal partners. FEMA developed this worksheet to assist you in finding opportunities to meet AND EXCEED requirements as you help your community.

## FLOODPLAIN IDENTIFICATION AND MAPPING

The first step is to figure out what made you eligible for the NFIP, where those resources are, and who is accountable for tracking them.

As part of the application to join the NFIP, each participating community was required to identify a floodplain administrator (FPA)/floodplain manager. If the person/position changes, the community should notify their State NFIP Coordinator and FEMA. Please consider who is designated to manage floodplain development and enforce compliance. The role may be completed by multiple individuals with other job responsibilities (e.g., "wearing multiple hats") as long as one person/position is ultimately accountable for the responsibilities of FPA.

### 1. Who is your FPA or floodplain manager? Please provide office/agency name, position title, and contact information.

*Ex. Dangerville (a fictional community) has had a lot of turnover recently. When the HMP team convened, they noticed their FPA had retired and asked about the replacement. Council solicited nominations and formally designated the Chief Zoning Officer as the new FPA. They also allocated funds to help the CZO attend trainings and learn about the position responsibilities. The CZO worked with the Deputy Director of Planning to reassign some projects to accommodate the FPA workload.*



Each municipality is required to maintain accessible copies of its effective Flood Insurance Rate Map (FIRM) and the most recent Flood Insurance Study (FIS) report.

### 2. Where do you keep your FIRM and FIS report?

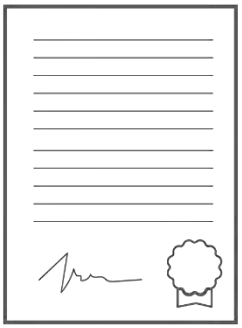
*Ex. Dangerville keeps these documents at local libraries and encourages the libraries to include digital links on their landing pages.*

*Ex. Riskburg (another fictional community) keeps their documents in the zoning office. They hold twice annual coffee break open houses where they invite the public in to view and comment on the maps. Any changes identified are cataloged to be included in future updates.*

**RESOURCE ALERT!**
Don't forget you can see your FIRM on the National Flood Hazard Layer.

Communities participating in the NFIP must also formally adopt the most recent FIRM and FIS report.

### 3. Has your community adopted? When was the adoption? Where is that information stored?



*Ex. Dangerville adopted their most recent maps after the Letter of Final Determination came out. They announced the update through news media and worked with the planning team to identify any long-term impacts and potential ordinance and administrative changes to begin reducing the risk identified in the maps. To streamline efforts, Dangerville also made and publicized a procedural change for data collection.*

The maps capture one moment in time in a dynamic community. Communities are required to track requests for map changes (for instance through Letters of Map Amendment [LOMAs] and Letters of Map Revision [LOMRs]).

### 4. How does your municipality support requests for map updates, specifically LOMAs?

Where are these tracked and by whom?

### 5. Is there a specific agency/department responsible for compiling these updates and tracking Letters of Map Change (LOMCs)?

*Ex. Riskburg tracks every requested change in an Excel spreadsheet and on a paper map. Every pending and approved LOMC is included with the date. Riskburg Planners also go into the FEMA Map Service Center to make sure the LOMCs listed are up to date.*

**RESOURCE ALERT!**
Don't forget you can see LOMCs and download FIS reports on the Map Service Center. If you have more questions about LOMCs please consider reviewing application instructions here and here, calling the FEMA Mapping and Insurance eXchange (FMIX) at 877-FEMA MAP (877-336-2627), or following up with your State NFIP Coordinator on any potential LOMC-related trainings.



Communities are ever evolving as their development, hazardous conditions, and overall risk profile change over time. Often, we track some of these changes at a project-specific scale, for instance an engineering study used to figure out if DOT should widen a culvert as part of their road improvements project, or a university looking at water flow modeling through a neighborhood. If it could potentially impact a map, the data must be shared with FEMA within 6 months.



### 6. How do you collect updated technical or scientific data and modeling? How do you share this with FEMA?

*Ex. Dangerville convenes their HMP team twice a year to review the plan and consider any community changes. They also discuss data changes and submit those to FEMA.*

The National Flood Hazard Layer is good for general planning and reference. To look at where the Special Flood Hazard Area (SFHA) overlaps with specific parcels, many states and local governments have map viewers available. The FPA should also have this information, be aware of future development and any Conditional Letters of Map Revision (CLOMRs), as well as possible flood risk areas not yet mapped. Because the edge of the floodplain can sometimes be unclear, residents may have questions about what restrictions apply to them, their property, and their structures.

### 7. Does your municipality provide assistance with local floodplain determinations? If yes, specify how.

**RESOURCE ALERT!**

State map viewers often include helpful data and layers. Check out your state's viewer:

DC DE MD PA VA WV

Access to online tools such as state map viewers, FEMA's Map Service Center, and the National Flood Hazard Layer may vary.

### 8. Do the people/agencies responsible for using these tools in your community have the access they need? Which tools does your community rely on?

*Ex. Riskburg's firewall update blocked access to the state map viewer that the Planners were using frequently. Riskburg's planners worked with their NFIP coordinator and set up a data sharing procedure, including a weekly upload of new GIS shapefiles through FTP to make sure everyone had the most up-to-date information possible.*

**ACTION OPPORTUNITY!**

FEMA looks to the community FPA and mitigation planners to collect this worksheet data to inform hazard mitigation planning with the goal of taking action. How are you using your mapping information to reduce risk in your community?

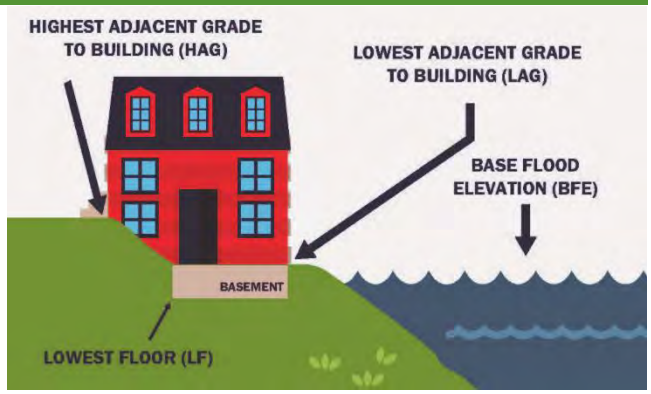
# COMMUNITY WORKSHEET

## FLOODPLAIN IDENTIFICATION AND MAPPING

| | |
|---|---|
| 1. Where do you keep your FIRM and FIS report? | |
| 2. Has your community adopted the most recent FIRM? When was the adoption? Where is that information stored? | |
| 3. Has your community updated the floodplain ordinance language to include the current FIRM and FIS? | |
| 4. Does your municipality support requests for map updates? | |
| 5. Is there a specific agency/department responsible for compiling these updates and tracking LOMCs? | |
| 6. Do you collect updated technical or scientific data and modeling? How do you share this with FEMA? | |
| 7. Does your municipality provide assistance with local floodplain determinations? If yes, specify how. | |
| 8. Who is your FPA or floodplain manager? Please provide office/agency name, position title, and contact information. | |
| 9. Do the people/agencies responsible for using these tools in your community have the access they need? Which tools does your community rely on? | |

Floodplain management requires that you understand the mapping and data side when working with the public. If you were unsure or answered no to any of these questions, how would you put a plan together to address them? Are there other partners/resources needed to be successful in that action?

# FLOODPLAIN MANAGEMENT




FPAs are expected to track how their communities manage development and change in the floodplain- for instance, through permitting and enforcement. For structures, the FPA or other designated permitting official must track the lowest floor elevation and Elevation Certificate. Individuals seeking a LOMC must provide an elevation form and lowest adjacent grade (LAG).

Each municipality is required to adopt floodplain regulations - as a standalone ordinance or specific sections in other land use and zoning ordinances. To participate in the NFIP, the ordinance language must include:

- Process guidance on permitting in the SFHA
- How Base Flood Elevation (BFE) data are gathered, analyzed, and used
- An administrative process for measuring substantial modification (damage and/or improvement)
- A process for documenting elevation (Elevation Certificates) and Substantial Damage/Improvement Calculations

### 9. Does your municipality issue permits for all proposed development in the SFHA? What office/position is responsible?

*Ex. Dangerville's permitting officer permits all new development in the community. For properties in the SFHA, the permitting officer issues a conditional permit pending approval by the Dangerville FPA. For properties in the SFHA, construction cannot begin until the FPA signs off.*

**RESOURCE ALERT!**

All Region 3 states have a "model floodplain ordinance" that communities can (and are encouraged to) use. These ordinances are regularly reviewed for clarity and compliance with NFIP and state requirements. If your regulations have not been updated in recent years, it might be time to review for needed improvements.

To track the impact of development and land changes on the water surface elevations (WSELs), communities are expected to obtain, review, and use BFE and floodway data for subdivision proposals, development greater than 50 lots or 5 acres, and otherwise as documented in the community's floodplain ordinance.

### 10. Does your municipality obtain, review, and utilize BFE and floodway data, or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres? If so, what department or office is responsible?

*Ex. Dangerville collects all applicable BFE data but their staff engineers do not have Hydrology and Hydraulics (H&H) training, so they use contractors to provide analysis of BFE and flow impacts.*

*Ex. Riskburg passed a higher standard ordinance than FEMA requires and now does not allow development to increase the water surface elevation (WSEL) at all. The Riskburg Engineers calculate each proposal's request using the same process and data to ensure there aren't discrepancies between proposals.*

### RESOURCE ALERT!

There are a lot of trainings available to help FPAs understand how to best manage their floodplains, for example, L273 - Introduction to Floodplain Management. For more courses and to find a location near you, contact your State NFIP Coordinator.



Not every structure in the SFHA will meet NFIP requirements - some may have been grandfathered in or have been granted an exception. As a tool to increase compliance with older structures, the NFIP requires communities to track when a structure is more than 50 percent damaged or improved. The community can decide how the percentage will be calculated (e.g., tax assessed, market rate, etc.). Any structure over 50-percent modified must be brought into compliance with all NFIP requirements.

**11. How does your community identify substantially improved structures? When do they intervene to ensure construction increases the resilience (e.g., building above the BFE, anchoring, using flood-resistant materials, and/or elevating utility locations to prevent water damage)?**

*Ex. Riskburg tracks substantial improvement through the permitting office. As some construction may be less obvious (e.g., a kitchen or bathroom remodel), Riskburg also conducts regular outreach to frequently used contractors.*

*Ex. Dangerville tracks substantial improvement over time- if a structure owner gets to 50-percent modified within 10 years, they must bring the structure into compliance.*

### DID YOU KNOW...?

Substantial improvement only applies to structures in the SFHA (unless the community has adopted a higher standard that says all properties are tracked this way), BUT the modification can be a home improvement project (e.g., bathroom remodel) or damage caused by any disaster – not just flooding.

After a disaster, FPAs or their designees conduct substantial damage assessments to determine if any properties are more than 50-percent damaged. The disaster may be individual, such as a house fire, or communal—widespread flooding after a hurricane.

### COMMUNITY CONNECTION

FPAs often work with their town and city councils to set standards higher than required by the NFIP. This helps their communities to be more resilient over time – for instance with a 2-foot freeboard requirement, 40-percent damaged triggers substantial damage, etc. Often when one community finds a method that works, their neighbors want to try something similar.

**12. Does your community have a coordinated process to determine substantial damage and to permit repair and improvement?** This is an area where communities can prepare in advance to implement a well-coordinated process to tag substantially damaged properties and to work with the permit office to ensure no development occurs without a permit so that codes are followed. This is also an opportunity to coordinate with planning on how to include risk reduction activities in the plan.

### Does the municipality conduct substantial damage assessments in the SFHA? Does your community have a plan for who will conduct substantial damage assessments and a procedure for assessment?

*Ex. Dangerville previously allowed home-owner-hired contractors to assess property damage after a large storm. Dangerville's FPA found that the contractors were not uniform in their assessments. This was confusing to homeowners and ultimately limited the official's ability to enforce the SD/SI requirements.*

**RESOURCE ALERT!**

In addition to the Desk Reference, FEMA also has trainings on how to develop an SI/SD administrative procedure, and a Substantial Damage Estimator (SDE) Tool that includes training. The SDE Tool allows assessors to plug in information before a disaster to expedite information sharing and SI/SD designations afterwards. The tool can be used to pre-populate door placards and letters.

Records of structures in the SFHA must be kept in perpetuity. Make sure you are storing them in a safe area (not in a potentially flooded basement) and consider making them digital and regularly back them up.



### 13. Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures? Does your municipality require Elevation Certificates? If yes, how is it documented and which office/agency/department is responsible?

*Ex. Riskburg's FPA keeps all the data for structures in the SFHA easily accessible to staff. The Code Enforcement Officers conduct multiple inspections of construction to make sure all floodplain requirements are being met – including elevation above the BFE.*

*Ex. Dangerville is a Community Rating System (CRS) class 7 community. As part of CRS, Dangerville is required to maintain ECs. Dangerville hired a CRS coordinator (separate from the FPA) to make sure ECs were up to date and also look for new opportunities to reduce risk and gain CRS points.*

### 14. How does the municipality enforce the floodplain ordinance sections? Does enforcement include monitoring compliance and taking remedial action to correct potential violations? How does the municipality address SI/SD violations?

*Ex. Dangerville set up a permitting office tent next to the neighborhood damaged by a tornado. Residents and contractors coming in and out of the damage area could stop by the permitting tent for information and/or expedited processing of permits. Because the neighborhood overlapped with the SFHA, the FPA staffed the tent too.*



Each state/commonwealth is required to track how well communities participating in the NFIP are monitoring development and/or changes in/to the SFHA. FEMA then assesses how well the state is administering their NFIP program oversight. At the community level, state and federal partners may reach out to conduct tours of the SFHA, review permitting documentation, etc. When FEMA and/or the State NFIP Coordinator conduct these reviews of community compliance with the NFIP it is often called a Community Assistance Visit and/or Community Assistance Contact. If something is found to be out of compliance with the NFIP, the state and/or FEMA will document it and then work with the community to identify corrective actions to rectify the issue.

### 15. Has your municipality had a Community Assistance Visit? If so, are there any corrective actions remaining to complete (the process?), or have the actions been completed and remedied to the greatest extent possible? How does your community track open and closed actions, and when closed, what was the activity that led to closure?

FEMA encourages communities to exceed the requirements identified in the NFIP for land use, development, permitting, and enforcement. Examples include:

- Higher freeboard (e.g., 24 inches above the BFE instead of at the BFE or BFE plus 18 inches)
- Prohibition of production or storage of chemicals in the SFHA
- Prohibition of fill in the floodplain
- Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in the SFHA
- Prohibition of certain types of residential housing (manufactured homes) in the SFHA
- Floodplain ordinances that prohibit any new residential or nonresidential structures in the SFHA

### 16. Does your municipality have higher ordinance standards than the NFIP? Has the municipality considered adopting regulations that extend beyond the minimum requirements? Please describe the higher standards and where they are documented.

*Ex. Dangerville does not have a mapped floodway but has decided not to allow any development that increases the BFE. This is a higher standard than the NFIP, which would allow up to 1 foot of incremental increase and is hard to monitor.*

Local Officials from municipalities participating in the NFIP are eligible for state and FEMA trainings on floodplain management.

### 17. Are any local officials/departments in your community interested in a training? What topics relate most to your community?

*Ex. Riskburg hired three new code enforcement officers. To help them get up to speed on floodplain management, the county sent the officers to the L273 Introduction to Floodplain Management course. The officers were then asked to review Riskburg's documentation to make sure everything was still in compliance.*





**ACTION OPPORTUNITY!**

How you manage development in or near the floodplain directly impacts your community's level of risk. How are you using your floodplain management activities to reduce risk in your community?

# COMMUNITY WORKSHEET

## FLOODPLAIN MANAGEMENT

| | |
|---|---|
| 9. Does your municipality issue permits for all proposed development in the SFHA? What office/ position is responsible? | |
| 10. Does your municipality require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres? If so, what department or office is responsible? | |
| 11. How does your community identify substantially improved structures? When do they intervene? | |
| 12. Does your community have a coordinated process to determine substantial damage and to permit repair and improvement? Does the municipality conduct substantial damage assessments in the SFHA? Does your community have a plan for who will conduct substantial damage assessments and a procedure for assessment? | |
| 13. Does your municipality require Elevation Certificates for new or substantially improved structures? If yes, how is it documented and which office/agency/department is responsible? | |
| 14. How does the municipality enforce the floodplain ordinance sections? How does the municipality address SI/SD violations? | |
| 15. Has your municipality had a Community Assistance Visit? If so, were any corrective actions required? | |
| 16. Does your municipality have or is considering higher ordinance standards than the NFIP? Please describe the higher standards and where they are documented. | |
| 17. Are any local officials/departments in your community interested in a training? What topics relate most to your community? | |

Floodplain management has many parts. If you were unsure or answered no to any of these questions, how would you put a plan together to address them? Are there other partners/resources needed to be successful in that action?

# FLOOD INSURANCE

One of the benefits of participating in the NFIP is access to flood insurance. Flooding is the costliest and most common natural disaster in the U.S., claiming lives, inflicting financial losses on households and businesses, and straining the government agencies that provide flood response and relief. Flooding occurs from many types of events – and in some parts of our Region, sunny day flooding is occurring from the impacts of sea level rise, high tides, and subsidence. Flood Insurance rates may vary by flood zone, elevation difference, building/occupancy type, construction date, and coverage limits/deductibles.

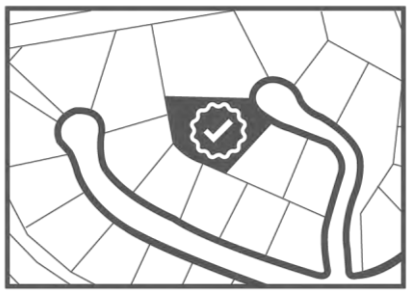
After a flood, it can be difficult for a community (residents and businesses) to recover. In fact, 90 percent of businesses fail within a year if they do not reopen within the first 5 days following a disaster. Access to flood insurance can help decrease the financial impact.



## 18. How does the municipality educate community members about the availability and value of flood insurance?

*Ex. Riskburg maps a buffer area around the SFHA and encourages structure owners in the buffer area to consider buying flood insurance because "water doesn't follow the lines on a map."*

When the FIRM is updated (for a watershed-wide study, specific section, or LOMC), the known risk for some property owners may change, and their insurance options may change too. For example, someone newly mapped into the SFHA may be required to obtain flood insurance when applying for a mortgage. Someone mapped out of the SFHA may be eligible for a reduced rate flood insurance policy.



## 19. Does the municipality inform community property owners about changes to the FIRM that would impact their insurance rates?

*Ex. Dangerville recently conducted a culvert analysis and submitted data to update one map panel. They found 30 homes would be at lower risk than previously identified. Once mapped out of the SFHA, Dangerville officials notified residents of the need to contact their insurance agents and to maintain flood insurance at reduced rates.*

Flood insurance coverage and what is eligible can be confusing. The NFIP, for instance, offers an Increased Cost of Compliance (ICC) insurance rider (up to $30,000) for mitigation activities that are required by the municipal ordinance if the structure is substantially damaged. This will bring a building built in the SFHA before publication of the community's first FIRM into compliance with local regulations, reducing future damages and lowering flood insurance rates.

## 20. How does the municipality provide general assistance to community members regarding flood insurance issues?

*Ex. After a large flood damaged 20 homes in Riskburg, code enforcement officers were tasked to conduct outreach and see if any homeowners were interested in elevating their homes. 10 homeowners signed up. Riskburg was able to help the homeowners decrease their costs through combining FEMA grants, ICC, state grants, and the homeowner's insurance payouts.*

**COMMUNICATIONS ALERT!**

If you are looking to share your messages about flood insurance broadly, it may help to consider the professional and trade groups impacted - for instance, real estate brokers, bankers, and others involved in the insurance process. Some communities convene these groups to make sure they are informed about the most up-to-date FEMA maps and guidance.

When considering the municipality's overall risk to flooding, it is important to track structures in the SFHA (including those with repetitive loss) and identify a strategy to reduce future loss. Many communities maintain this strategy in their hazard mitigation plan as part of the mitigation strategy and regularly check in on implementation of each action.

### 21. Does the municipality keep track of the number of residential and non-residential structures in the SFHA? How many structures are in the SFHA in your community?

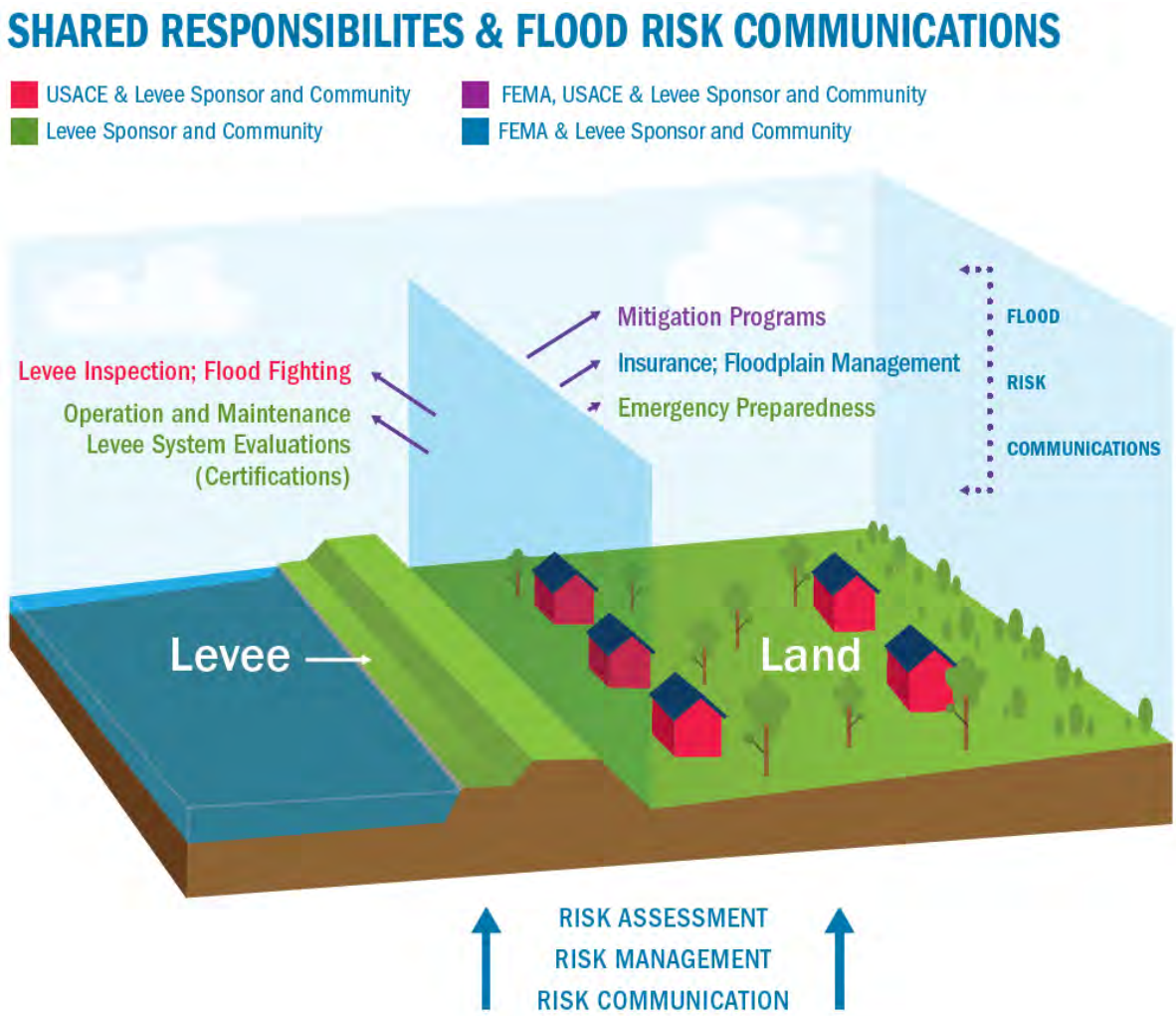
*Ex. Dangerville Planners marked the telephone poles along the SFHA edges so that residents knew when they were entering and leaving high-risk flood areas. The markings also helped the planners collect data on the number of structures in the SFHA. Dangerville planners tracked residential and non-residential structures for consideration in their risk assessment and mitigation strategy. They also reported this data to the state annually for the state hazard mitigation plan and mitigation actions. Dangerville analyzed flood damage to these structures and considered potential damage costs in their cost-benefit analysis for which mitigation actions to prioritize.*

**RESOURCE ALERT!**

The U.S. Army Corps of Engineers (USACE), in partnership with FEMA, tracks the nation's levees in the National Levee Database (NLD) https://levees.sec.usace.army.mil/#/



Levees may reduce the risk of flooding and protect structures, giving them a significant reduction in insurance rates. Although levees may reduce the risk of flooding, that reduction depends on the levee's condition and height. FEMA does not design, certify, own, operate, maintain, or inspect levee systems. FEMA does identify, analyze, and map the flood hazards associated with levees, as well as depict accreditation on FIRMs for those levee systems for which the appropriate certification documents have been submitted.




Levees that are known to USACE can be found in the NLD. This includes USACE-built levees, state and local levees, and some private levees. This site also tracks whether the levee has been accredited by FEMA.

While owners with structures behind an accredited levee are not required to buy flood insurance, it is important that they understand the risks to being near a levee and the potential for flooding after high water events (such as a large rainstorm or hurricane) when water levels exceed the levee's design height. FPAs and emergency managers in communities with levees should regularly conduct outreach and educate residents on their remaining risk.

## 22. Does the municipality have any levees or levee systems in its jurisdiction?

*Ex. Riskburg does routine operation and maintenance to the levees in its jurisdiction year-round. Riskburg looks at inspection reports from USACE periodically to ensure proper maintenance continues throughout the year. FEMA, USACE, and Riskburg engineers monitor the NLD to make sure any changes are updated and check for any technical assistance requests. Riskburg follows a similar process reviewing state inspections to meet state requirements as well.*

Most levees designed and built by USACE have agreements with the local municipalities (non-federal sponsors) to operate and maintain the levee. To assist the municipalities in this and to ensure that the levees operate correctly, the USACE has periodic inspections which review the functioning of the levee and recommend fixes, as needed. For flood insurance purposes, FEMA requires a review of the levee to ensure that it has adequate freeboard (top of the levee must be 3 feet above the BFE) and that the levee system operates as designed. If the levee does not meet the requirements, the "Protected by Levee" status on the FIRM is removed and the areas behind the levee will have a mandatory flood insurance purchase requirement.

Currently, FEMA lists Accredited Levees (those that meet the criteria to operate effectively), Provisionally Accredited (those that are in the process of submitting their documentation), and non-Accredited levees. You can find the status of your levee in the NLD.

## 23. Is the levee or levee system accredited by FEMA?

*Ex. Dangerville officials encouraged residents to maintain flood insurance after the levee was re-certified. While they are "Protected by Levee" on the FIRM, there is still risk. When levees do fail, they often fail catastrophically, and the damage may be more significant than it would have been without a levee.*

## 24. Is the levee or levee system a Provisionally Accredited Levee (PAL)?

*Ex. Dangerville's new FPA checks their FIRM to determine whether a PAL note is present. The FPA cross checks the map panel and the NLD, and looks at the expiration date for any PAL note. If it is expired, the FPA must work to find/ develop a re-certification package. An engineering firm is then able to certify that the levee meets regulations. If FEMA agrees with the certification, the levee will be accredited.*

The non-federal sponsor of the levee is responsible for the operation and maintenance of their levee as well as funding that ongoing work. Non-federal sponsors participating in the USACE Rehabilitation and Inspection Program benefit from the periodic inspections, technical assistance, and USACE financial support if their levee is damaged as a result of flooding.



## 25. Is the levee or levee system part of the USACE Rehabilitation and Inspection Program (RIP)?

*Ex. Riskburg's engineers check the NLD to see if the levees are active in the RIP. If not, the FPA must work to determine why not and what must be addressed to be reinstated in the program. The engineers work with the mitigation planners to consider ways to improve the levees and reduce risk nearby. Riskburg also provides the public with regular outreach to ensure the public is aware of the risks behind the levee.*

When thinking about large-scale structures that may impact your community's risk, please also consider dams. How are you collecting data about dams in your community and ranking them for risk? Risk might be ranked by likelihood of dam failure, number of people and critical infrastructure that may be impacted by a dam breach, etc. Each agency you work with may have different designations too, from Major Dams to High Hazard Dams, etc.

If you haven't reached out yet, your state's Dam Safety Officer (DSO) may have helpful information about your dams and those up and downstream from you.

If you have a dam improvement project, have you considered applying for a FEMA High Hazard Potential Dam grant?

## 26. Does your community have any Major Dams or High Hazard Dams, and if so, have you applied for FEMA's High Hazard Potential Dam grant?

*Ex. Riskburg sends a list of dams and their classification (high hazard, major, and otherwise) to the state DSO annually. The DSO coordinates with the State Hazard Mitigation Officer (SHMO) to ensure that dam risk information is captured in Riskburg's local HMP (via amendment or during the next HMP update). The SHMO also adds Riskburg's data into the state HMP when applicable. The DSO and SHMO follow up with Riskburg engineers on any changes and check on any need for technical assistance. Last year, Riskburg used a High Hazard Potential Dam grant to fund a mitigation project to modify the dam. The modification included landscaping that aligned with the comprehensive plan goals for the area.*



### ACTION OPPORTUNITY!

Insurance coverage can be complicated – what are your local officials, insurance agents, real estate brokers, and other leaders in your community doing to make sure home and business owners understand what is available to them?



# COMMUNITY WORKSHEET

## FLOOD INSURANCE

| | |
|---|---|
| 18. How does the municipality educate community members about the availability and value of flood insurance? | |
| 19. Does the municipality inform community property owners about changes to the FIRM that would impact their insurance rates? | |
| 20. How does the municipality provide general assistance to community members regarding insurance issues? | |
| 21. Does the municipality keep track of the number of residential and non-residential structures in the SFHA? How many structures are in the SFHA in your community? | |
| 22. Does the municipality have any levees or levee systems in its jurisdiction? | |
| 23. Is the levee or levee system certified and accredited? | |
| 24. Is the levee or levee system a Provisionally Accredited Levee (PAL)? | |
| 25. Is the levee or levee system part of the USACE Rehabilitation and Inspection Program? | |
| 26. Does your community have any Major Dams or High Hazard Dams, and if so, have you applied for FEMA's High Hazard Potential Dam grant? | |

Flood risk communication to the public is vital for a community to be truly resilient. Understanding what, where, and how a disaster may affect your residents is the key. If you were unsure or answered no to any of these questions, how would you put a plan together to address them? Are there other partners/resources needed to be successful in that action?

### NEXT STEPS

- What are your short- and long-term action items?
- If you need help identifying trainings or other resources, consider contacting your State Hazard Mitigation Officer or State NFIP Coordinator.

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | |
| **Name and Title:** | |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | **NC**=No Change **I**=Increase **D**=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | | |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | | |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | | |
| Flooding (N) | 4 | 2 | 1 | 1 | 1 | 2.2 | | |
| Epidemic/Pandemic (N) | 1 | 2 | 2 | 3 | 3 | 1.9 | | |

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 1 | 1 | 3 | 3 | 3 | 1.8 | | |
| Utility Interruption (H) | 1 | 2 | 1 | 3 | 1 | 1.5 | | |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Infestation/Invasive Species (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Civil Disturbance (H)* | | | | | | | | |
| Cyber Terrorism (H)* | | | | | | | | |
| Opioid Addiction& Response (H)* | | | | | | | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | **1** | **30%** |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | **2** | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | **3** | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | **4** | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | **1** | **30%** |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | **2** | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | **3** | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | **4** | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | **1** | **20%** |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | **2** | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | **3** | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | **4** | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | **1** | **10%** |
| | **12 TO 24 HRS** | SELF-DEFINED | | **2** | |
| | **6 TO 12 HRS** | SELF-DEFINED | | **3** | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | **4** | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | **1** | **10%** |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | **2** | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | **3** | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | **4** | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

☐ Expansive Soils

### *Human-made*

☐ Building and Structure Collapse

☐ Civil Disturbance

☐ Cyber Terrorism

☐ Disorientation

☐ Drowning

☐ Mass Food/Animal Feed Contamination

☐ Nuclear Incident

☐ Opioid Addiction & Response

☐ Urban Fire and Explosion

☐ War and Criminal Activity

☐ Envtl. Hazard – Coal Mining

☐ Envtl. Hazard – Gas and Liquid Pipelines

☐ Envtl. Hazard – Conventional Oil & Gas Wells

☐ Envtl. Hazard – Unconventional Oil & Gas Wells

**Other Comments:**

# FEMA REGION III
# HAZARD MITIGATION PLAN GUIDANCE
## Community Capability Assessment Worksheet

**JURISDICTION:** _____

## PLANNING AND REGULATORY

Planning and regulatory capabilities are plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

### PLANS AND POLICIES

Indicate if the jurisdiction has the following plans or policies in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider development of the plan/policy as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the plan/policy address hazard impacts? If so, how? For example, does the plan/policy include limitations to building in areas of risk, noted by the hazard mitigation plan? If so, what are those restrictions?
- Does the plan/policy identify projects that could be included in the mitigation strategy?
- Can the plan/policy be used to implement mitigation actions?
- How can the plan/policy be expanded and improved to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific plans or policies.

| **COMPREHENSIVE/MASTER LAND USE PLAN** | Overall policy guide for future community growth and development. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

JURISDICTION: _____

## PLANS AND POLICIES (CONTINUED)

| CLIMATE CHANGE ADAPTATION PLAN | An action plan and vulnerability assessment across a broad range of government services to anticipate, plan for, increase awareness of, and build momentum to address and adapt to a changing climate. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

| EMERGENCY OPERATIONS PLAN | Organizational procedures and processes to respond to and recover from an emergency. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

JURISDICTION: _____

## PLANS AND POLICIES (CONTINUED)

| STREAMBANK BUFFER PROTECTION PROGRAM | A combination of conservation easements, vegetation management, and landscape restoration of vegetative buffers for streams and waterways to attenuate stormwater runoff quantity and quality issues, decrease streambank erosion, and increase habitat value of the waterway. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

Other plans and policies that should be included in the capability assessment for each participating jurisdiction:

- Brownfields Redevelopment Program
- Coastal Zone Management Program
- National Flood Insurance Program (NFIP) Community Rating System
- Community Wildfire Protection Plan
- Continuity of Operations Plan
- Disaster Recovery Plan
- Economic Development Plan
- Flood Mitigation Plan
- Land acquisition for open space and public recreation uses
- Transportation Plan
- Stormwater Management Plan

**JURISDICTION:** _____

## CODES AND ORDINANCES

Indicate if the jurisdiction has the following codes or ordinances in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider enactment of the code/ordinance as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the code/ordinance address hazard impacts? If so, how?
- Is the code/ordinance adequately administered and enforced? For example, are there personnel dedicated to enforcement? Are the procedures for addressing violations clear?
- How many times has the code/ordinance been applied to enforce restrictions in hazard areas?
- Is the code/ordinance an effective measure for reducing hazard impacts?
- How can the code/ordinance be improved to reduce risk through the use of higher standards?

In addition, see Attachment A for additional questions or considerations for specific codes or ordinances.

| **BUILDING CODE** | Minimum requirements that must be met in the construction and maintenance of buildings to ensure public health and safety. |
|---|---|
| Is this Code or Ordinance in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

JURISDICTION: _____

## CODES AND ORDINANCES (CONTINUED)

| FLOODPLAIN MANAGEMENT ORDINANCE/NFIP COMPLIANCE | The minimum floodplain management regulations for compliance with the NFIP that must be met by participating communities once FEMA provides flood hazard information. This is to ensure participating communities consider flood hazards, to the extent that they are known, in all official actions relating to land management and use. |
|---|---|
| Is this Code or Ordinance in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

Other codes and ordinances that should be included in the capability assessment for each participating jurisdiction:

- Fire department inspections
- International Property Maintenance Code
- Oher hazard-specific ordinances (stormwater, steep slope, and wildfire)
- Site plan development review ordinance
- Subdivision development review ordinance
- Zoning ordinance

JURISDICTION: _____

# ADMINISTRATIVE AND TECHNICAL

Administrative and technical capabilities include boards, commissions, departments, staff and consulting services, along with the related skills and tools, that can be used for mitigation planning and the implementation of specific mitigation actions.

*Note: For smaller jurisdictions without local resources, resources at the next level government may be able to provide administrative, technical, and/or financial assistance.*

## ADMINISTRATIVE

Indicate if the jurisdiction has the following boards, commissions, or departments in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider forming the board/commission/department as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the board / commission / department address hazard impacts? If so, how? For example, is the risk assessment of the approved Hazard Mitigation Plan (HMP) consulted when this board, commission or department considers projects or activities? If so, what is the process for review?
- Are staffing numbers and training adequate to carry out the mission of the board/commission/department?
- Does the board/commission/department identify projects that could be included in the mitigation strategy?
- Can the board/commission/department be engaged to implement mitigation actions?
- How can the board/commission/department be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **ENGINEERING DEPARTMENT** | An in-house department providing civil engineering capability. |
|---|---|
| Is this Board, Commission, or Department in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Point-of-Contact: | |
| Meeting Schedule: | |
| Relation to Hazard Mitigation: | |

JURISDICTION: _____

## ADMINISTRATIVE (CONTINUED)

| CODE ENFORCEMENT DEPARTMENT | An in-house department responsible for evaluating private properties and public grounds against local codes. |
|---|---|
| Is this Board, Commission, or Department in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Point-of-Contact: | |
| Meeting Schedule: | |
| Relation to Hazard Mitigation: | |

Other administrative boards, commissions, or departments that should be included in the capability assessment for each participating jurisdiction:

- Board of Education
- Emergency Management
- Maintenance Department
- Mitigation Implementation Team
- Mutual aid agreements
- Planning Commission/Zoning Board
- Public Utility Board(s)
- Public Works Department
- Purchasing Department

JURISDICTION: _____

## TECHNICAL

Indicate if the jurisdiction has the following staff positions in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider adding the position as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the staff position description include addressing hazard impacts and/or mitigation? If so, how and is staff trained on relevant issues related to hazard impacts and/or mitigation?
- What training and/or certification is required of the staff position?
- What additional training and/or certification does the current staff need?
- How can the staff be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **CHIEF BUILDING OFFICER** | The in-house or contracted code enforcement staff responsible for evaluating private properties and public grounds against local codes, answering citizen questions about the codes, and issuing citations for code violations. |
|---|---|
| Is this Staff Position in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☐ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | |
| Current Position Holder: | |
| Length of Employment in this Position: | |
| Relation to Hazard Mitigation: | |

JURISDICTION: _____

## TECHNICAL (CONTINUED)

| CIVIL ENGINEER - CONSTRUCTION PROJECT MANAGEMENT | The in-house or contracted engineering staff responsible for managing construction projects and meeting budget and schedule constraints. |
|---|---|
| Is this Staff Position in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☐ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | |
| Current Position Holder: | |
| Length of Employment in this Position: | |
| Relation to Hazard Mitigation: | |

| GRANT ADMINISTRATOR | The in-house or contracted staff familiar with and capable of successfully handling FEMA Hazard Mitigation Assistance (HMA) grant program requirements consistent with the Code of Federal Regulations, as well as non-FEMA funding sources. |
|---|---|
| Is this Staff Position in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☐ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | |
| Current Position Holder: | |
| Length of Employment in this Position: | |
| Relation to Hazard Mitigation: | |

JURISDICTION: _____

## TECHNICAL (CONTINUED)

| GRANT WRITER | The in-house or contracted staff familiar with and capable of successfully applying for FEMA HMA grants, as well as non-FEMA funding sources. |
|---|---|
| Is this Staff Position in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☐ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | |
| Current Position Holder: | |
| Length of Employment in this Position: | |
| Relation to Hazard Mitigation: | |

Other technical staff positions that should be included in the capability assessment for each participating jurisdiction:

- Business Administrator
- Chief Financial Officer
- Civil Engineer – Design
- Civil Engineer – Inspections
- Clerk
- Community Planner
- Emergency Manager
- Floodplain Administrator
- GIS Coordinator (hazard and community asset data and information management, Hazus)

**JURISDICTION:** _____

## FINANCIAL

Financial capabilities include access to or eligibility to use funding resources for hazard mitigation.

Indicate if the jurisdiction has access and/or eligibility for the following funding resources.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider pursuing the funding resource as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the funding resource been used in the past for hazard mitigation? If so, for what type of activities?
- Could the resource be used to fund future mitigation actions?
- How can the funding resource be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **CAPITAL IMPROVEMENTS PROGRAM** | A short-range plan, usually 4 to 10 years, which identifies capital projects and equipment purchases, provides a planning schedule and identifies options for financing the plan. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

JURISDICTION: _____

## FINANCIAL (CONTINUED)

| FUNDING PROGRAMS – FEDERAL (NON-FEMA) | Grant programs administered by Federal agencies other than FEMA with potential to fund mitigation actions. For example, the U.S. Department of Housing and Urban Development Community Development Block Grants, U.S. Department of Energy, and the U.S. Department of Transportation, etc. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

| UTILITY FEES FOR STORMWATER, WATER, SEWER, GAS, OR ELECTRIC SERVICES | Fee levied by the jurisdiction, in addition to cost of service provided, for use in funding related capital programs, such as non-Federal shares for mitigation actions. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

Other funding resources that should be included in the capability assessment for each participating jurisdiction:

- Community Development Block Grant
- FEMA – Hazard Mitigation Assistance
- FEMA – Public Assistance 406 Mitigation
- Funding programs – State
- Funding programs – Philanthropic
- General obligation bonds and/or special tax bonds
- Impact fees for new development
- Tax levies for specific purposes

**JURISDICTION:** _____

# EDUCATION AND OUTREACH

Education and outreach capabilities include programs and methods already in place that could be used to support implementation of mitigation actions and communicate hazard-related information.

Indicate if the jurisdiction has the following programs or methods in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider developing the program or method as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the program/method been used in the past for hazard mitigation? If so, for what type of activities?
- Could the program/method be used to support future mitigation actions?
- How can the program/method be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **STORMREADY CERTIFICATION** | National Weather Service program that helps arm America's communities with communication and safety skills needed to save lives and property, before, during and after an event. |
|---|---|
| Is this Program/Method in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

JURISDICTION: _____

## EDUCATION AND OUTREACH (CONTINUED)

| SEASONAL EMERGENCY MANAGEMENT AND MITIGATION OUTREACH | Seasonal outreach. For example, in advance of hurricane season or in anticipation of winter weather, including information regarding preparedness and mitigation measures that individuals can undertake for their own risk reduction. |
|---|---|
| Is this Program/Method in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

Other programs or methods that should be included in the capability assessment for each participating jurisdiction:

- Firewise USA certification
- Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.
- Natural disaster or safety related school programs
- Ongoing public education or information program (e.g., Environmental Education, Fire Safety, Household Preparedness, Responsible Water Use, etc.)
- Public-private partnership initiatives addressing disaster-related issues

JURISDICTION: _____

# ATTACHMENT A

Attachment A includes the following additional guidance for assessment of specific capabilities:

- Potential agencies and organizations to contact for information
- Additional questions or considerations

## PLANNING AND REGULATORY

### PLANS AND POLICIES

| PLAN/POLICY | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Comprehensive/ Master Land Use Plan | Planning or Zoning Departments | ▫ Does the plan integrate hazard profile information from the current approved HMP into development suitability analysis?<br>▫ Is the plan effectively reducing or eliminating development in known hazard areas, i.e., is the rate of development in the Special Flood Hazard Area lower, the same, or higher?<br>▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP? |
| Climate Change Adaptation Plan | Planning Department | ▫ Does the plan include future hazard vulnerability projections? If so, are these projections included in the current approved HMP risk assessment?<br>▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP? |
| Emergency Operations Plan (EOP) | Emergency Management Department | ▫ Does the EOP address all hazards identified in the current approved HMP?<br>▫ Does the EOP address any hazards that are not included in the current approved HMP? If so, are these hazards for which mitigation actions might be appropriate to consider?<br>▫ Does the EOP identify obstacles or problems for response and recovery operations that could be alleviated entirely or in part through mitigation, e.g., limited access to floodprone areas due to transportation infrastructure limitations? |
| Streambank Buffer Protection Program | Local or regional natural resources conservation non-profit organizations | ▫ Does the program reference problem areas identified in the current approved HMP?<br>▫ Does the program identify problem areas that should be referenced in the HMP?<br>▫ Is acreage in the program increasing year to year? |

### CODES AND ORDINANCES

| CODE/ORDINANCE | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Building Code | Code Enforcement or Engineering Departments | ▫ What is the community's Building Code Effectiveness Grading Schedule Score? |
| Floodplain Ordinance/NFIP Compliance | Code Enforcement or Engineering Departments | ▫ What is the community's current status in the NFIP?<br>▫ Does the ordinance include higher standards than minimum requirements of the NFIP, e.g., additional freeboard above the Base Flood Elevation? |

# Community Capability Assessment Worksheet

JURISDICTION: _____

## ADMINISTRATIVE AND TECHNICAL

### ADMINISTRATIVE

| BOARD/COMMISSION/ DEPARTMENT | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Engineering Department | Engineering or Public Works Departments | ▫ Does the department have ability and availability for design, engineering, project scoping (per HMA or other grant program requirements) and construction project management for mitigation actions included in the current approved HMP and/or proposed for plan update? |
| Code Enforcement Department | Code Enforcement or Engineering Departments | ▫ Are all ordinances and codes related to hazard mitigation (e.g., building code, floodplain management ordinance, zoning), enforced by the same department? If not, what are the departments and their respective responsibilities and are compliance reviews and enforcement activities coordinated between departments?<br>▫ Does the department have ability and availability to enforce all ordinances and codes related to hazard mitigation? |

### TECHNICAL

| STAFF POSITION | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Chief Building Officer | Code Enforcement or Engineering Departments | ▫ How does the Chief Building Officer position interact with other code and ordinance enforcement officials with hazard mitigation-related responsibilities, e.g., Floodplain Administrator? |
| Civil Engineer - Construction Project Management | Engineering Department | ▫ Have previous construction projects been completed, meeting budget and schedule constraints? |
| Grant Administrator | Finance or Emergency Management Departments | ▫ Does the Grant Administrator have experience with FEMA HMA grants administration? If so, have previous HMA grant administration experiences been completed successfully?<br>▫ Does the Grant Administrator have experience with other Federal non-FEMA grants administration used for mitigation purposes? If so, what are the grants and was the administration of the grants completed successfully? |
| Grant Writer | Finance or Emergency Management Departments | ▫ Does the grant writer have experience with FEMA HMA grants applications? Have previous HMA grant applications been awarded? Is so, what kinds of projects were funded?<br>▫ Does the grant writer have experience with other Federal non-FEMA grants applications used for mitigation purposes? Have previous non-FEMA grant applications been awarded? If so, what were the grants and what kinds of projects were funded? |

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## FINANCIAL

| FUNDING RESOURCE | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Capital Improvement Program | Administration or Financial Departments | ▫ What is the process and timeframe for adding projects to the Critical Infrastructure Protection? |
| Funding programs – Federal (non-FEMA) | Finance or Emergency Management Departments | ▫ What were the grants, and what kinds of projects were funded? |
| Utility fees for stormwater, water, sewer, gas, or electric services | Finance or Public Works Departments | ▫ How much money is available annually to support implementation of hazard mitigation actions? Is that level of funding expected to decrease, stay the same, or increase in the next five years?<br>▫ What kinds of projects have been funded in this manner? |

## EDUCATION AND OUTREACH

| PROGRAM/METHOD | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| StormReady Certification | Emergency Management or Public Information Departments | ▫ How long has the community been certified?<br>▫ Have surveys been conducted to determine the effectiveness of the program? If so, what were the results? |
| Seasonal Emergency Management and Mitigation Outreach | Emergency Management or Public Information Departments | ▫ Is awareness of potential hazard impacts increasing year to year?<br>▫ Are individuals and businesses taking necessary precautions in advance of events? |

## Appendix C-2 Morgan County Kick-off Meeting Materials (May 4, 2021)

## Welt, Angela

**Subject:** Berkeley and Morgan County Hazard Mitigation Plan (MJHMP) Update Kickoff Meeting

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**From:** Matthew Pennington <mpennington@region9wv.com>
**Sent:** Tuesday, April 13, 2021 4:16:47 PM
**To:** R Davis <rdavis@townofpawpaw.com>; Jennifer Wishmyer <jobrien@region9wv.com>; Rachel Snavely <rsnavely@region9wv.com>; adavis@berkeleywv.org <adavis@berkeleywv.org>; bill.g.kearns@wv.gov <bill.g.kearns@wv.gov>; Mark S. Baldwin <MBaldwin@cityofmartinsburg.org>; James Barnhart <jbarnhart@berkeleywv.org>; ceg511@yahoo.com <ceg511@yahoo.com>; bclark@morgancountywv.gov <bclark@morgancountywv.gov>; Randy Lilly <rlilly@berkeleywv.org>; hjohnson@cityofmartinsburg.org <hjohnson@cityofmartinsburg.org>; Dick Myers <dmyers@morgancountywv.gov>; Stefanie Allemong <sallemong@morgancountywv.gov>; jennifer.r.schetrompf@wv.gov <jennifer.r.schetrompf@wv.gov>; Scott Merki <asst5@aol.com>; 'Jim Ouellet' <jouellet@berkeleywater.org>; Curtis Keller <cbkeller@bcpssd.com>; Zach Walburn <zwalburn@bcpssd.com>; Doug Copenhaver <dcopenhaver@berkeleywv.org>; Eddie Gochenour <egochenour@berkeleywv.org>; Heather Williams <hwilliams@berkeleywv.org>; bross@berkeleywv.org <bross@berkeleywv.org>; bcostello@berkeleywv.org <bcostello@berkeleywv.org>; cwinebrenner@bceaa.com <cwinebrenner@bceaa.com>; jswisher@berkeleywv.org <jswisher@berkeleywv.org>; Mark Schiavone <berkeley@wvfp.org>; gsrhoe@comcast.net <gsrhoe@comcast.net>; kpetrucci@cityofmartinsburg.org <kpetrucci@cityofmartinsburg.org>; Jared Tomlin <JTomlin@cityofmartinsburg.org>; jdhummingbird@martinsburgfire.org <jdhummingbird@martinsburgfire.org>; ablake@cityofmartinsburg.org <ablake@cityofmartinsburg.org>; g_swartwood@martinsburgpd.org <g_swartwood@martinsburgpd.org>; jkelly@cityofmartinsburg.org <jkelly@cityofmartinsburg.org>; Jeff Wilkerson <JWilkerson@cityofmartinsburg.org>; Ron Jainniney <Water.Town@hotmail.com>; jwhitacre@berkeleywv.org <jwhitacre@berkeleywv.org>; Steven DeRidder <sderidder@berkeleywater.org>; nharmon@berkeleywv.org <nharmon@berkeleywv.org>
**Subject:** Berkeley and Morgan County Hazard Mitigation Plan (MJHMP) Update Kickoff Meeting

Good Afternoon,

The Eastern Panhandle Regional Planning & Development Council (Region 9) invites you to participate in a kick-off meeting for the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) 2022 Update for Berkeley and Morgan County.

The Federal Emergency Management Agency (FEMA) and the West Virginia Department of Homeland Security and Emergency Management (WV DHSEM) requires this plan to be eligible for federal hazard mitigation funding and technical assistance programs.

Region 9 is scheduling separate project kick-off meetings with each Steering Committee representing Morgan and Berkeley counties. The meetings will be on **Tuesday May 4, 2021** at the following locations and times:

**Morgan County Steering Committee**

**Location:** Blue Ridge Community and Technical College

The Pines Opportunity Center

109 War Memorial Dr,

Berkeley Springs, WV 25411

**Time:** 9:00 am – 11:00 am

**Berkeley County Steering Committee**

**Location:** Berkeley County Sheriff's Department

Training Room

510 S Raleigh Street

Martinsburg, WV 25401

**Time:** 1:00 pm – 3:00 pm

Please respond to the following SurveyMonkey link to indicate whether you would prefer to attend the meeting in-person or virtually via Zoom:

https://www.surveymonkey.com/r/52MWG35

The kick-off meeting will be facilitated by our technical consultant Michael Baker International and will address the project scope of work, schedule, roles and responsibilities, and overall requirements and outcomes. The kick-off meeting will be the first of a series of meetings that will be held throughout 2021 for the purpose of updating the MJHMP prior to expiration of the current plan in February 2022. Your participation is extremely important and critical to the planning process. Additionally, please feel free to forward this invitation to other appropriate members of your organization or agency.

Region 9 extends our sincere thanks and appreciation for your time and active participation in the planning process. If you would like to access the current 2017 MJHMP prior to the meeting , please visit http://www.region9wv.com/plans---studies.html

Sincerely,

Region 9 Staff

# MEETING AGENDA

| | |
|---|---|
| Date: | Tuesday May 4, 2021 |
| Time: | 9:00 – 11:00 AM |
| Location: | Blue Ridge Community and Technical College; The Pines Opportunity Center; 109 War Memorial Dr, Berkeley Springs, WV 25411<br><br>Zoom Meeting \| Meeting ID: 871 2114 5932 |
| Meeting Name: | Region 9 Multi-Jurisdictional Hazard Mitigation Plan 2022 Update Kick-Off Meeting |

| Topic: | Time: |
|---|---|
| 1. Welcome and Introductions<br>o Morgan County Steering Committee<br>o Eastern Panhandle Regional Planning and Development Council (Region 9)<br>o Michael Baker International | 9:00 AM |
| 2. Project Overview | 9:05 AM |
| 3. Hazard Mitigation Planning Process<br>o Community Profile<br>o Planning Process<br>o Risk Assessment<br>▪ Exercise: Hazard-Risk Evaluation<br>o Capability Assessment<br>▪ Exercise: Capability Assessment Survey<br>▪ Exercise: NFIP Survey<br>o Mitigation Strategy<br>o Plan Maintenance | 9:25 AM |
| 4. Participation and Engagement | 10:20 AM |
| 5. Next Steps and Action Items | 10:50 AM |

Visit the project website at http://www.region9wv.com/plans---studies.html

*Questions? Comments? Contact:*

*Rachel Snavely rsnavely@region9wv.com (304) 263-1743*

*Troy Truax Troy.Truax@mbakerintl.com, (717) 213-6241*

Region 9

Michael Baker INTERNATIONAL

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

# Kick-Off Meeting – Morgan County

May 4, 2021 | 9:00am – 11:00am

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Abe, Darlene | Town of Paw Paw | Mayor | | |
| Allemong, Stefanie | Morgan County | County Administrator | sallemong@morgancountywv.gov | Stefanie Allemong |
| Barrett, Chris | US Silica | | sales@ussilica.com | |
| Bisom, Kriston | WV Conservation Agency | | | |
| Cade, Lucas | Potomac Edison | | lcade@firstenergycorp.com | |
| Clark, Bill | Morgan County | County Commissioner | bclark@morgancountywv.gov | Bill Clark |
| Clohan, Ken | WV DOH | | kenneth.l.clohan@wv.gov | |
| Comes, Paul | Comcast | | paul_comes@cable.comcast.com | |
| Crunkleton, Scott | Morgan County | | wspsd@ntelos.net | |
| Davis, Ron | Paw Paw | Town Administrator | rdavis@townofpawpaw.com | via zoom |

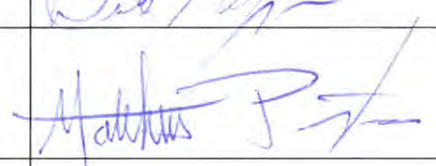
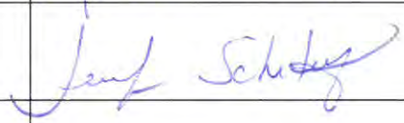
# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Donaldson, Kurt | WVU GIS Tech Center | Senior Project Manager | kurt.donaldson@mail.wvu.edu | |
| Duncan, Sherry | WV Conservation Agency | | | |
| Elliot, Barbie | WV Conservation Agency | | | |
| Francis, Brenna | The Journal | | | |
| Garnett, Casey | FEMA Region 3 | Hazard Mitigation Community Planner | casey.garnett@fema.dhs.gov | |
| Grubb, Donnie | WVU Medicine | | donald.grubb@wvumedicine.org | |
| Hansroth, Lori | Morgan County Chamber of Commerce | | chamber@berkeleysprings.com | |
| Hartman, Alana | WV DEP | Potomac. Basin Coordinator (PBC) | alana.c.hartman@wv.gov | |
| Hott, Jesse | Red Cross | | jesse.hott@redcross.org | |
| Huber, Susam | Macy's | | susan.huber@macys.com | |
| Jackson, Christina | Shenandoah Medical System | | ~~cbartoldson@gmail.com~~ | |

May 4, 2021

9:00-11:00am

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Jainniney, Ron | Berkeley Springs Water Works | Department Manager | water.town@hotmail.com | |
| Johnson, Timothy | Bath | Police Chief | | |
| Linsenmeyer, Jim | WVDO | | james.f.linsenmeyer@wv.gov | |
| Littleton, Cindy | Frontier | | | |
| Merki, Scott | Town of Bath | Mayor | asst5@aol.com | |
| Moore, Alex | Morgan County | Planning/GIS Director and Floodplain Manager | amoore@morgancountywv.gov |  |
| Myers, Dick | Morgan County Office of Emergency Management and Homeland Security | Director | dmyers@morgancountywv.gov |  |
| Pennington, Matthew | Eastern Panhandle Regional Planning & Development Council | Environmental Program Coordinator | mpennington@region9wv.com |  |
| Schetrompf, Jennifer | Berkeley-Morgan County Board of Health | Threat Preparedness/Health Promotion Coordinator | jennifer.r.schetrompf@wv.gov |  |
| Shannon, Kristi | Valley Health | | kshannon@valleyhealthlink.com | |
| Shumaker, Amy | Morgan County | Planning Director | aschumaker@morgancountywv.gov | |

May 4, 2021

9:00-11:00am

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Snavely, Rachel | Eastern Panhandle Regional Planning & Development Council | Executive Director | rsnavely@region9wv.com | Rachel Snavely |
| Thompson, Tom | VA Medical Center | | thomas.thompson6@va.gov | |
| Tuttle, Kristen | Morgan County Board of Ed. | | | |
| Jennifer Wishmyer | Eastern Panhandle Regional Planning & Development Council | Afmerssistant Director | jwishmyer@region9wv.com | |
| Whyte, Monica | WV BPH | | Monica.A.Whyte@wv.gov | |
| Truax, Troy | Michael Baker Intl. | Planning Director | Troy.Truax@mbakerintl.com | |
| Welt. Angela | Michael Baker Intl. | Project Manager – Environmental | awelt@mbakerint.com | Virtual |
| Asselin, Kelly | Michael Baker Intl. | Environmental Associate | Kelly.asselin@mbakerintl.com | Virtual |
| | | | | |
| George Swartwood | Martinsburg police chief | | | via zoom |
| anna padilla | mc. planning | | | via zoom |

May 4, 2021

9:00-11:00am

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Casey Garrett | fema | | | via zoom |
| David Deamer | region 9 | | | ↓ |
| Jennifer Cothrin | efc | | | ↓ |
| Joel Tuttle | mc comm. | | | ↓ |
| Robert Palmer | recorder - Pendleton | | | ↓ |
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May 4, 2021

9:00-11:00am



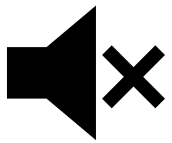
# Berkeley and Morgan Counties
# R9 Multi-Jurisdictional Hazard Mitigation Plan 2022 Update

Michael Baker INTERNATIONAL

Region 9

**Kick-Off Meeting**
**May 4, 2021**

- All attendees are currently muted to reduce background noise.



- Submit your questions <u>at any time</u> during the presentation by:
  - Using the Zoom “Chat”

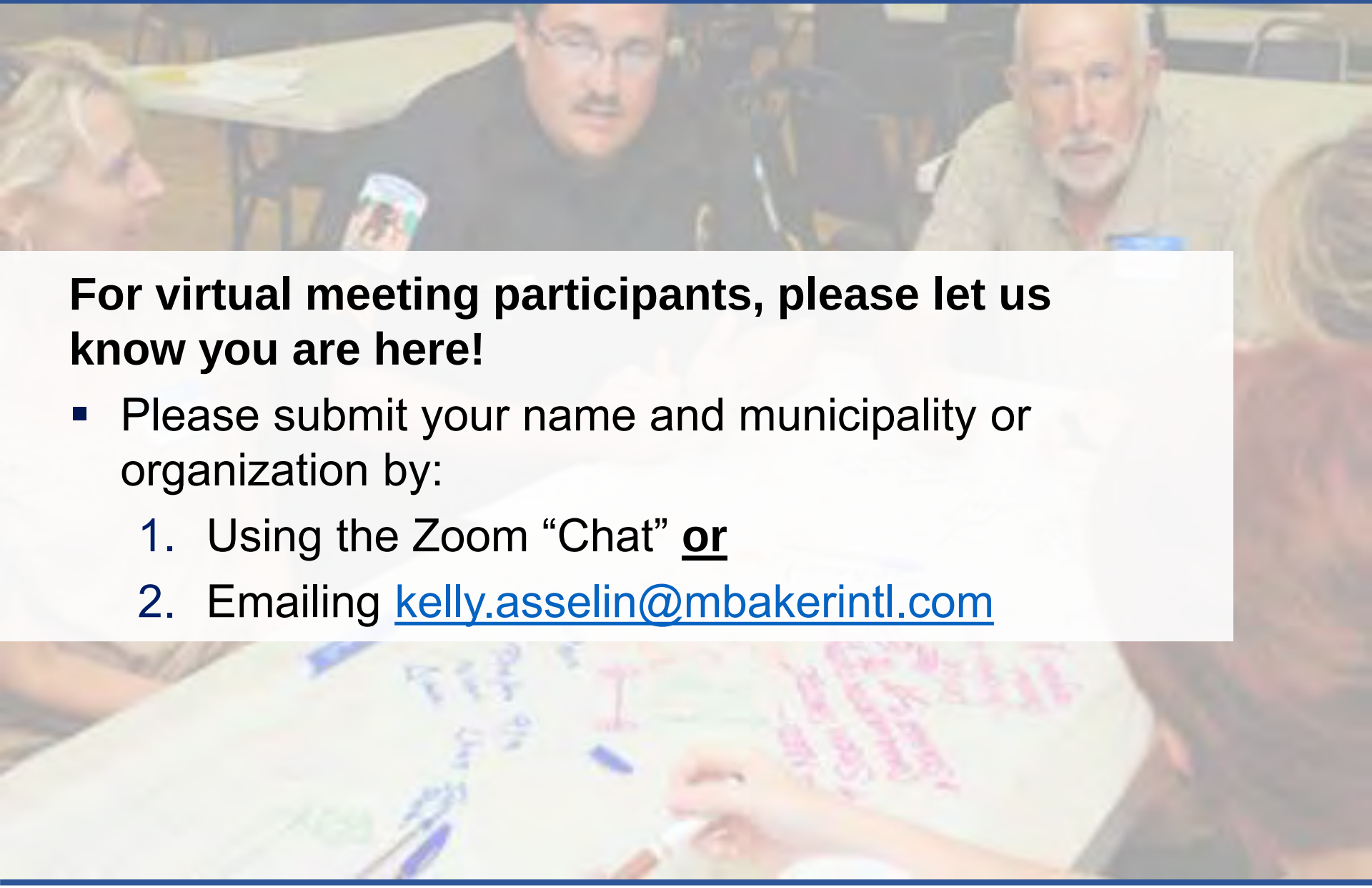


- We will be recording this meeting to share with anyone unable to attend.



# Agenda

- Welcome and Introductions
- Project Overview
- Hazard Mitigation Planning Process
  - Community Profile
  - Planning Process
  - Risk Assessment
  - Capability Assessment
  - Mitigation Strategy
  - Plan Maintenance
- Participation and Engagement
- Next Steps and Action Items



**For virtual meeting participants, please let us know you are here!**

- Please submit your name and municipality or organization by:
  1. Using the Zoom “Chat” **or**
  2. Emailing kelly.asselin@mbakerintl.com

# Hazard Mitigation Overview



# 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 Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) is a community-driven, living document that communities use to reduce their vulnerability to hazards.
- Counties and municipalities must adopt a FEMA-approved plan to be eligible for certain Hazard Mitigation Assistance (HMA) funds.
- HMA funds may be used to augment local mitigation activities already being accomplished and can leverage other funding sources.






## Hazard Mitigation Grant Program (HMGP)

*Assists in implementing long-term hazard mitigation planning and projects following a Presidential major disaster declaration.*

## Building Resilient Infrastructure & Communities (BRIC)

*BRIC will support communities as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards.*

*BRIC is a new FEMA pre-disaster hazard mitigation program that replaces the existing Pre-Disaster Mitigation (PDM) program.*

## Flood Mitigation Assistance (FMA) Program

*Provides funds for planning and projects to reduce or eliminate risk of repetitive flood damage to buildings that are insured annually under the NFIP.*

# FEMA Hazard Mitigation Grants

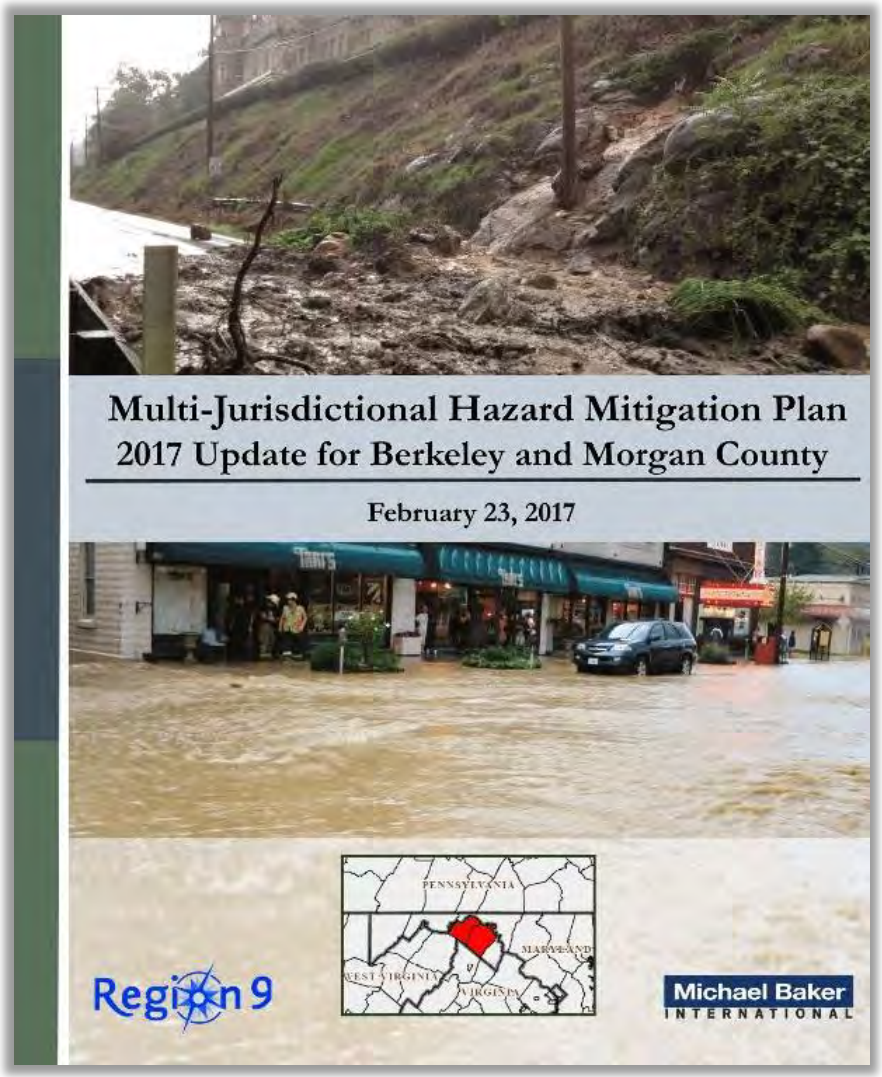
| Mitigation Projects |
| --- |
| Property Acquisition and Structure Relocation |
| Structure Elevation |
| Mitigation Reconstruction |
| Dry Floodproofing of Historic Residential Structures |
| Dry Floodproofing of Non-residential Structures |
| Generators |
| Localized Flood Risk Reduction Projects |
| Non-Localized Flood Risk Reduction Projects |
| Structural Retrofitting of Existing Buildings |
| Non-structural Retrofitting of Existing Buildings and Facilities |
| Safe Room Construction |
| Wind Retrofit for One- and Two-Family Residences |
| Infrastructure Retrofit |
| Soil Stabilization |
| Wildfire Mitigation |
| Post-Disaster Code Enforcement |
| Advance Assistance |
| 5 Percent Initiative Projects |
| Aquifer and Storage Recovery |
| Flood Diversion and Storage |
| Floodplain and Stream Restoration |
| Green Infrastructure |
| Miscellaneous/Other |

## FEMA HMA Grant Program Eligible Activities

| Mitigation Activity | HMA Program | | |
|---|---|---|---|
| | HMGP | BRIC | FMA |
| 1.Mitigation Projects | ✓ | ✓ | ✓ |
| Property Acquisition and Structure Demolition | ✓ | ✓ | ✓ |
| Property Acquisition and Structure Relocation | ✓ | ✓ | ✓ |
| Structure Elevation | ✓ | ✓ | ✓ |
| Mitigation Reconstruction | ✓ | ✓ | ✓ |
| Dry Floodproofing of Historic Residential Structures | ✓ | ✓ | ✓ |
| Dry Floodproofing of Non-residential Structures | ✓ | ✓ | ✓ |
| Generators | ✓ | ✓ | |
| Localized Flood Risk Reduction Projects | ✓ | ✓ | ✓ |
| Non-Localized Flood Risk Reduction Projects | ✓ | ✓ | |
| Structural Retrofitting of Existing Buildings | ✓ | ✓ | ✓ |
| Non-structural Retrofitting of Existing Buildings and Facilities | ✓ | ✓ | ✓ |
| Safe Room Construction | ✓ | ✓ | |
| Wind Retrofit for One- and Two-Family Residences | ✓ | ✓ | |
| Infrastructure Retrofit | ✓ | ✓ | ✓ |
| Soil Stabilization | ✓ | ✓ | ✓ |
| Wildfire Mitigation | ✓ | ✓ | |
| Post-Disaster Code Enforcement | ✓ | | |
| Advance Assistance | ✓ | | |
| 5 Percent Initiative Projects | ✓ | | |
| Aquifer and Storage Recovery | ✓ | ✓ | ✓ |
| Flood Diversion and Storage | ✓ | ✓ | ✓ |
| Floodplain and Stream Restoration | ✓ | ✓ | ✓ |
| Green Infrastructure | ✓ | ✓ | ✓ |
| Miscellaneous/Other | ✓ | ✓ | ✓ |
| 2.Hazard Mitigation Planning | ✓ | ✓ | ✓ |
| 3.Technical Assistance | | | ✓ |
| 4. Management Costs | ✓ | ✓ | ✓ |

# Hazard Mitigation Planning Process






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

- Geography and Environment
- Community Facts
- Population and Demographics
- Land Use and Development



- Multi-Jurisdictional Hazard Mitigation Planning Team
- Municipal participation
- Public and stakeholder participation
- Key meetings:
  - **Kick-Off:** today
  - **Risk Assessment and Mitigation Solutions Workshop:** June
  - **Draft Plan Review Public Meeting:** Late August
- Draft and Final Plan development
- Conduct WVEM review
- Obtain FEMA Approval Pending Adoption (APA)
- County and municipal adoption

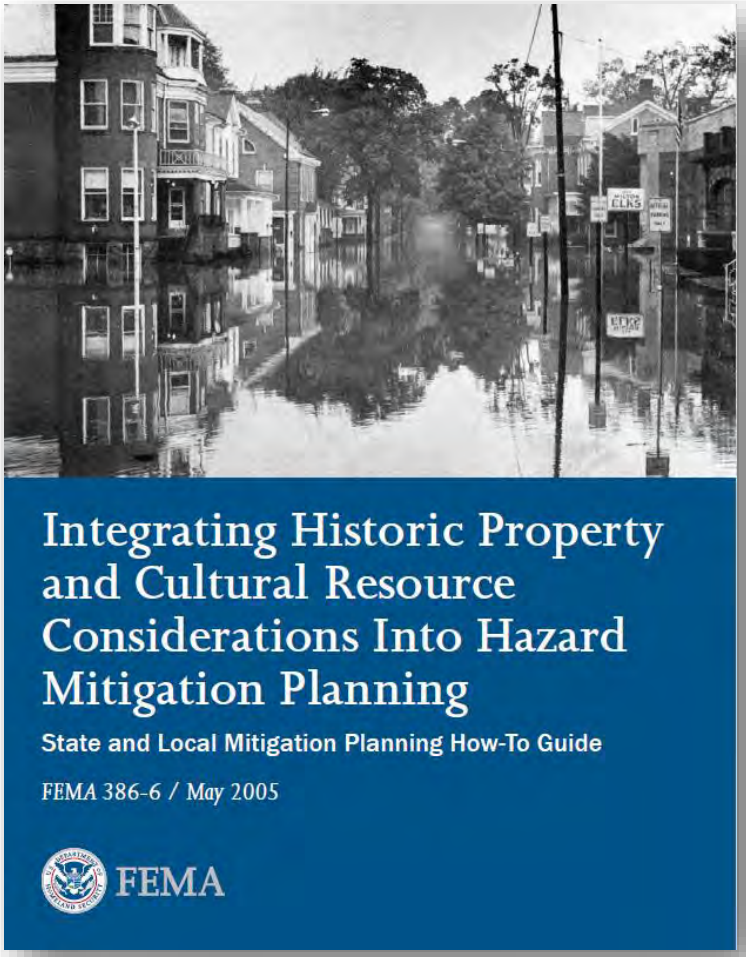
# Planning Process

| Task | 2021 | | | | | | | | | | | 2022 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | JAN | FEB | MAR |
| **Project Coordination & Management** | | | | | | | | | | | | | |
| Quarterly Status Reports to WVEM | | | | | | | | | | | | | |
| **Meetings** | | | | | | | | | | | | | |
| HMPT Project Initiation Meeting | | | | | | | | | | | | | |
| HMPT and Steering Committee Meetings | | | | | | | | | | | | | |
| Draft Plan Public Meetings | | | | | | | | | | | | | |
| **Planning Process** | | | | | | | | | | | | | |
| Community Profile and Asset Inventory | | | | | | | | | | | | | |
| Hazard Identification and Risk Assessment | | | | | | | | | | | | | |
| Capability Assessment | | | | | | | | | | | | | |
| Mitigation Strategy | | | | | | | | | | | | | |
| Plan Maintenance | | | | | | | | | | | | | |
| Writing the Plan Document | | | | | | | | | | | | | |
| **Plan Approval and Adoption** | | | | | | | | | | | | | |
| WVEM Review and Edits | | | | | | | | | | | | | |
| FEMA Review, Edits, and APA | | | | | | | | | | | | | |
| Plan Adoption | | | | | | | | | | | | | |

The Planning Team:

- County Representatives
- Municipal Officials
- Agency and organization stakeholder representatives
- Other suggestions?






MJHMP Update Process:

- Update and add hazard profiles
- Consider historic and cultural resources
- Update goals, objectives, and actions
- Highlight mitigation successes

# Hazard Identification and Risk Assessment Overview

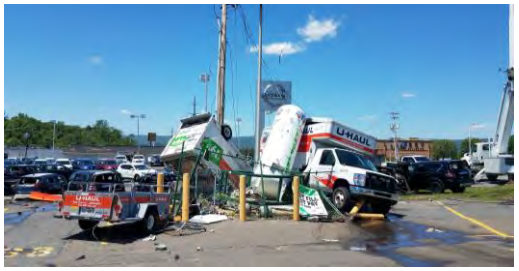
- Describe update process
- Confirm existing and identify new hazards
- Assess risk and vulnerability
- Profile hazards
- Rank hazards



- Identify new hazards
- Hazard profile includes:
  - Location and extent
  - Range of magnitude
  - Past occurrence
  - Future occurrence
  - Vulnerability assessment









- FEMA Hazus Flood Modeling
- Calculates physical damage and economic loss due to coastal and/or riverine inundation
- Losses are calculated using functions that relate the depth and type of flooding to the degree of damage for various categories of buildings






# 2017 Hazard Rankings

| Morgan County Hazards Profiled in the 2017 MJHMP | Calculated Risk Factor |
|---|---|
| Flooding | **2.6** |
| Utility Interruption | **2.4** |
| Epidemic | **2.4** |
| Winter Storm | **2.3** |
| Hazardous Materials | **2.3** |
| Wind Storm, Tornado | **2.2** |
| Hailstorm | **2.2** |
| Transportation Accidents | **2.2** |
| Hurricane, Tropical Storm, Nor'easter | **2.2** |
| Source Water Contamination | **2.0** |
| Wildfire | **2.0** |

| Morgan County Hazards Profiled in the 2017 MJHMP | Calculated Risk Factor |
|---|---|
| Drought | **1.9** |
| Dam and Levee Failure | **1.9** |
| Terrorism | **1.4** |
| Extreme Temperature | **1.4** |
| Infestation | **1.4** |
| Thunderstorm, Lightning Strike | **1.3** |
| Earthquake | **1.3** |
| Land Subsidence | **1.3** |
| Radon Exposure | **1.0** |

# 2017 Hazard Rankings

| Berkeley County Hazards Profiled in the 2017 MJHMP | Calculated Risk Factor |
|---|---|
| Source Water Contamination | **3.7** |
| Winter Storm | **3.6** |
| Transportation Accidents | **3.6** |
| Wind Storm, Tornado | **3.5** |
| Thunderstorm, Lightning Strike | **3.5** |
| Hazardous Materials | **3.4** |
| Terrorism | **2.9** |
| Hurricane, Tropical Storm, Nor'easter | **2.9** |
| Radon Exposure | **2.6** |
| Extreme Temperature | **2.2** |
| Flooding | **2.2** |

| Berkeley County Hazards Profiled in the 2017 MJHMP | Calculated Risk Factor |
|---|---|
| Epidemic | **1.9** |
| Drought | **1.8** |
| Utility Interruption | **1.5** |
| Wildfire | **1.2** |
| Hailstorm | **1.2** |
| Earthquake | **1.0** |
| Land Subsidence | **1.0** |
| Infestation | **1.0** |
| Dam and Levee Failure | **1.0** |

# Exercise 1: Hazard-Risk Evaluation

- This exercise allows you to evaluate previously profiled hazards and to identify any new hazards that may exist.
  - PART I: Note any changes in frequency, magnitude or geographic extent by placing a “NC”, “I” or “D” in the blue column.
  - PART II: Evaluate list of hazards NOT profiled in existing MJHMP.
- **Please complete and submit form today.**






- Planning and Regulatory
- Administrative and Technical
- Financial
- Education and Outreach

*Consider the alignment opportunities between the HMP and CEDS to strengthen the region's economic resilience.*

# Exercises 2 and 3: Capability Assessment Survey & NFIP Survey

- Capability Assessment Survey & NFIP Survey
  - Information used to evaluate jurisdictional capabilities and plan development
  - One Capability Assessment Survey per jurisdiction
  - One NFIP Survey per jurisdiction
  - Agency stakeholders are encouraged to participate too.



**Community Rating System Premium Discounts**

| Class | Premium Discount SFHA* | Non-SFHA |
|---|---|---|
| 1 | 45% | 10% |
| 2 | 40% | 10% |
| 3 | 35% | 10% |
| 4 | 30% | 10% |
| 5 | 25% | 10% |
| 6 | 20% | 10% |
| 7 | 15% | 5% |
| 8 | 10% | 5% |
| 9 | 5% | 5% |
| 10 | 0 | 0 |

* Special Flood Hazard Area. Non-SFHA premium reductions apply to B, C, D, X, A99, and AR Zones.

- CRS recognizes and encourages community floodplain management activities that exceed minimum NFIP standards.
- Point rating system that can reduce flood insurance premiums by 5% - 45%.

- Goals and Objectives
- Mitigation Techniques
- Mitigation Action Plan



## 2017 Region 9 Mitigation Goals

- Support communities in lessening flood risk by encouraging them to maintain compliance with the National Flood Insurance Program (NFIP) and undertaking buyout projects when funding is available; Perform annual checks regarding NFIP Compliance.
- Support Counties in performing annual HMP strategies review.

## 2017 Berkeley County Mitigation Goals

- 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.
- Reduce the current and future risks in Berkeley County.
- Improve emergency preparedness and response in Berkeley County, Martinsburg, and Hedgesville.
- Promote hazard mitigation as a public value in recognition of its importance to the health, safety and welfare of the population.

## 2017 Morgan County Mitigation Goals

- Minimize flood damages and risks from flood hazards in Morgan County.
- Reduce the current and future risks from hazards in Morgan County.
- Improve emergency preparedness in Morgan County, Bath, and Paw Paw.
- Reduce the potential impact of natural and man-made disasters on private property.
- Reduce the potential impact of natural disasters on the county's historic treasures.

## 2022 Mitigation Action Plan:

- Each municipality must have at least one mitigation action.
- Actions for stakeholder organizations are strongly encouraged.
- There must be at least one mitigation action for each profiled hazard.
- Mitigation actions should be realistic and sustainable.






## Update Approach:

- Consider revisions and additions to goals and objectives.
- Document status of 2017 mitigation actions and identify new actions.
- Assess hazard mitigation goals, objectives, and actions as they relate to reducing loss of life and property from natural and human-made hazards.




- FEMA mitigation planning guidance identifies four types of mitigation activities:
  - Plans and Regulations
  - Structure and Infrastructure Projects
  - Natural Systems Protection
  - Education and Awareness Programs
- As well as ideas for mitigation projects



- Government authorities, policies, or codes that influence the way land and buildings are developed and built such as:
  - Comprehensive Plans
  - Subdivision Regulations
  - Building Codes and Enforcement
  - Capital improvement Programs
  - Stormwater Management Plans
  - Emergency Operations Plans



- Modifying existing structures and infrastructure to remove from a hazard area
- Construction of manmade structures to reduce impacts of hazards

- 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
  - Wetland restoration and preservation



# Education and Awareness Programs



- National preventative programs
- Mailings to hazard-prone communities
- Websites with maps and information
- Presentations to community groups
- Radio or TV spots

- Monitoring, evaluating and updating the plan (Annual Reviews)
- Incorporation into other planning mechanisms
- Continued public involvement



- How has the nature of hazard risk changed in the last five years? Is there new development?
- Are the current resources to implement mitigation actions sufficient?
- Are the fiscal, administrative, political, public support, capability, etc. sufficient?

- Are there additional resources that would help you?
- Overall, what are the biggest obstacles to completing mitigation actions?
- Are there any goals for this planning process that weren't already addressed today?

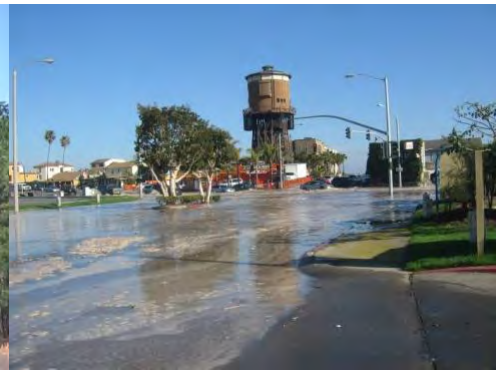
# Participation and Engagement



Jurisdictional Participation Requirements

- Attend meeting(s)
- Provide local information
- Develop mitigation action(s)



Visit: http://www.region9wv.com/plans---studies.html

*Online home of the planning process*



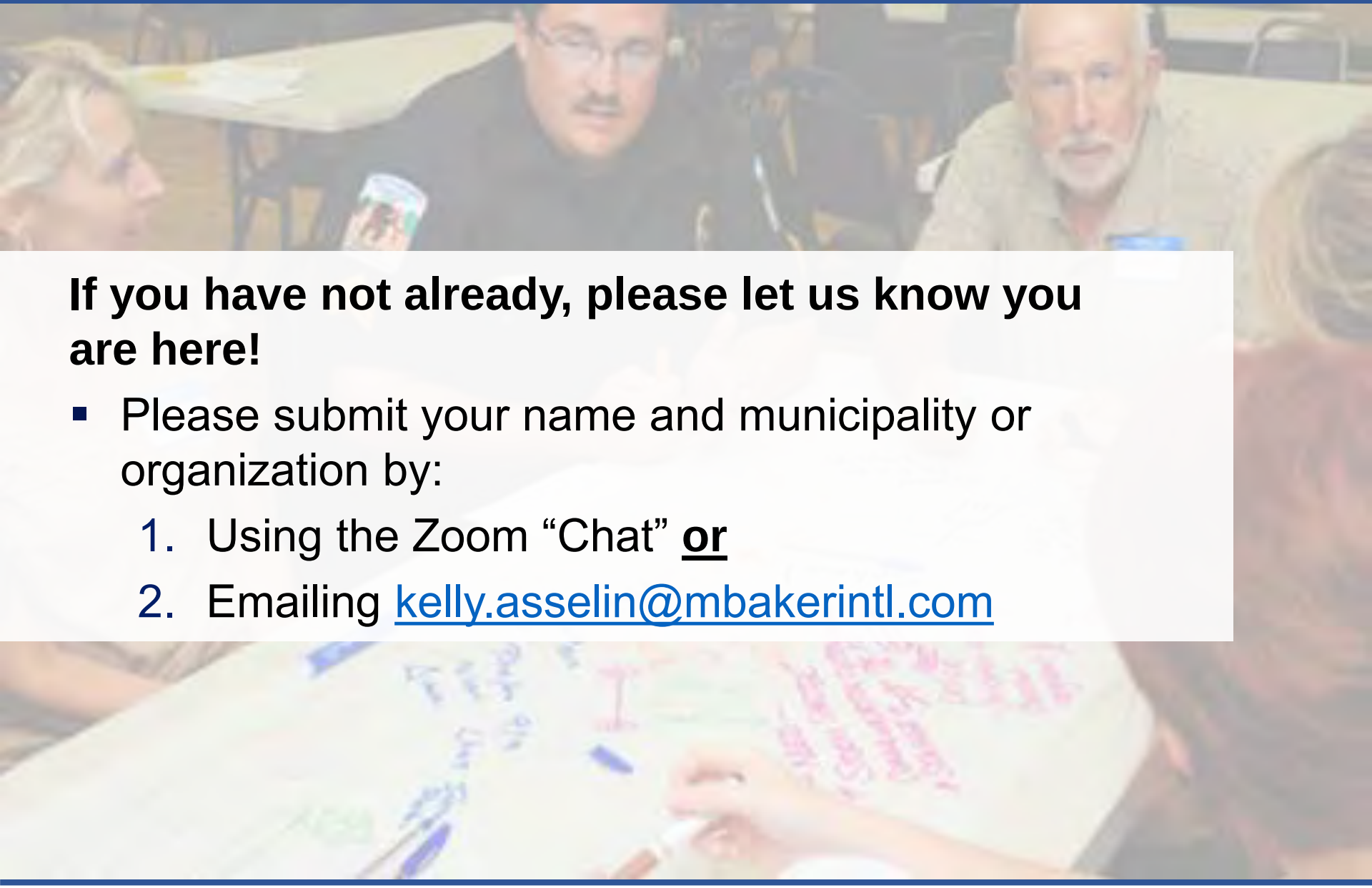
# Next Steps and Action Items



| Task | Dates |
|---|---|
| Kick-Off Meeting | Today |
| Risk Assessment and Vulnerability Analysis | April-June |
| Risk Assessment and Mitigation Solutions Workshop | Late June |
| Mitigation Strategy Development | July-September |
| Plan Review Public Meeting | Late August |
| Deliver to WVEM for Review | October |
| Deliver to FEMA for Review | November |
| Distribute to Counties and Municipalities for Adoption | February |

- **Municipalities and Other Stakeholders:**
  - Complete Hazard-Risk Evaluation Form
  - Complete Capability Assessment Survey
  - Complete NFIP Survey
  - Check out project website
- **Project Team:**
  - Kick-off Meeting Summary
  - Update project website with meeting materials
  - Contact and distribute forms to municipalities who were unable to attend
  - Community and Hazard Profiles

**Next Meeting: late June (date TBD)**



**If you have not already, please let us know you are here!**

- Please submit your name and municipality or organization by:
  1. Using the Zoom “Chat” **or**
  2. Emailing kelly.asselin@mbakerintl.com

# Questions?



Rachel Snavely

Executive Director, Eastern Panhandle Regional Planning & Development Council

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Troy D. Truax, AICP

Project Manager, Michael Baker International

troy.truax@mbakerintl.com

(717) 213-6241



# Morgan County Kick-Off Meeting Summary

May 4, 2021

9:00am– 11:00am

Please View the Meeting Recording Here:
https://us02web.zoom.us/rec/share/kgov8IDta3FeCg4LT130IrjwA5Wl04gzvqVLxQEX7S5kETFqggjp1ikbLAvvQtvH.2RsVD4f-lhzzSium Passcode: 9Rc3^=!&

## Attendees

Stephanie Allemong – Morgan County

Bill Clark – Morgan County

Alex Moore – Morgan County

Dick Myers – Morgan County

Anna Padilla – Morgan County

Joel Tuttle – Morgan County

Ron Davis – Town of Paw Paw

Robert Palmer – Town of Paw Paw

George Swartwood – The City of Martinsburg

Jennifer Schetrompf – Berkeley- Morgan County Board of Health

Jennifer Cotting – University of Maryland

Casey Garett - FEMA

Matthew Pennington – Region 9

David Deamer – Region 9

Rachel Snavely – Region 9

Troy Truax – Michael Baker International

Angela Welt - Michael Baker International

Kelly Asselin - Michael Baker International

## Agenda

1. Welcome and Introductions
2. Project Overview
3. Hazard Mitigation Planning Process
    a. Community Profile
    b. Planning Process

   c. Risk Assessment Overview and Hazard Review
      i. Exercise #1: Risk Evaluation and Identification
   d. Capability Assessment
      i. Exercise #2: Capability Assessment Survey
      ii. Exercise #3: National Flood Insurance Program Survey
   e. Mitigation Strategy Overview
   f. Plan Maintenance
4. Participation and Engagement
5. Next Steps and Action Items

## Welcome and Introductions

Troy Truax, a hazard mitigation planning consultant with Michael Baker International (MBI), welcomed all members of the Morgan County Multi-Jurisdictional Hazard Mitigation Planning Team (HMPT) and asked participants to introduce themselves. He also requested that everyone indicate which community or organization they represented and note whether they participated in the last Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) Update. See the attached Sign In Sheets for the meeting attendees.

## Project Overview

Troy defined hazard mitigation and described the purpose of the MJHMP Update, including:

- Identifying projects that will reduce risk, both day to day and in a disaster situation
- Identifying potential funding sources for mitigation projects
- Maintaining eligibility for certain mitigation funding through the Federal Emergency Management Agency (FEMA)

Troy reviewed the three types of Hazard Mitigation Assistance (HMA) funding available to counties: Hazard Mitigation Grant Program (HMGP), Building Resilient Infrastructure and Communities (BRIC) (replaced the previous Pre-Disaster Mitigation (PDM) program), and Flood Mitigation Assistance (FMA) Program.

Troy stressed that this Update will be led by the County but will be multi-jurisdictional in nature. To achieve full participation, each municipality is asked to attend at least one meeting, complete at least one worksheet, and provide at least one mitigation action for the 2022 MJHMP. Without active participation, a municipality may be limited in adoption of the plan and therefore may be limited in obtaining grant funding available over the next five years.

Troy discussed a sample list of mitigation projects for HMPT members to consider including or consider what the status of current projects in the County are. He also covered a reference checklist of funding sources for mitigation projects and other hazard mitigation planning processes from the list of funding sources above.

Matt Pennington, Region 9, asked if there were any miscellaneous/other projects not listed in the mitigation projects list. Troy responded that routine maintenance of culverts and clearing drain storms to mitigate flooding, importantly in rural communities where this is often overlooked, as an example of a miscellaneous project.

Matt made a comment about thinking creatively for mitigation ideas. Troy cited an example of Lower Allen Township's (PA) emergency alert system that the residents can register for, to receive alerts. Troy provided another example of local bridge maintenance, which is a classic bricks and mortar project.

Matt commented that if there are other county plans, like Community Economic Development Strategy (CEDS), broadband plans, and Chesapeake Bay related plans, these should be integrated with the HMP. Matt stated that if any attendees have projects related to these plans, we should consider those as mitigation actions in the HMP.

Troy also reviewed the outline and contents of the 2017 MJHMP, and that the Standard Operating Guide (SOG) for PEMA will be the standard template for the 2022 plan. Troy emphasized FEMA Region 3 is familiar with the PA SOG, so it is suitable to use in Region 9. Additionally, Troy stressed the potential partnerships in the room, with supportive hazard mitigation relationships possible between the municipalities, County, state agencies, and other organizations in the room, and West Virginia GIS Technical Center will be performing Hazus for the Update. He also mentioned the advantages of the CEDS and MJHMP updates aligning.

Troy stressed the importance of plan maintenance, annually at a minimum, and noted that the discussions could occur at regularly scheduled meetings of the LEPC, Planning Commission, or other entities.

## Hazard Mitigation Planning Process

Troy reviewed the timeline and planning process for the 2022 MJHMP Update. This Update is being led by stakeholders invited from each municipality within the County, including county representatives, state agencies, local businesses and nonprofits, schools, the hospital, utility providers, emergency service providers, and many others, to represent a broad array of perspectives.. The plan is set to be adopted by February 2022. He also stressed the importance of participation and asked attendees to consider additional stakeholders that should be included on the HMPT, and for attendees to provide their name, organization, and email.

Rachel Snavely named some of the agency and organization stakeholder representatives that are being invited to participate, and Dick Myers, Morgan County Office of Emergency Management and Homeland Security, recommended including Caperton Works.

Troy asked for feedback via the Zoom chat, or by email to Kelly, Matt, or Rachel. Stefanie Allemong, Morgan County Administrator, mentioned Blue Slade with propane, so the project team will identify the contact. CSX and Norfolk Southern were also mentioned, to which Rachel replied she may have a local contact.

Matt mentioned an opportunity this summer to discuss the HMP with watershed groups. Matt stated this is already on the agenda.

Troy stated in the 2017 Update, we identified that Morgan County needed a more robust data system, and they have shown progress over the last 5 years. This success will be highlighted in the plan.

Troy asked attendees to provide photographs to Rachel, Matt, or MBI staff of vaccination clinics, flood events, etc. so that we can include some photos in the MJHMP. Troy noted that it would be helpful to include a location, date, and associated event (e.g. hurricane name).

## Risk Assessment Overview and Hazard Review

Troy reviewed the hazards profile in the 2017 MJHMP and their risk rankings:

### High Ranked Hazards

- Flooding

### Moderate Ranked Hazards

- Utility Interruption
- Epidemic
- Winter Storm
- Hazardous Materials
- Wind Storm, Tornado
- Hailstorm
- Transportation Accidents
- Hurricane, Tropical Storm, Nor'easter
- Source Water Contamination
- Wildfire

### Low Ranked Hazards

- Drought
- Dam and Levee Failure
- Terrorism
- Extreme Temperature
- Infestation
- Thunderstorm, Lightning Strike
- Earthquake
- Land Subsidence
- Radon Exposure

Troy asked the HMPT whether any hazards excluded from the last MJHMP Update should be profiled in the 2022 MJHMP. He also asked whether the risks associated with hazards profiled in the 2017 MJHMP have changed over the past five years. The HMPT completed an exercise on these topics.

## Capability Assessment and Mitigation Strategy Overview

Troy described the capability assessment and how it relates to implementing the mitigation strategy Troy then reviewed two activities for the HMPT to assess existing capabilities and to detail NFIP compliance measures. With these worksheets, Troy led a discussion of the following:

- New or updated planning or regulatory tools and programs
- Available staff resources to assist with hazard mitigation planning and implementation efforts
- Changes in local planning, regulatory, administrative, technical, fiscal, political, and outreach capabilities
- Morgan County's GIS capabilities and new datasets

- There are Community Rating System (CRS) municipalities in Morgan County. CRS communities may qualify to receive reduced flood insurance premiums in exchange for floodplain management activities which exceed the minimum standards of the National Flood Insurance Program (NFIP).

Troy explained goals, objectives, and actions. Troy stated the plan must have a section on High Hazard Potential Dams. He asked the participants to consider who are the dam managers, and do they anticipate any capital improvements, and if they plan on utilizing HMGP funding.

Troy also discussed the four types of mitigation techniques (Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, and Education and Awareness Programs) and described the process for reviewing mitigation actions from the 2017 MJHMP and developing new actions, which will be a focus of the Risk Assessment and Mitigation Solutions Workshop in June 2021. Troy provided examples of new actions such as projects relating to private or non-profit sectors, buyout of repetitive loss private properties in the floodplain, updates to Emergency Operations Plans, CEDs, and stormwater management plans, and identifying vulnerable populations. In addition to the municipalities, Troy encouraged the stakeholders at the meeting to submit mitigation actions as well.

Troy noted that we only need one Capability worksheet per jurisdiction and requested response by Friday May 28, 2021 if possible.

Troy mentioned that each municipality must have at least one mitigation action, and there must be at least one mitigation action for each hazard profiled. He used Red Cross as an example, stating a few years ago they required a new facility in the area, which was a priority for emergency management actions. Troy also discussed the economic development implications of the COVID-19 Pandemic, such as decreased use of office space and impacts on local restaurants and shops in the absence of a “lunch crowd.”

Jennifer Schetrompf, Berkeley-Morgan County Board of Health, brought up the for Berkeley Springs (Bath) Bypass Project as an area for projected growth impacts, and the necessity for improved planning.

Matt mentioned that Region 9 is working with watershed groups on projects that restore floodplains in local tributaries. Troy stated zoning codes require riparian buffer protection, subdivision codes, and ordinances should be examined for this project.

Matt asked how education and awareness programs and strategies can be improved, specifically in rural communities. He talked about using the COVID-19 pandemic as a case study for what methods worked well, and where there were shortcomings in communication. He mentioned general distrust of information on Facebook by community members, as well as communities without internet being barriers to telecommunication methods. Troy suggested looking into more print and press services, such as hard copy newspaper.

Jennifer Schetrompf, Berkeley-Morgan County Board of Health, commented that there is a group focused on the senior community and they use the WV Alert System. You can create specialized groups within that program to customize for specific needs.

Robert Palmer from Paw Paw said that their zoning ordinances were rejected because they had no comprehensive plan. The comprehensive plan was subsequently adopted, so this could be revisited. Or Paw Paw could adopt the county ordinances instead.

Troy noted that municipalities should start adopting the MJHMP as soon as FEMA issues Approval Pending Adoption.

## Next Steps and Action Items

Troy reviewed the project timeline, which is shown below:

| Task | Dates |
|---|---|
| Full Project Timeline | March 2021 – March 2022 |
| Kick-Off Meeting | May 4, 2021 |
| Risk Assessment and Mitigation Solutions Workshop | June 2021 |
| Draft Plan Review Public Meeting | August 2021 |
| Deliver to WVEM for Review | October 2021 |
| Deliver to FEMA for Review | November 2021 |
| Distribute to Municipalities for Adoption | February 2022 |

Troy encouraged the HMPT to visit the project website to review the 2017 MJHMP. Troy encouraged participants to email Rachel Snavely at rsnavely@region9wv.com, Matt Pennington at mpennington@region9wv.com, or Kelly Asselin at kelly.asselin@mbakerintl.com to obtain meeting materials or copies of forms if needed.

The project website can be found at: http://www.region9wv.com/plans---studies.html.

Matt and Rachel will post information about this HMP Update on the R9 Facebook page.

The hazard mitigation consultant will draft a meeting summary and will post all the meeting materials to the project website. A blank Mitigation Action Form and action examples will also be posted to the website. The consultant will also email the municipal contacts who were unable to attend the meeting, to provide the worksheets to them.

**The meeting concluded at 11:00am.**

# FEMA REGION 3
# HAZARD MITIGATION PLAN GUIDANCE
## Checking In On The NFIP



Whether you are here as a requirement for hazard mitigation planning (44 CFR 201.6(c)(3)ii) or to take strategic action as a floodplain administrator, this document is intended for you and any other staff/ partners necessary to help you fill in the questions for each section. Being a part of the National Flood Insurance Program (NFIP) unlocks a lot of valuable resources and connections to state and federal partners. FEMA developed this worksheet to assist you in finding opportunities to meet AND EXCEED requirements as you help your community.

## FLOODPLAIN IDENTIFICATION AND MAPPING

The first step is to figure out what made you eligible for the NFIP, where those resources are, and who is accountable for tracking them.

As part of the application to join the NFIP, each participating community was required to identify a floodplain administrator (FPA)/floodplain manager. If the person/position changes, the community should notify their State NFIP Coordinator and FEMA. Please consider who is designated to manage floodplain development and enforce compliance. The role may be completed by multiple individuals with other job responsibilities (e.g., "wearing multiple hats") as long as one person/position is ultimately accountable for the responsibilities of FPA.

### 1. Who is your FPA or floodplain manager? Please provide office/agency name, position title, and contact information.

*Ex. Dangerville (a fictional community) has had a lot of turnover recently. When the HMP team convened, they noticed their FPA had retired and asked about the replacement. Council solicited nominations and formally designated the Chief Zoning Officer as the new FPA. They also allocated funds to help the CZO attend trainings and learn about the position responsibilities. The CZO worked with the Deputy Director of Planning to reassign some projects to accommodate the FPA workload.*



Each municipality is required to maintain accessible copies of its effective Flood Insurance Rate Map (FIRM) and the most recent Flood Insurance Study (FIS) report.

### 2. Where do you keep your FIRM and FIS report?

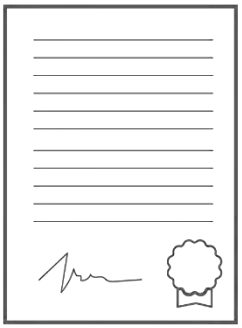
*Ex. Dangerville keeps these documents at local libraries and encourages the libraries to include digital links on their landing pages.*

*Ex. Riskburg (another fictional community) keeps their documents in the zoning office. They hold twice annual coffee break open houses where they invite the public in to view and comment on the maps. Any changes identified are cataloged to be included in future updates.*

**RESOURCE ALERT!**
Don't forget you can see your FIRM on the National Flood Hazard Layer.

Communities participating in the NFIP must also formally adopt the most recent FIRM and FIS report.

### 3. Has your community adopted? When was the adoption? Where is that information stored?



*Ex. Dangerville adopted their most recent maps after the Letter of Final Determination came out. They announced the update through news media and worked with the planning team to identify any long-term impacts and potential ordinance and administrative changes to begin reducing the risk identified in the maps. To streamline efforts, Dangerville also made and publicized a procedural change for data collection.*

The maps capture one moment in time in a dynamic community. Communities are required to track requests for map changes (for instance through Letters of Map Amendment [LOMAs] and Letters of Map Revision [LOMRs]).

### 4. How does your municipality support requests for map updates, specifically LOMAs?

Where are these tracked and by whom?

### 5. Is there a specific agency/department responsible for compiling these updates and tracking Letters of Map Change (LOMCs)?

*Ex. Riskburg tracks every requested change in an Excel spreadsheet and on a paper map. Every pending and approved LOMC is included with the date. Riskburg Planners also go into the FEMA Map Service Center to make sure the LOMCs listed are up to date.*

**RESOURCE ALERT!**
Don't forget you can see LOMCs and download FIS reports on the Map Service Center. If you have more questions about LOMCs please consider reviewing application instructions here and here, calling the FEMA Mapping and Insurance eXchange (FMIX) at 877-FEMA MAP (877-336-2627), or following up with your State NFIP Coordinator on any potential LOMC-related trainings.



Communities are ever evolving as their development, hazardous conditions, and overall risk profile change over time. Often, we track some of these changes at a project-specific scale, for instance an engineering study used to figure out if DOT should widen a culvert as part of their road improvements project, or a university looking at water flow modeling through a neighborhood. If it could potentially impact a map, the data must be shared with FEMA within 6 months.



### 6. How do you collect updated technical or scientific data and modeling? How do you share this with FEMA?

*Ex. Dangerville convenes their HMP team twice a year to review the plan and consider any community changes. They also discuss data changes and submit those to FEMA.*

The National Flood Hazard Layer is good for general planning and reference. To look at where the Special Flood Hazard Area (SFHA) overlaps with specific parcels, many states and local governments have map viewers available. The FPA should also have this information, be aware of future development and any Conditional Letters of Map Revision (CLOMRs), as well as possible flood risk areas not yet mapped. Because the edge of the floodplain can sometimes be unclear, residents may have questions about what restrictions apply to them, their property, and their structures.

### 7. Does your municipality provide assistance with local floodplain determinations? If yes, specify how.

**RESOURCE ALERT!**

State map viewers often include helpful data and layers. Check out your state's viewer:

DC DE MD PA VA WV

Access to online tools such as state map viewers, FEMA's Map Service Center, and the National Flood Hazard Layer may vary.

### 8. Do the people/agencies responsible for using these tools in your community have the access they need? Which tools does your community rely on?

*Ex. Riskburg's firewall update blocked access to the state map viewer that the Planners were using frequently. Riskburg's planners worked with their NFIP coordinator and set up a data sharing procedure, including a weekly upload of new GIS shapefiles through FTP to make sure everyone had the most up-to-date information possible.*

**ACTION OPPORTUNITY!**

FEMA looks to the community FPA and mitigation planners to collect this worksheet data to inform hazard mitigation planning with the goal of taking action. How are you using your mapping information to reduce risk in your community?

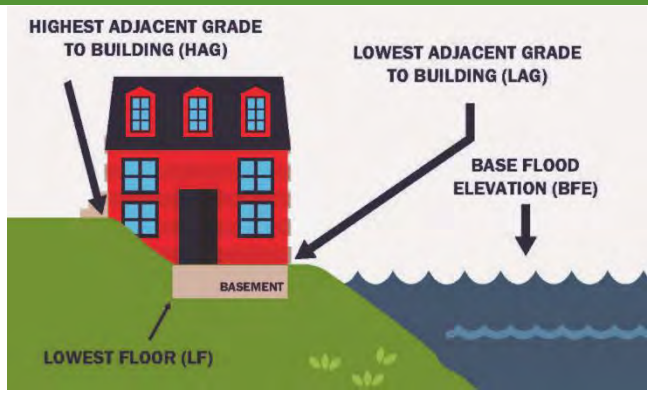
# COMMUNITY WORKSHEET

## FLOODPLAIN IDENTIFICATION AND MAPPING

| | |
|---|---|
| 1. Where do you keep your FIRM and FIS report? | |
| 2. Has your community adopted the most recent FIRM? When was the adoption? Where is that information stored? | |
| 3. Has your community updated the floodplain ordinance language to include the current FIRM and FIS? | |
| 4. Does your municipality support requests for map updates? | |
| 5. Is there a specific agency/department responsible for compiling these updates and tracking LOMCs? | |
| 6. Do you collect updated technical or scientific data and modeling? How do you share this with FEMA? | |
| 7. Does your municipality provide assistance with local floodplain determinations? If yes, specify how. | |
| 8. Who is your FPA or floodplain manager? Please provide office/agency name, position title, and contact information. | |
| 9. Do the people/agencies responsible for using these tools in your community have the access they need? Which tools does your community rely on? | |

Floodplain management requires that you understand the mapping and data side when working with the public. If you were unsure or answered no to any of these questions, how would you put a plan together to address them? Are there other partners/resources needed to be successful in that action?

# FLOODPLAIN MANAGEMENT




FPAs are expected to track how their communities manage development and change in the floodplain- for instance, through permitting and enforcement. For structures, the FPA or other designated permitting official must track the lowest floor elevation and Elevation Certificate. Individuals seeking a LOMC must provide an elevation form and lowest adjacent grade (LAG).

Each municipality is required to adopt floodplain regulations - as a standalone ordinance or specific sections in other land use and zoning ordinances. To participate in the NFIP, the ordinance language must include:

- Process guidance on permitting in the SFHA
- How Base Flood Elevation (BFE) data are gathered, analyzed, and used
- An administrative process for measuring substantial modification (damage and/or improvement)
- A process for documenting elevation (Elevation Certificates) and Substantial Damage/Improvement Calculations

### 9. Does your municipality issue permits for all proposed development in the SFHA? What office/position is responsible?

*Ex. Dangerville's permitting officer permits all new development in the community. For properties in the SFHA, the permitting officer issues a conditional permit pending approval by the Dangerville FPA. For properties in the SFHA, construction cannot begin until the FPA signs off.*

**RESOURCE ALERT!**

All Region 3 states have a "model floodplain ordinance" that communities can (and are encouraged to) use. These ordinances are regularly reviewed for clarity and compliance with NFIP and state requirements. If your regulations have not been updated in recent years, it might be time to review for needed improvements.

To track the impact of development and land changes on the water surface elevations (WSELs), communities are expected to obtain, review, and use BFE and floodway data for subdivision proposals, development greater than 50 lots or 5 acres, and otherwise as documented in the community's floodplain ordinance.

### 10. Does your municipality obtain, review, and utilize BFE and floodway data, or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres? If so, what department or office is responsible?

*Ex. Dangerville collects all applicable BFE data but their staff engineers do not have Hydrology and Hydraulics (H&H) training, so they use contractors to provide analysis of BFE and flow impacts.*

*Ex. Riskburg passed a higher standard ordinance than FEMA requires and now does not allow development to increase the water surface elevation (WSEL) at all. The Riskburg Engineers calculate each proposal's request using the same process and data to ensure there aren't discrepancies between proposals.*

### RESOURCE ALERT!

There are a lot of trainings available to help FPAs understand how to best manage their floodplains, for example, L273 - Introduction to Floodplain Management. For more courses and to find a location near you, contact your State NFIP Coordinator.



Not every structure in the SFHA will meet NFIP requirements - some may have been grandfathered in or have been granted an exception. As a tool to increase compliance with older structures, the NFIP requires communities to track when a structure is more than 50 percent damaged or improved. The community can decide how the percentage will be calculated (e.g., tax assessed, market rate, etc.). Any structure over 50-percent modified must be brought into compliance with all NFIP requirements.

**11. How does your community identify substantially improved structures? When do they intervene to ensure construction increases the resilience (e.g., building above the BFE, anchoring, using flood-resistant materials, and/or elevating utility locations to prevent water damage)?**

*Ex. Riskburg tracks substantial improvement through the permitting office. As some construction may be less obvious (e.g., a kitchen or bathroom remodel), Riskburg also conducts regular outreach to frequently used contractors.*

*Ex. Dangerville tracks substantial improvement over time- if a structure owner gets to 50-percent modified within 10 years, they must bring the structure into compliance.*

### DID YOU KNOW...?

Substantial improvement only applies to structures in the SFHA (unless the community has adopted a higher standard that says all properties are tracked this way), BUT the modification can be a home improvement project (e.g., bathroom remodel) or damage caused by any disaster – not just flooding.

After a disaster, FPAs or their designees conduct substantial damage assessments to determine if any properties are more than 50-percent damaged. The disaster may be individual, such as a house fire, or communal—widespread flooding after a hurricane.

### COMMUNITY CONNECTION

FPAs often work with their town and city councils to set standards higher than required by the NFIP. This helps their communities to be more resilient over time – for instance with a 2-foot freeboard requirement, 40-percent damaged triggers substantial damage, etc. Often when one community finds a method that works, their neighbors want to try something similar.

**12. Does your community have a coordinated process to determine substantial damage and to permit repair and improvement?** This is an area where communities can prepare in advance to implement a well-coordinated process to tag substantially damaged properties and to work with the permit office to ensure no development occurs without a permit so that codes are followed. This is also an opportunity to coordinate with planning on how to include risk reduction activities in the plan.

### Does the municipality conduct substantial damage assessments in the SFHA? Does your community have a plan for who will conduct substantial damage assessments and a procedure for assessment?

*Ex. Dangerville previously allowed home-owner-hired contractors to assess property damage after a large storm. Dangerville's FPA found that the contractors were not uniform in their assessments. This was confusing to homeowners and ultimately limited the official's ability to enforce the SD/SI requirements.*

**RESOURCE ALERT!**

In addition to the Desk Reference, FEMA also has trainings on how to develop an SI/SD administrative procedure, and a Substantial Damage Estimator (SDE) Tool that includes training. The SDE Tool allows assessors to plug in information before a disaster to expedite information sharing and SI/SD designations afterwards. The tool can be used to pre-populate door placards and letters.

Records of structures in the SFHA must be kept in perpetuity. Make sure you are storing them in a safe area (not in a potentially flooded basement) and consider making them digital and regularly back them up.



### 13. Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures? Does your municipality require Elevation Certificates? If yes, how is it documented and which office/agency/department is responsible?

*Ex. Riskburg's FPA keeps all the data for structures in the SFHA easily accessible to staff. The Code Enforcement Officers conduct multiple inspections of construction to make sure all floodplain requirements are being met – including elevation above the BFE.*

*Ex. Dangerville is a Community Rating System (CRS) class 7 community. As part of CRS, Dangerville is required to maintain ECs. Dangerville hired a CRS coordinator (separate from the FPA) to make sure ECs were up to date and also look for new opportunities to reduce risk and gain CRS points.*

### 14. How does the municipality enforce the floodplain ordinance sections? Does enforcement include monitoring compliance and taking remedial action to correct potential violations? How does the municipality address SI/SD violations?

*Ex. Dangerville set up a permitting office tent next to the neighborhood damaged by a tornado. Residents and contractors coming in and out of the damage area could stop by the permitting tent for information and/or expedited processing of permits. Because the neighborhood overlapped with the SFHA, the FPA staffed the tent too.*



Each state/commonwealth is required to track how well communities participating in the NFIP are monitoring development and/or changes in/to the SFHA. FEMA then assesses how well the state is administering their NFIP program oversight. At the community level, state and federal partners may reach out to conduct tours of the SFHA, review permitting documentation, etc. When FEMA and/or the State NFIP Coordinator conduct these reviews of community compliance with the NFIP it is often called a Community Assistance Visit and/or Community Assistance Contact. If something is found to be out of compliance with the NFIP, the state and/or FEMA will document it and then work with the community to identify corrective actions to rectify the issue.

### 15. Has your municipality had a Community Assistance Visit? If so, are there any corrective actions remaining to complete (the process?), or have the actions been completed and remedied to the greatest extent possible? How does your community track open and closed actions, and when closed, what was the activity that led to closure?

FEMA encourages communities to exceed the requirements identified in the NFIP for land use, development, permitting, and enforcement. Examples include:

- Higher freeboard (e.g., 24 inches above the BFE instead of at the BFE or BFE plus 18 inches)
- Prohibition of production or storage of chemicals in the SFHA
- Prohibition of fill in the floodplain
- Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in the SFHA
- Prohibition of certain types of residential housing (manufactured homes) in the SFHA
- Floodplain ordinances that prohibit any new residential or nonresidential structures in the SFHA

### 16. Does your municipality have higher ordinance standards than the NFIP? Has the municipality considered adopting regulations that extend beyond the minimum requirements? Please describe the higher standards and where they are documented.

*Ex. Dangerville does not have a mapped floodway but has decided not to allow any development that increases the BFE. This is a higher standard than the NFIP, which would allow up to 1 foot of incremental increase and is hard to monitor.*

Local Officials from municipalities participating in the NFIP are eligible for state and FEMA trainings on floodplain management.

### 17. Are any local officials/departments in your community interested in a training? What topics relate most to your community?

*Ex. Riskburg hired three new code enforcement officers. To help them get up to speed on floodplain management, the county sent the officers to the L273 Introduction to Floodplain Management course. The officers were then asked to review Riskburg's documentation to make sure everything was still in compliance.*





**ACTION OPPORTUNITY!**

How you manage development in or near the floodplain directly impacts your community's level of risk. How are you using your floodplain management activities to reduce risk in your community?

# COMMUNITY WORKSHEET

## FLOODPLAIN MANAGEMENT

| | |
|---|---|
| 9. Does your municipality issue permits for all proposed development in the SFHA? What office/ position is responsible? | |
| 10. Does your municipality require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres? If so, what department or office is responsible? | |
| 11. How does your community identify substantially improved structures? When do they intervene? | |
| 12. Does your community have a coordinated process to determine substantial damage and to permit repair and improvement? Does the municipality conduct substantial damage assessments in the SFHA? Does your community have a plan for who will conduct substantial damage assessments and a procedure for assessment? | |
| 13. Does your municipality require Elevation Certificates for new or substantially improved structures? If yes, how is it documented and which office/agency/department is responsible? | |
| 14. How does the municipality enforce the floodplain ordinance sections? How does the municipality address SI/SD violations? | |
| 15. Has your municipality had a Community Assistance Visit? If so, were any corrective actions required? | |
| 16. Does your municipality have or is considering higher ordinance standards than the NFIP? Please describe the higher standards and where they are documented. | |
| 17. Are any local officials/departments in your community interested in a training? What topics relate most to your community? | |

Floodplain management has many parts. If you were unsure or answered no to any of these questions, how would you put a plan together to address them? Are there other partners/resources needed to be successful in that action?

# FLOOD INSURANCE

One of the benefits of participating in the NFIP is access to flood insurance. Flooding is the costliest and most common natural disaster in the U.S., claiming lives, inflicting financial losses on households and businesses, and straining the government agencies that provide flood response and relief. Flooding occurs from many types of events – and in some parts of our Region, sunny day flooding is occurring from the impacts of sea level rise, high tides, and subsidence. Flood Insurance rates may vary by flood zone, elevation difference, building/occupancy type, construction date, and coverage limits/deductibles.

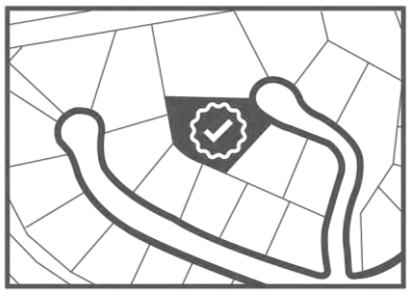
After a flood, it can be difficult for a community (residents and businesses) to recover. In fact, 90 percent of businesses fail within a year if they do not reopen within the first 5 days following a disaster. Access to flood insurance can help decrease the financial impact.



## 18. How does the municipality educate community members about the availability and value of flood insurance?

*Ex. Riskburg maps a buffer area around the SFHA and encourages structure owners in the buffer area to consider buying flood insurance because "water doesn't follow the lines on a map."*

When the FIRM is updated (for a watershed-wide study, specific section, or LOMC), the known risk for some property owners may change, and their insurance options may change too. For example, someone newly mapped into the SFHA may be required to obtain flood insurance when applying for a mortgage. Someone mapped out of the SFHA may be eligible for a reduced rate flood insurance policy.



## 19. Does the municipality inform community property owners about changes to the FIRM that would impact their insurance rates?

*Ex. Dangerville recently conducted a culvert analysis and submitted data to update one map panel. They found 30 homes would be at lower risk than previously identified. Once mapped out of the SFHA, Dangerville officials notified residents of the need to contact their insurance agents and to maintain flood insurance at reduced rates.*

Flood insurance coverage and what is eligible can be confusing. The NFIP, for instance, offers an Increased Cost of Compliance (ICC) insurance rider (up to $30,000) for mitigation activities that are required by the municipal ordinance if the structure is substantially damaged. This will bring a building built in the SFHA before publication of the community's first FIRM into compliance with local regulations, reducing future damages and lowering flood insurance rates.

## 20. How does the municipality provide general assistance to community members regarding flood insurance issues?

*Ex. After a large flood damaged 20 homes in Riskburg, code enforcement officers were tasked to conduct outreach and see if any homeowners were interested in elevating their homes. 10 homeowners signed up. Riskburg was able to help the homeowners decrease their costs through combining FEMA grants, ICC, state grants, and the homeowner's insurance payouts.*

**COMMUNICATIONS ALERT!**

If you are looking to share your messages about flood insurance broadly, it may help to consider the professional and trade groups impacted - for instance, real estate brokers, bankers, and others involved in the insurance process. Some communities convene these groups to make sure they are informed about the most up-to-date FEMA maps and guidance.

When considering the municipality's overall risk to flooding, it is important to track structures in the SFHA (including those with repetitive loss) and identify a strategy to reduce future loss. Many communities maintain this strategy in their hazard mitigation plan as part of the mitigation strategy and regularly check in on implementation of each action.

### 21. Does the municipality keep track of the number of residential and non-residential structures in the SFHA? How many structures are in the SFHA in your community?

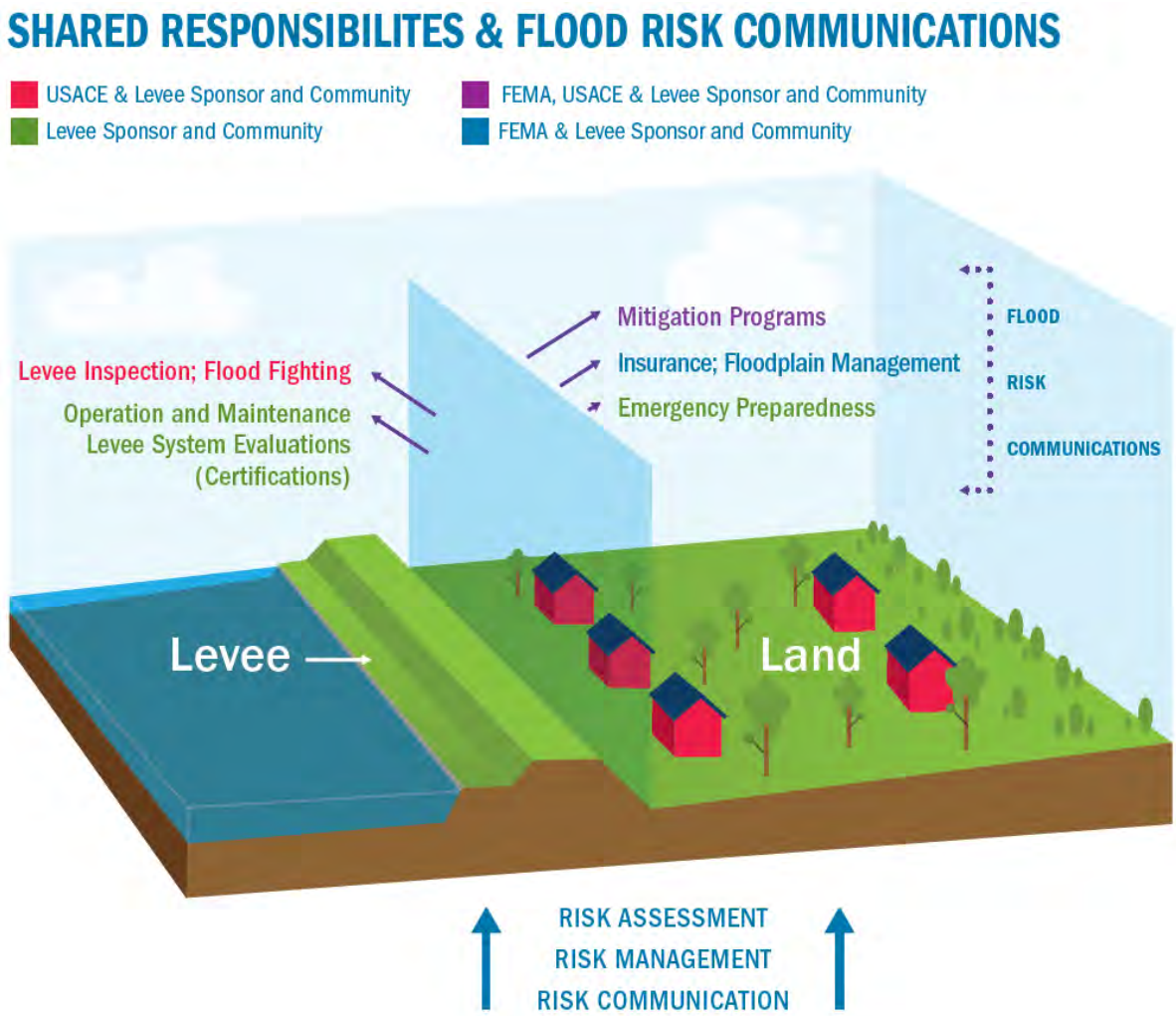
*Ex. Dangerville Planners marked the telephone poles along the SFHA edges so that residents knew when they were entering and leaving high-risk flood areas. The markings also helped the planners collect data on the number of structures in the SFHA. Dangerville planners tracked residential and non-residential structures for consideration in their risk assessment and mitigation strategy. They also reported this data to the state annually for the state hazard mitigation plan and mitigation actions. Dangerville analyzed flood damage to these structures and considered potential damage costs in their cost-benefit analysis for which mitigation actions to prioritize.*

**RESOURCE ALERT!**

The U.S. Army Corps of Engineers (USACE), in partnership with FEMA, tracks the nation's levees in the National Levee Database (NLD) https://levees.sec.usace.army.mil/#/



Levees may reduce the risk of flooding and protect structures, giving them a significant reduction in insurance rates. Although levees may reduce the risk of flooding, that reduction depends on the levee's condition and height. FEMA does not design, certify, own, operate, maintain, or inspect levee systems. FEMA does identify, analyze, and map the flood hazards associated with levees, as well as depict accreditation on FIRMs for those levee systems for which the appropriate certification documents have been submitted.




Levees that are known to USACE can be found in the NLD. This includes USACE-built levees, state and local levees, and some private levees. This site also tracks whether the levee has been accredited by FEMA.

While owners with structures behind an accredited levee are not required to buy flood insurance, it is important that they understand the risks to being near a levee and the potential for flooding after high water events (such as a large rainstorm or hurricane) when water levels exceed the levee's design height. FPAs and emergency managers in communities with levees should regularly conduct outreach and educate residents on their remaining risk.

## 22. Does the municipality have any levees or levee systems in its jurisdiction?

*Ex. Riskburg does routine operation and maintenance to the levees in its jurisdiction year-round. Riskburg looks at inspection reports from USACE periodically to ensure proper maintenance continues throughout the year. FEMA, USACE, and Riskburg engineers monitor the NLD to make sure any changes are updated and check for any technical assistance requests. Riskburg follows a similar process reviewing state inspections to meet state requirements as well.*

Most levees designed and built by USACE have agreements with the local municipalities (non-federal sponsors) to operate and maintain the levee. To assist the municipalities in this and to ensure that the levees operate correctly, the USACE has periodic inspections which review the functioning of the levee and recommend fixes, as needed. For flood insurance purposes, FEMA requires a review of the levee to ensure that it has adequate freeboard (top of the levee must be 3 feet above the BFE) and that the levee system operates as designed. If the levee does not meet the requirements, the "Protected by Levee" status on the FIRM is removed and the areas behind the levee will have a mandatory flood insurance purchase requirement.

Currently, FEMA lists Accredited Levees (those that meet the criteria to operate effectively), Provisionally Accredited (those that are in the process of submitting their documentation), and non-Accredited levees. You can find the status of your levee in the NLD.

## 23. Is the levee or levee system accredited by FEMA?

*Ex. Dangerville officials encouraged residents to maintain flood insurance after the levee was re-certified. While they are "Protected by Levee" on the FIRM, there is still risk. When levees do fail, they often fail catastrophically, and the damage may be more significant than it would have been without a levee.*

## 24. Is the levee or levee system a Provisionally Accredited Levee (PAL)?

*Ex. Dangerville's new FPA checks their FIRM to determine whether a PAL note is present. The FPA cross checks the map panel and the NLD, and looks at the expiration date for any PAL note. If it is expired, the FPA must work to find/ develop a re-certification package. An engineering firm is then able to certify that the levee meets regulations. If FEMA agrees with the certification, the levee will be accredited.*

The non-federal sponsor of the levee is responsible for the operation and maintenance of their levee as well as funding that ongoing work. Non-federal sponsors participating in the USACE Rehabilitation and Inspection Program benefit from the periodic inspections, technical assistance, and USACE financial support if their levee is damaged as a result of flooding.



## 25. Is the levee or levee system part of the USACE Rehabilitation and Inspection Program (RIP)?

*Ex. Riskburg's engineers check the NLD to see if the levees are active in the RIP. If not, the FPA must work to determine why not and what must be addressed to be reinstated in the program. The engineers work with the mitigation planners to consider ways to improve the levees and reduce risk nearby. Riskburg also provides the public with regular outreach to ensure the public is aware of the risks behind the levee.*

When thinking about large-scale structures that may impact your community's risk, please also consider dams. How are you collecting data about dams in your community and ranking them for risk? Risk might be ranked by likelihood of dam failure, number of people and critical infrastructure that may be impacted by a dam breach, etc. Each agency you work with may have different designations too, from Major Dams to High Hazard Dams, etc.

If you haven't reached out yet, your state's Dam Safety Officer (DSO) may have helpful information about your dams and those up and downstream from you.

If you have a dam improvement project, have you considered applying for a FEMA High Hazard Potential Dam grant?

## 26. Does your community have any Major Dams or High Hazard Dams, and if so, have you applied for FEMA's High Hazard Potential Dam grant?

*Ex. Riskburg sends a list of dams and their classification (high hazard, major, and otherwise) to the state DSO annually. The DSO coordinates with the State Hazard Mitigation Officer (SHMO) to ensure that dam risk information is captured in Riskburg's local HMP (via amendment or during the next HMP update). The SHMO also adds Riskburg's data into the state HMP when applicable. The DSO and SHMO follow up with Riskburg engineers on any changes and check on any need for technical assistance. Last year, Riskburg used a High Hazard Potential Dam grant to fund a mitigation project to modify the dam. The modification included landscaping that aligned with the comprehensive plan goals for the area.*



### ACTION OPPORTUNITY!

Insurance coverage can be complicated – what are your local officials, insurance agents, real estate brokers, and other leaders in your community doing to make sure home and business owners understand what is available to them?



# COMMUNITY WORKSHEET

## FLOOD INSURANCE

| | |
|---|---|
| 18. How does the municipality educate community members about the availability and value of flood insurance? | |
| 19. Does the municipality inform community property owners about changes to the FIRM that would impact their insurance rates? | |
| 20. How does the municipality provide general assistance to community members regarding insurance issues? | |
| 21. Does the municipality keep track of the number of residential and non-residential structures in the SFHA? How many structures are in the SFHA in your community? | |
| 22. Does the municipality have any levees or levee systems in its jurisdiction? | |
| 23. Is the levee or levee system certified and accredited? | |
| 24. Is the levee or levee system a Provisionally Accredited Levee (PAL)? | |
| 25. Is the levee or levee system part of the USACE Rehabilitation and Inspection Program? | |
| 26. Does your community have any Major Dams or High Hazard Dams, and if so, have you applied for FEMA's High Hazard Potential Dam grant? | |

Flood risk communication to the public is vital for a community to be truly resilient. Understanding what, where, and how a disaster may affect your residents is the key. If you were unsure or answered no to any of these questions, how would you put a plan together to address them? Are there other partners/resources needed to be successful in that action?

### NEXT STEPS

- What are your short- and long-term action items?
- If you need help identifying trainings or other resources, consider contacting your State Hazard Mitigation Officer or State NFIP Coordinator.

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | |
| **Name and Title:** | |

This worksheet summarizes **Morgan Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | **NC**=No Change **I**=Increase **D**=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Flooding (N) | 3 | 2 | 3 | 3 | 2 | 2.6 | | |
| Utility Interruption (H) | 3 | 2 | 2 | 3 | 2 | 2.4 | | |
| Epidemic/Pandemic (N) | 2 | 3 | 2 | 1 | 4 | 2.4 | | |
| Winter Storm (N) | 3 | 2 | 2 | 2 | 2 | 2.3 | | |
| Hazardous Materials Incident (H) | 2 | 2 | 2 | 4 | 3 | 2.3 | | |
| Windstorm, Tornado (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | | |
| Hailstorm (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | | |
| Transportation Accidents (H) | 4 | 1 | 1 | 4 | 1 | 2.2 | | |
| Hurricane, Tropical Storm, Nor'easter (N) | 2 | 2 | 3 | 1 | 3 | 2.2 | | |
| Source Water Contamination (H) | 2 | 2 | 2 | 2 | 2 | 2.0 | | |
| Wildfire (N) | 2 | 2 | 1 | 4 | 2 | 2.0 | | |
| Drought (N) | 1 | 1 | 4 | 1 | 4 | 1.9 | | |
| Dam and Levee Failure (H) | 1 | 2 | 2 | 4 | 2 | 1.9 | | |

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | **NC**=No Change<br>**I**=Increase<br>**D**=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Terrorism (H)<br>*Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | **1** | **1** | **1** | **4** | **2** | **1.4** | | |
| Extreme Temperatures (N) | **1** | **2** | **1** | **1** | **2** | **1.4** | | |
| Infestation/Invasive Species (N) | **1** | **1** | **2** | **2** | **2** | **1.4** | | |
| Thunderstorm, Lightning Strike (N) | **1** | **1** | **1** | **4** | **1** | **1.3** | | |
| Earthquake (N) | **1** | **1** | **1** | **4** | **1** | **1.3** | | |
| Landslides and Land Subsidence (N) | **1** | **1** | **1** | **4** | **1** | **1.3** | | |
| Radon Exposure (N) | **1** | **1** | **1** | **1** | **1** | **1.0** | | |
| Civil Disturbance (H)* | | | | | | | | |
| Cyber Terrorism (H)* | | | | | | | | |
| Opioid Addiction& Response (H)* | | | | | | | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | **1** | **30%** |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | **2** | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | **3** | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | **4** | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | **1** | **30%** |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | **2** | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | **3** | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | **4** | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | **1** | **20%** |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | **2** | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | **3** | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | **4** | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | **1** | **10%** |
| | **12 TO 24 HRS** | SELF-DEFINED | | **2** | |
| | **6 TO 12 HRS** | SELF-DEFINED | | **3** | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | **4** | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | **1** | **10%** |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | **2** | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | **3** | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | **4** | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

☐ Expansive Soils

### *Human-made*

☐ Building and Structure Collapse

☐ Civil Disturbance

☐ Cyber Terrorism

☐ Disorientation

☐ Drowning

☐ Mass Food/Animal Feed Contamination

☐ Nuclear Incident

☐ Opioid Addiction & Response

☐ Urban Fire and Explosion

☐ War and Criminal Activity

☐ Envtl. Hazard – Coal Mining

☐ Envtl. Hazard – Gas and Liquid Pipelines

☐ Envtl. Hazard – Conventional Oil & Gas Wells

☐ Envtl. Hazard – Unconventional Oil & Gas Wells

### Other Comments

# FEMA REGION III
# HAZARD MITIGATION PLAN GUIDANCE
## Community Capability Assessment Worksheet

**JURISDICTION:** _____

## PLANNING AND REGULATORY

Planning and regulatory capabilities are plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

### PLANS AND POLICIES

Indicate if the jurisdiction has the following plans or policies in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider development of the plan/policy as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the plan/policy address hazard impacts? If so, how? For example, does the plan/policy include limitations to building in areas of risk, noted by the hazard mitigation plan? If so, what are those restrictions?
- Does the plan/policy identify projects that could be included in the mitigation strategy?
- Can the plan/policy be used to implement mitigation actions?
- How can the plan/policy be expanded and improved to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific plans or policies.

| **COMPREHENSIVE/MASTER LAND USE PLAN** | Overall policy guide for future community growth and development. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

JURISDICTION: _____

## PLANS AND POLICIES (CONTINUED)

| CLIMATE CHANGE ADAPTATION PLAN | An action plan and vulnerability assessment across a broad range of government services to anticipate, plan for, increase awareness of, and build momentum to address and adapt to a changing climate. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

| EMERGENCY OPERATIONS PLAN | Organizational procedures and processes to respond to and recover from an emergency. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

JURISDICTION: _____

## PLANS AND POLICIES (CONTINUED)

| STREAMBANK BUFFER PROTECTION PROGRAM | A combination of conservation easements, vegetation management, and landscape restoration of vegetative buffers for streams and waterways to attenuate stormwater runoff quantity and quality issues, decrease streambank erosion, and increase habitat value of the waterway. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

Other plans and policies that should be included in the capability assessment for each participating jurisdiction:

- Brownfields Redevelopment Program
- Coastal Zone Management Program
- National Flood Insurance Program (NFIP) Community Rating System
- Community Wildfire Protection Plan
- Continuity of Operations Plan
- Disaster Recovery Plan
- Economic Development Plan
- Flood Mitigation Plan
- Land acquisition for open space and public recreation uses
- Transportation Plan
- Stormwater Management Plan

**JURISDICTION:** _____

## CODES AND ORDINANCES

Indicate if the jurisdiction has the following codes or ordinances in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider enactment of the code/ordinance as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the code/ordinance address hazard impacts? If so, how?
- Is the code/ordinance adequately administered and enforced? For example, are there personnel dedicated to enforcement? Are the procedures for addressing violations clear?
- How many times has the code/ordinance been applied to enforce restrictions in hazard areas?
- Is the code/ordinance an effective measure for reducing hazard impacts?
- How can the code/ordinance be improved to reduce risk through the use of higher standards?

In addition, see Attachment A for additional questions or considerations for specific codes or ordinances.

| **BUILDING CODE** | Minimum requirements that must be met in the construction and maintenance of buildings to ensure public health and safety. |
|---|---|
| Is this Code or Ordinance in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

JURISDICTION: _____

## CODES AND ORDINANCES (CONTINUED)

| FLOODPLAIN MANAGEMENT ORDINANCE/NFIP COMPLIANCE | The minimum floodplain management regulations for compliance with the NFIP that must be met by participating communities once FEMA provides flood hazard information. This is to ensure participating communities consider flood hazards, to the extent that they are known, in all official actions relating to land management and use. |
|---|---|
| Is this Code or Ordinance in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

Other codes and ordinances that should be included in the capability assessment for each participating jurisdiction:

- Fire department inspections
- International Property Maintenance Code
- Oher hazard-specific ordinances (stormwater, steep slope, and wildfire)
- Site plan development review ordinance
- Subdivision development review ordinance
- Zoning ordinance

JURISDICTION: _____

# ADMINISTRATIVE AND TECHNICAL

Administrative and technical capabilities include boards, commissions, departments, staff and consulting services, along with the related skills and tools, that can be used for mitigation planning and the implementation of specific mitigation actions.

*Note: For smaller jurisdictions without local resources, resources at the next level government may be able to provide administrative, technical, and/or financial assistance.*

## ADMINISTRATIVE

Indicate if the jurisdiction has the following boards, commissions, or departments in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider forming the board/commission/department as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the board / commission / department address hazard impacts? If so, how? For example, is the risk assessment of the approved Hazard Mitigation Plan (HMP) consulted when this board, commission or department considers projects or activities? If so, what is the process for review?
- Are staffing numbers and training adequate to carry out the mission of the board/commission/department?
- Does the board/commission/department identify projects that could be included in the mitigation strategy?
- Can the board/commission/department be engaged to implement mitigation actions?
- How can the board/commission/department be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **ENGINEERING DEPARTMENT** | An in-house department providing civil engineering capability. |
|---|---|
| Is this Board, Commission, or Department in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Point-of-Contact: | |
| Meeting Schedule: | |
| Relation to Hazard Mitigation: | |

JURISDICTION: _____

## ADMINISTRATIVE (CONTINUED)

| CODE ENFORCEMENT DEPARTMENT | An in-house department responsible for evaluating private properties and public grounds against local codes. |
|---|---|
| Is this Board, Commission, or Department in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Point-of-Contact: | |
| Meeting Schedule: | |
| Relation to Hazard Mitigation: | |

Other administrative boards, commissions, or departments that should be included in the capability assessment for each participating jurisdiction:

- Board of Education
- Emergency Management
- Maintenance Department
- Mitigation Implementation Team
- Mutual aid agreements
- Planning Commission/Zoning Board
- Public Utility Board(s)
- Public Works Department
- Purchasing Department

JURISDICTION: _____

## TECHNICAL

Indicate if the jurisdiction has the following staff positions in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider adding the position as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the staff position description include addressing hazard impacts and/or mitigation? If so, how and is staff trained on relevant issues related to hazard impacts and/or mitigation?
- What training and/or certification is required of the staff position?
- What additional training and/or certification does the current staff need?
- How can the staff be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **CHIEF BUILDING OFFICER** | The in-house or contracted code enforcement staff responsible for evaluating private properties and public grounds against local codes, answering citizen questions about the codes, and issuing citations for code violations. |
|---|---|
| Is this Staff Position in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☐ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | |
| Current Position Holder: | |
| Length of Employment in this Position: | |
| Relation to Hazard Mitigation: | |

JURISDICTION: _____

## TECHNICAL (CONTINUED)

| CIVIL ENGINEER - CONSTRUCTION PROJECT MANAGEMENT | The in-house or contracted engineering staff responsible for managing construction projects and meeting budget and schedule constraints. |
|---|---|
| Is this Staff Position in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☐ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | |
| Current Position Holder: | |
| Length of Employment in this Position: | |
| Relation to Hazard Mitigation: | |

| GRANT ADMINISTRATOR | The in-house or contracted staff familiar with and capable of successfully handling FEMA Hazard Mitigation Assistance (HMA) grant program requirements consistent with the Code of Federal Regulations, as well as non-FEMA funding sources. |
|---|---|
| Is this Staff Position in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☐ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | |
| Current Position Holder: | |
| Length of Employment in this Position: | |
| Relation to Hazard Mitigation: | |

JURISDICTION: _____

## TECHNICAL (CONTINUED)

| GRANT WRITER | The in-house or contracted staff familiar with and capable of successfully applying for FEMA HMA grants, as well as non-FEMA funding sources. |
|---|---|
| Is this Staff Position in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☐ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | |
| Current Position Holder: | |
| Length of Employment in this Position: | |
| Relation to Hazard Mitigation: | |

Other technical staff positions that should be included in the capability assessment for each participating jurisdiction:

- Business Administrator
- Chief Financial Officer
- Civil Engineer – Design
- Civil Engineer – Inspections
- Clerk
- Community Planner
- Emergency Manager
- Floodplain Administrator
- GIS Coordinator (hazard and community asset data and information management, Hazus)

**JURISDICTION:** _____

## FINANCIAL

Financial capabilities include access to or eligibility to use funding resources for hazard mitigation.

Indicate if the jurisdiction has access and/or eligibility for the following funding resources.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider pursuing the funding resource as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the funding resource been used in the past for hazard mitigation? If so, for what type of activities?
- Could the resource be used to fund future mitigation actions?
- How can the funding resource be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **CAPITAL IMPROVEMENTS PROGRAM** | A short-range plan, usually 4 to 10 years, which identifies capital projects and equipment purchases, provides a planning schedule and identifies options for financing the plan. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

JURISDICTION: _____

## FINANCIAL (CONTINUED)

| FUNDING PROGRAMS – FEDERAL (NON-FEMA) | Grant programs administered by Federal agencies other than FEMA with potential to fund mitigation actions. For example, the U.S. Department of Housing and Urban Development Community Development Block Grants, U.S. Department of Energy, and the U.S. Department of Transportation, etc. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

| UTILITY FEES FOR STORMWATER, WATER, SEWER, GAS, OR ELECTRIC SERVICES | Fee levied by the jurisdiction, in addition to cost of service provided, for use in funding related capital programs, such as non-Federal shares for mitigation actions. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

Other funding resources that should be included in the capability assessment for each participating jurisdiction:

- Community Development Block Grant
- FEMA – Hazard Mitigation Assistance
- FEMA – Public Assistance 406 Mitigation
- Funding programs – State
- Funding programs – Philanthropic
- General obligation bonds and/or special tax bonds
- Impact fees for new development
- Tax levies for specific purposes

**JURISDICTION:** _____

# EDUCATION AND OUTREACH

Education and outreach capabilities include programs and methods already in place that could be used to support implementation of mitigation actions and communicate hazard-related information.

Indicate if the jurisdiction has the following programs or methods in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider developing the program or method as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the program/method been used in the past for hazard mitigation? If so, for what type of activities?
- Could the program/method be used to support future mitigation actions?
- How can the program/method be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **STORMREADY CERTIFICATION** | National Weather Service program that helps arm America's communities with communication and safety skills needed to save lives and property, before, during and after an event. |
|---|---|
| Is this Program/Method in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

JURISDICTION: _____

## EDUCATION AND OUTREACH (CONTINUED)

| SEASONAL EMERGENCY MANAGEMENT AND MITIGATION OUTREACH | Seasonal outreach. For example, in advance of hurricane season or in anticipation of winter weather, including information regarding preparedness and mitigation measures that individuals can undertake for their own risk reduction. |
|---|---|
| Is this Program/Method in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

Other programs or methods that should be included in the capability assessment for each participating jurisdiction:

- Firewise USA certification
- Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.
- Natural disaster or safety related school programs
- Ongoing public education or information program (e.g., Environmental Education, Fire Safety, Household Preparedness, Responsible Water Use, etc.)
- Public-private partnership initiatives addressing disaster-related issues

JURISDICTION: _____

# ATTACHMENT A

Attachment A includes the following additional guidance for assessment of specific capabilities:

- Potential agencies and organizations to contact for information
- Additional questions or considerations

## PLANNING AND REGULATORY

### PLANS AND POLICIES

| PLAN/POLICY | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Comprehensive/ Master Land Use Plan | Planning or Zoning Departments | ▫ Does the plan integrate hazard profile information from the current approved HMP into development suitability analysis?<br>▫ Is the plan effectively reducing or eliminating development in known hazard areas, i.e., is the rate of development in the Special Flood Hazard Area lower, the same, or higher?<br>▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP? |
| Climate Change Adaptation Plan | Planning Department | ▫ Does the plan include future hazard vulnerability projections? If so, are these projections included in the current approved HMP risk assessment?<br>▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP? |
| Emergency Operations Plan (EOP) | Emergency Management Department | ▫ Does the EOP address all hazards identified in the current approved HMP?<br>▫ Does the EOP address any hazards that are not included in the current approved HMP? If so, are these hazards for which mitigation actions might be appropriate to consider?<br>▫ Does the EOP identify obstacles or problems for response and recovery operations that could be alleviated entirely or in part through mitigation, e.g., limited access to floodprone areas due to transportation infrastructure limitations? |
| Streambank Buffer Protection Program | Local or regional natural resources conservation non-profit organizations | ▫ Does the program reference problem areas identified in the current approved HMP?<br>▫ Does the program identify problem areas that should be referenced in the HMP?<br>▫ Is acreage in the program increasing year to year? |

### CODES AND ORDINANCES

| CODE/ORDINANCE | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Building Code | Code Enforcement or Engineering Departments | ▫ What is the community's Building Code Effectiveness Grading Schedule Score? |
| Floodplain Ordinance/NFIP Compliance | Code Enforcement or Engineering Departments | ▫ What is the community's current status in the NFIP?<br>▫ Does the ordinance include higher standards than minimum requirements of the NFIP, e.g., additional freeboard above the Base Flood Elevation? |

# Community Capability Assessment Worksheet

JURISDICTION: _____

## ADMINISTRATIVE AND TECHNICAL

### ADMINISTRATIVE

| BOARD/COMMISSION/ DEPARTMENT | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Engineering Department | Engineering or Public Works Departments | ▫ Does the department have ability and availability for design, engineering, project scoping (per HMA or other grant program requirements) and construction project management for mitigation actions included in the current approved HMP and/or proposed for plan update? |
| Code Enforcement Department | Code Enforcement or Engineering Departments | ▫ Are all ordinances and codes related to hazard mitigation (e.g., building code, floodplain management ordinance, zoning), enforced by the same department? If not, what are the departments and their respective responsibilities and are compliance reviews and enforcement activities coordinated between departments?<br>▫ Does the department have ability and availability to enforce all ordinances and codes related to hazard mitigation? |

### TECHNICAL

| STAFF POSITION | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Chief Building Officer | Code Enforcement or Engineering Departments | ▫ How does the Chief Building Officer position interact with other code and ordinance enforcement officials with hazard mitigation-related responsibilities, e.g., Floodplain Administrator? |
| Civil Engineer - Construction Project Management | Engineering Department | ▫ Have previous construction projects been completed, meeting budget and schedule constraints? |
| Grant Administrator | Finance or Emergency Management Departments | ▫ Does the Grant Administrator have experience with FEMA HMA grants administration? If so, have previous HMA grant administration experiences been completed successfully?<br>▫ Does the Grant Administrator have experience with other Federal non-FEMA grants administration used for mitigation purposes? If so, what are the grants and was the administration of the grants completed successfully? |
| Grant Writer | Finance or Emergency Management Departments | ▫ Does the grant writer have experience with FEMA HMA grants applications? Have previous HMA grant applications been awarded? Is so, what kinds of projects were funded?<br>▫ Does the grant writer have experience with other Federal non-FEMA grants applications used for mitigation purposes? Have previous non-FEMA grant applications been awarded? If so, what were the grants and what kinds of projects were funded? |

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## FINANCIAL

| FUNDING RESOURCE | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Capital Improvement Program | Administration or Financial Departments | ▫ What is the process and timeframe for adding projects to the Critical Infrastructure Protection? |
| Funding programs – Federal (non-FEMA) | Finance or Emergency Management Departments | ▫ What were the grants, and what kinds of projects were funded? |
| Utility fees for stormwater, water, sewer, gas, or electric services | Finance or Public Works Departments | ▫ How much money is available annually to support implementation of hazard mitigation actions? Is that level of funding expected to decrease, stay the same, or increase in the next five years?<br>▫ What kinds of projects have been funded in this manner? |

## EDUCATION AND OUTREACH

| PROGRAM/METHOD | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| StormReady Certification | Emergency Management or Public Information Departments | ▫ How long has the community been certified?<br>▫ Have surveys been conducted to determine the effectiveness of the program? If so, what were the results? |
| Seasonal Emergency Management and Mitigation Outreach | Emergency Management or Public Information Departments | ▫ Is awareness of potential hazard impacts increasing year to year?<br>▫ Are individuals and businesses taking necessary precautions in advance of events? |

## Appendix C-3 Berkeley County Risk Assessment/Mitigation Workshop Materials (June 5, 2021)

## Welt, Angela

**Subject:** EXTERNAL: Save The Date - Berkeley County Hazard Mitigation Stakeholder Meeting
**Location:** Berkeley County Sheriff's Department (Training Room); 510 S. Raleigh Street; Martinsburg, WV 25401

**Start:** Tue 6/15/2021 1:00 PM
**End:** Tue 6/15/2021 3:00 PM

**Recurrence:** (none)

**Meeting Status:** Accepted

**Organizer:** Matthew Pennington
**Required Attendees:** ablake@cityofmartinsburg.org; acdraper@frontier.com; adavis@berkeleywv.org; bcostello@berkeleywv.org; bill.g.kearns@wv.gov; Breeanna Sims; bross@berkeleywv.org; ceg511@yahoo.com; Curtis Keller; cwinebrenner@bceaa.com; dkeith@cityofmartinsburg.org; Doug Copenhaver; eddiegochenour@berkeleywv.org; g_swartwood@martinsburgpd.org; gsrhoe@comcast.net; Heather Williams; hjohnson@cityofmartinsburg.org; James Barnhart; Jared Tomlin; jdhummingbird@martinsburgfire.org; Jeff Wilkerson; Jennifer Wishmyer; jennifer.blood@us.af.mil; jennifer.r.schetrompf@wv.gov; jesse.hott@redcross.org; 'Jim Ouellet'; jkelly@cityofmartinsburg.org; jswisher@berkeleywv.org; jwhitacre@berkeleywv.org; kdavis@berkeleywv.org; kpetrucci@cityofmartinsburg.org; Kurt.Donaldson@mail.wvu.edu; Mark S. Baldwin; Mark Schiavone; Matthew Umstead; nharmon@berkeleywv.org; Rachel Snavely; Randy Lilly; Steven DeRidder; Timothy Czaja; Zach Walburn
**Optional Attendees:** Monique Boots; Truax, Troy D; Welt, Angela; Asselin, Kelly; g5240@aol.com

Good Morning.

Please find the agenda for next week's Hazard Mitigation Planning Meeting. On Tuesday June 15th we will be focusing on Risk Assessment and Mitigation Strategies for hazards in your community.

In preparation for this meeting please feel free to review the Mitigation Actions/Strategies your community identified in the 2017 plan and provide a status update.

Also, If you have not already submitted the attached Community Assessment and Hazard-Risk Evaluation, please take a few moments to review and complete.

If you have any questions, please feel free to contact me, other members of our Region 9 staff, or our consultants at Michael Baker.

Thank you,
Matthew Pennington

## Welt, Angela

**Subject:** EXTERNAL: FW: Save The Date - Berkeley County Hazard Mitigation Stakeholder Meeting
**Location:** Berkeley County Sheriff's Department (Training Room); 510 S. Raleigh Street; Martinsburg, WV 25401

**Start:** Tue 6/15/2021 1:00 PM
**End:** Tue 6/15/2021 3:00 PM
**Show Time As:** Tentative

**Recurrence:** (none)

**Organizer:** Matthew Pennington

---

From: Matthew Pennington <mpennington@region9wv.com>
Sent: Sunday, May 16, 2021 8:23:56 PM (UTC-05:00) Eastern Time (US & Canada)
To: ablake@cityofmartinsburg.org; acdraper@frontier.com; adavis@berkeleywv.org; bcostello@berkeleywv.org; bill.g.kearns@wv.gov; Breeanna Sims; bross@berkeleywv.org; ceg511@yahoo.com; Curtis Keller; cwinebrenner@bceaa.com; dkeith@cityofmartinsburg.org; Doug Copenhaver; eddiegochenour@berkeleywv.org; g_swartwood@martinsburgpd.org; gsrhoe@comcast.net; Heather Williams; hjohnson@cityofmartinsburg.org; James Barnhart; Jared Tomlin; jdhummingbird@martinsburgfire.org; Jeff Wilkerson; Jennifer Wishmyer; jennifer.blood@us.af.mil; jennifer.r.schetrompf@wv.gov; jesse.hott@redcross.org; 'Jim Ouellet'; jkelly@cityofmartinsburg.org; jswisher@berkeleywv.org; jwhitacre@berkeleywv.org; kdavis@berkeleywv.org; kpetrucci@cityofmartinsburg.org; Kurt.Donaldson@mail.wvu.edu; Mark S. Baldwin; Mark Schiavone; Matthew Umstead; nharmon@berkeleywv.org; Rachel Snavely; Randy Lilly; Steven DeRidder; Timothy Czaja; Zach Walburn
Cc: Monique Boots
Subject: Save The Date - Berkeley County Hazard Mitigation Stakeholder Meeting
When: Tuesday, June 15, 2021 1:00 PM-3:00 PM.
Where: Berkeley County Sheriff's Department (Training Room); 510 S. Raleigh Street; Martinsburg, WV 25401

Good Evening

Please save the date for the afternoon of June 15 for our second Hazard Mitigation Meeting. More details will be provided in the weeks to come.

If you have not already submitted the attached Community Assessment and Hazard-Risk Evaluation, please take a few moments to review and complete.

If you have any questions, please feel free to contact me, other members of our Region 9 staff, or our consultants at Michael Baker.

Thank you,
Matthew Pennington

# MEETING AGENDA

| | |
|---|---|
| Date: | Tuesday, June 15, 2021 |
| Time: | 1:00 – 3:00 PM |
| Location: | Berkeley County Sheriff's Department (Training Room); 510 S. Raleigh Street; Martinsburg, WV 25401<br><br>Zoom:<br>https://us02web.zoom.us/j/81346339577?pwd=b0hybmIvaHVBeHF5elVSTkpvdWlhdz09<br>Meeting ID: 813 4633 9577<br>Passcode: 93019<br>(301) 715 8592 |
| Meeting Name: | 2022 Multi-Jurisdictional Hazard Mitigation Plan Update Risk Assessment and Mitigation Solutions Meeting |

| Topic: | Time: |
|---|---|
| 1. Welcome and Introductions<br>o Facilitator: Troy Truax, AICP, Michael Baker International<br>o Eastern Panhandle Regional Planning and Development Council (Region 9)<br>o Berkeley County Steering Committee and Stakeholders | 1:00 PM |
| 2. Recap of May 4th Kick-Off Meeting | 1:05 PM |
| 3. Risk Assessment Overview and Hazard Identification<br>o Hazard Identification and Profiles<br>o Hazard Ranking and Risk Factor (RF)<br>o Exercise Recap: Risk Ranking Evaluation | 1:25 PM |
| 4. Mitigation Strategy Discussion<br>o Exercise 1: Mitigation Action Progress<br>o Exercise 2: New Mitigation Actions | 2:15 PM |
| 5. Next Steps and Action Items | 2:50 PM |

Visit the project website at http://www.region9wv.com/plans---studies.html

*Questions? Comments? Contact:*

*Rachel Snavely rsnavely@region9wv.com, (304) 263-1743*

*Troy Truax: Troy.Truax@mbakerintl.com, (717) 213-6241*

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

# Risk Assessment and Mitigation Solutions Workshop – Berkeley County

June 15, 2021 | 1:00pm – 3:00pm

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Baldwin, Mark | City of Martinsburg | City Manager | mbaldwin@cityofmartinsburg.org | |
| Barnhart, James | Berkeley County Council | Council Person | jbarnhart@berkeleywv.org | |
| Bartoldson, Elaine | Eastern Panhandle Transit Authority | | ebartoldson@gmail.com | Zoom |
| Bisom, Kriston | WV Conservation Agency | | | Zoom |
| Blake, Andy | City of Martinsburg | Asst. City Manager | ablake@cityofmartinsburg.org | |
| Bobo, Elaine | Berkeley County Board of Ed. | | ebobo@k12.wv.us | |
| Boots, Monique | Berkeley County Council | Planner II | mboots@berkeleywv.org | |
| Brown, Rob | Orgill | | rbrown@orgill.com | |
| Butts, Margaret | Clorox | | margaret.butts@clorox.com | |

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Combs, Tina | Berkeley County Chamber of Commerce | | tina@berkeleycounty.org | |
| Copenhaver, Doug | Berkeley County | Council President | dcopenhaver@berkeleywv.org | |
| Costello, Brian | Berkeley County Emergency Ambulance Authority | EMS Director | bcostello@berkeleywv.org | |
| Corbin, Allen | Berkeley County Parks and Rec | | Allen@mbcparks-rec.org | |
| Cullen, Sherye | Rust-Oleum | | scullen@rustoleum.com | |
| Czaja, Tim | Berkeley County | Community Corrections Director | tczaja@berkeleywv.org | |
| Davis, Alan | Berkeley County | County Administrator | adavis@berkeleywv.org | |
| DeRidder, Steve | Berkeley County Public Service Water District (PSSD) | Superintendent of Operations | sderidder@berkeleywater.org | |
| Diehl, Nicolas | Eastern WV Regional Airport | Executive Director | nic@flymrb.com | |
| Donaldson, Kurt | WVU GIS Tech Center | Senior Project Manager | kurt.donaldson@mail.wvu.edu | |

June 15, 2021

1:00-3:00pm

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Farthing, Shane | City of Martinsburg | Economic Development Director | sfarthing@cityofmartinsburg.org | |
| Gano, Carey | Town of Hedgesville | Mayor | ceg511@yahoo.com | |
| Garnett, Casey | FEMA Region 3 | Hazard Mitigation Community Planner | casey.garnett@fema.dhs.gov | |
| Gochenour, Eddie | Berkeley County | County Commissioner | egochenour@berkeleywv.org | |
| Golden, Jim | Berkeley County | | jgolden@berkeleywv.org | |
| Good, Ronnie | Town of Hedgesville | | Hedgesville WV@ frontier.com | |
| Hamilton, Sandy | Berkeley County Development Authority | Executive Director | shamilton@developmentauthority.com | |
| Harmon, Nathan | Berkeley County | Sheriff | nharmon@berkeleywv.org | |
| Hoffmaster, Laura | Berkeley County | | lhoffmaster@berkeleywv.org | |
| Hower, Lesley | Argos | | lhower@argos-us.com | |
| Huber, Susan | Macy's | | susan.huber@macys.com | |

June 15, 2021

1:00-3:00pm

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Hummingbird, J.D. | Martinsburg Fire Department | Fire Chief | jdhummingbird@martinsburgfire.org | |
| Hull, Cynthia | Blue Ridge CTC | | chull@blueridgectc.edu | |
| Jennifer Wishmyer | Eastern Panhandle Regional Planning & Development Council | Assistant Director | jwishmyer@region9wv.com | |
| Johnson, Harriet | City of Martinsburg | Mayor | hjohnson@cityofmartinsburg.org | |
| Kearns, Bill | Berkeley County Health Dept | Executive Director | bill.g.kearns@wv.gov | |
| Keith, Dana | City of Martinsburg | City Planner | dkeith@cityofmartinsburg.org | Zoom |
| Keller, Curtis | Berkeley County PSSD | | cbkeller@bcpssd.com | |
| Kelly, Jim | City of Martinsburg | Utility Director | jkelly@cityofmartinsburg.org | Jim Kelly |
| Klein, Jim | Shepherd-Martinsburg Center | | jklein@shepherd.edu | |
| Kristi, Shannon | Valley Health | | kshannon@valleyhealthlink.com | |
| Lilly, Randy | Berkeley County Office of Homeland Security & Emergency Management | | rlilly@berkeleywv.org | |

June 15, 2021

1:00-3:00pm

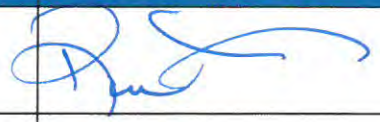
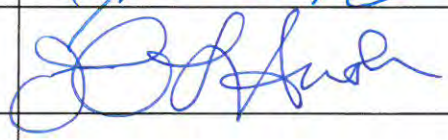
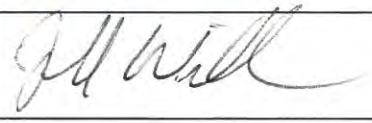
# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Long, Douglas | Winchester & Western | | dlong@winchesterwesternrr.com | |
| Marino, Todd | QuadGraphics | | todd.marino@qg.com | |
| Obrien, Steve | Proctor & Gamble | | obrien.sf@pg.com | |
| Ouellet, Jim | Berkeley County PSSD | Executive Director | jouellet@berkeleywater.org | |
| Pennington, Matthew | Eastern Panhandle Regional Planning & Development Council | Environmental Program Coordinator | mpennington@region9wv.com | |
| Petrucci, Kim | City of Martinsburg | City Engineer | kpetrucci@cityofmartinsburg.org | K Petrucci |
| Rhoe, Greg | Berkeley County Public Service Water District | Chairman | gsrhoe@comcast.net | |
| Ross, Brian | Berkeley County | Engineering Director | bross@berkeleywv.org | P Brian Ross |
| Rude, Randall | EcoLab | | Randall.Rude@ecolab.com | |
| Schiavone, Mark | Berkeley County Farmland Protection Board | Executive Director | berkeley@wvfp.org | |
| Schreiner, Allan | Knauff Insulation | | allan.schreiner@knaufinsulation.com | |

June 15, 2021

1:00-3:00pm

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Snavely, Rachel | Eastern Panhandle Regional Planning & Development Council | Executive Director | rsnavely@region9wv.com |  |
| Strovel, Cindy | Berkeley County Senior Center | | bssadmin2@berkeleyseniorservices.org | |
| Swartwood, George | City of Martinsburg | Police Chief | g_swartwood@martinsburgpd.org |  |
| Swisher, Jennifer | Berkeley County | Central Dispatch | jswisher@berkeleywv.org |  |
| Taylor, Joe | CSX | | joe_taylor@csx.com | |
| Tomlin, Jared | City of Martinsburg | Stormwater Coordinator | jtomlin@cityofmartinsburg.org | Zoom |
| Umstead, Matthew | Berkeley County | Director, Office of Strategic Planning & Communications | mumstead@berkeleywv.org | |
| VanMetre, Donna | James Rumsey Technical Institute | | dvanmetre@k12.wv.us | |
| Walburn, Zach | Berkeley County | MS4 Coordinator | zwalburn@bcpssd.com | Zoom |
| Wilkerson, Jeff | City of Martinsburg | Public Works Director | jwilkerson@cityofmartinsburg.org |  |

June 15, 2021

1:00-3:00pm

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Williams, Heather | Berkeley County | Planning Director | hwilliams@berkeleywv.org | |
| Winebrenner, Chad | Berkeley County Emergency Ambulance Authority | EMS Chief | cwinebrenner@bceaa.com | |
| Truax, Troy | Michael Baker Intl. | Planning Director | Troy.Truax@mbakerintl.com | |
| Welt. Angela | Michael Baker Intl. | Project Manager – Environmental | awelt@mbakerint.com | |
| Asselin, Kelly | Michael Baker Intl. | Environmental Associate | Kelly.asselin@mbakerintl.com | |
| Gibbons, Erin | City of Martinsburg | Deputy Chief | e_gibbons@martinsburgwv.org | |
| Wolford, Shawn | Berkeley County | Emergency Manager | swolford@berkeleywv.org | |
| Sims, Breeana | Berkeley County, OEM | Admin. Asst. | bsims@berkeleywv.org | |
| Faircloth, Lonnie | WVSP | Detachment Commander | lonnie.a.faircloth@wvsp | |
| Blood, Jenn | 167 Airlift Wing WV ANG | Installation Emergency Mgr | jennifer.blood@us.af.mil | |
| Carder, Adam | " | 167 AW Emergency Management | adam.carder@us.af.mil | |

June 15, 2021

1:00-3:00pm

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| ALLAN SCHREINER | KNAUF INSULATION | PLANT Manager | Allan.Schreiner@Knauf.com | |
| Rich ? | FRONTIER | Rich Fowler - Frontier Communications | | Zoom |
| Cindy Litteton | | | | Zoom |
| Jesse Holt | Red Cross | | | Zoom |
| Susan Stanton | BCS | | | Zoom |
| | | | | |
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| | | | | |
| | | | | |
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June 15, 2021

1:00-3:00pm



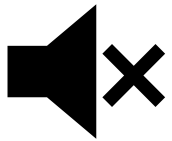
# Berkeley and Morgan County
# 2022 Multi-Jurisdictional Hazard Mitigation Plan Update

Michael Baker INTERNATIONAL

Region 9

**Risk Assessment and Mitigation Solutions Workshop**
**June 15, 2021**

- All attendees are currently muted to reduce background noise.



- Submit your questions <u>at any time</u> during the presentation by:
  - Using the Zoom “Chat”

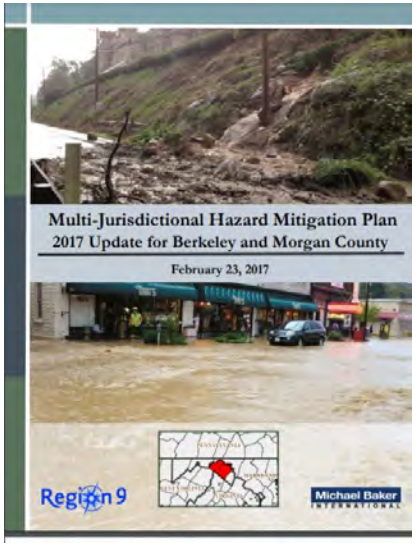


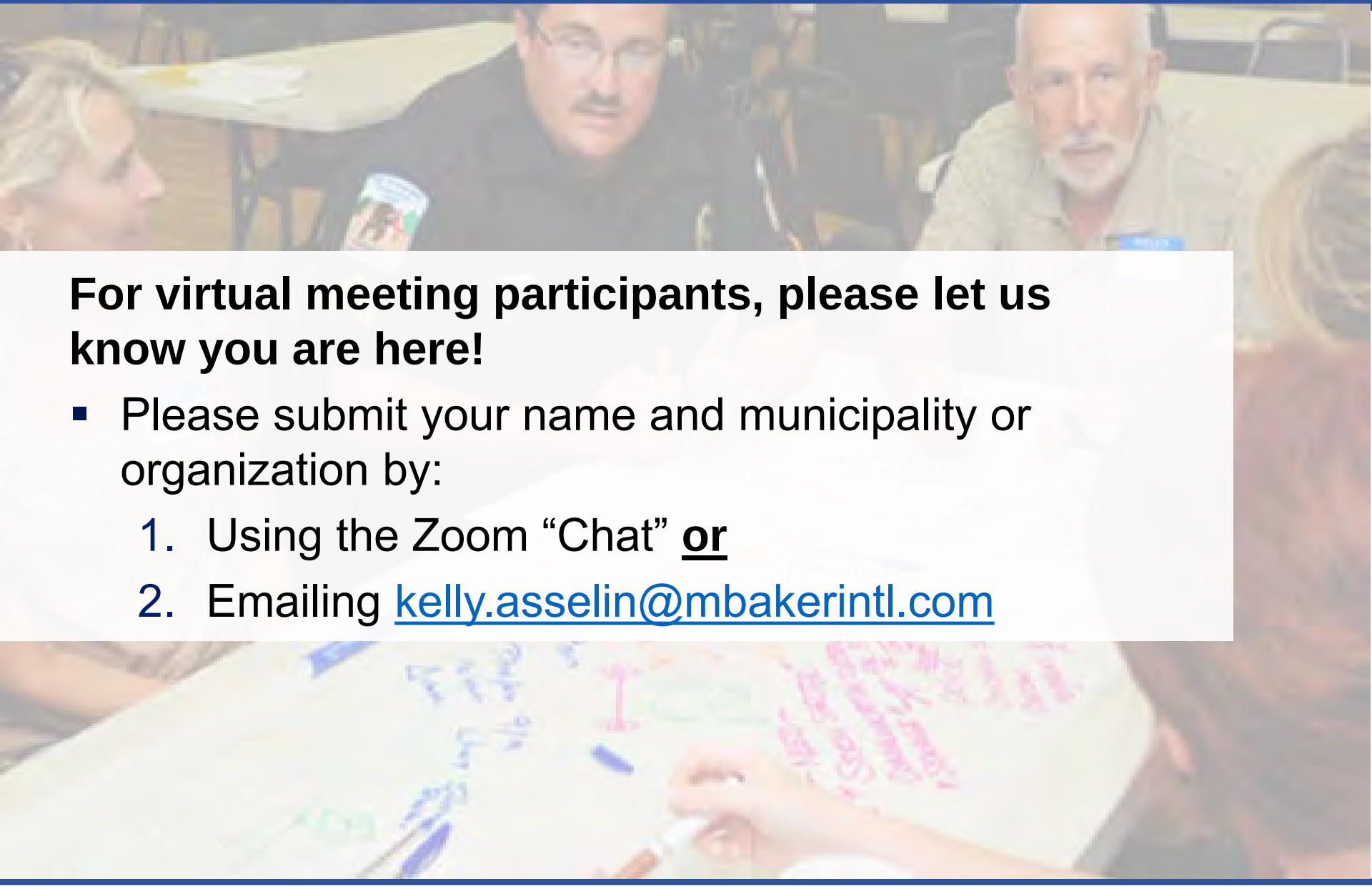
- We will be recording this meeting to share with anyone unable to attend.



# Agenda

- Welcome and Introductions
- Recap of Kick-Off Meeting
- Risk Assessment Overview & Hazard Identification
- Mitigation Strategy Discussion
  - Exercise: Mitigation Action Review
  - Exercise: New Mitigation Actions
- Next Steps and Action Items





**For virtual meeting participants, please let us know you are here!**

- Please submit your name and municipality or organization by:
  1. Using the Zoom “Chat” **or**
  2. Emailing kelly.asselin@mbakerintl.com

# May 4th Kick-Off Meeting Recap



- Discussed the 2022 MJHMP planning process and requirements
- Discussed hazards and risks identified in the 2017 MJHMP
- Completed three worksheets:
  - Hazard-Risk Assessment Exercise
  - Capability Assessment Survey
  - National Flood Insurance Program (NFIP) Survey
- Reviewed mitigation techniques
- Discussed participation opportunities

If you haven't already, please fill out and return any worksheets you may have missed!

| County and Municipal Participation in 2022 HMP Planning Process | | | | | | | |
|---|---|---|---|---|---|---|---|
| Participation Summary | | Berkeley County | | | Morgan County | | |
| | | Berkeley County | City of Martinsburg | Town of Hedgesville | Morgan County | Town of Bath | Town of Paw Paw |
| Meetings | **Steering Committee Kick-Off** May 4, 2021 | ✓ | ✓ | - | ✓ | - | ✓ |
| | **Risk Assessment/Mitigation Workshop** June 15, 2021 | | | | | | |
| | **Public Meeting** tbd | | | | | | |
| Worksheets | **Identified Hazards and Risk** | ✓ | ✓ | | ✓ | | |
| | **Community Capability Assessment** | ✓ | ✓ | | | | |
| | **Checking in on the NFIP** | ✓ | ✓ | | | | |
| | **Mitigation Action Review** | | | | | | |
| | **New Mitigation Action** | | | | | | |

# Risk Assessment Overview



# 2022 Hazards

## Natural Hazards

- Drought
- Earthquake
- Extreme Temperature
- Flooding
- Hailstorm
- Hurricane, Tropical Storm, Nor'easter
- Invasive Species
- Landslide and Land Subsidence
- Pandemic and Infectious Disease
- Thunderstorm, Lightning
- Wildfire
- Windstorm, Tornado
- Winter Storm
- Radon

## Human-Made Hazards

- Dam and Levee Failure
- Hazardous Materials
- Terrorism
- Source Water Contamination
- Transportation Accidents
- Utility Interruption
- Opioid Addiction
- Cyber Terrorism
- Civil Disturbance

*Blue denotes newly added hazards*

- 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

Risk Factor Value =
[(Probability x .30) + (Impact x .30) +
(Spatial Extent x .20) + (Warning Time x .10) +
(Duration x .10)]

# Risk Ranking Evaluation

- Evaluated the hazards profiled in the plan and determined changes in risk
- Identified three new hazards
  - Opioid Addiction
  - Cyber Terrorism
  - Civil Disturbance

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

## Evaluation of Identified Hazards and Risk
### PART I: Identified Hazards

| | |
|---|---|
| Community/Organization: | |
| Name and Title: | |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | | |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | | |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 3.0 | | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | | |
| Flooding (N) | 4 | 2 | 1 | 1 | 1 | 2.2 | | |

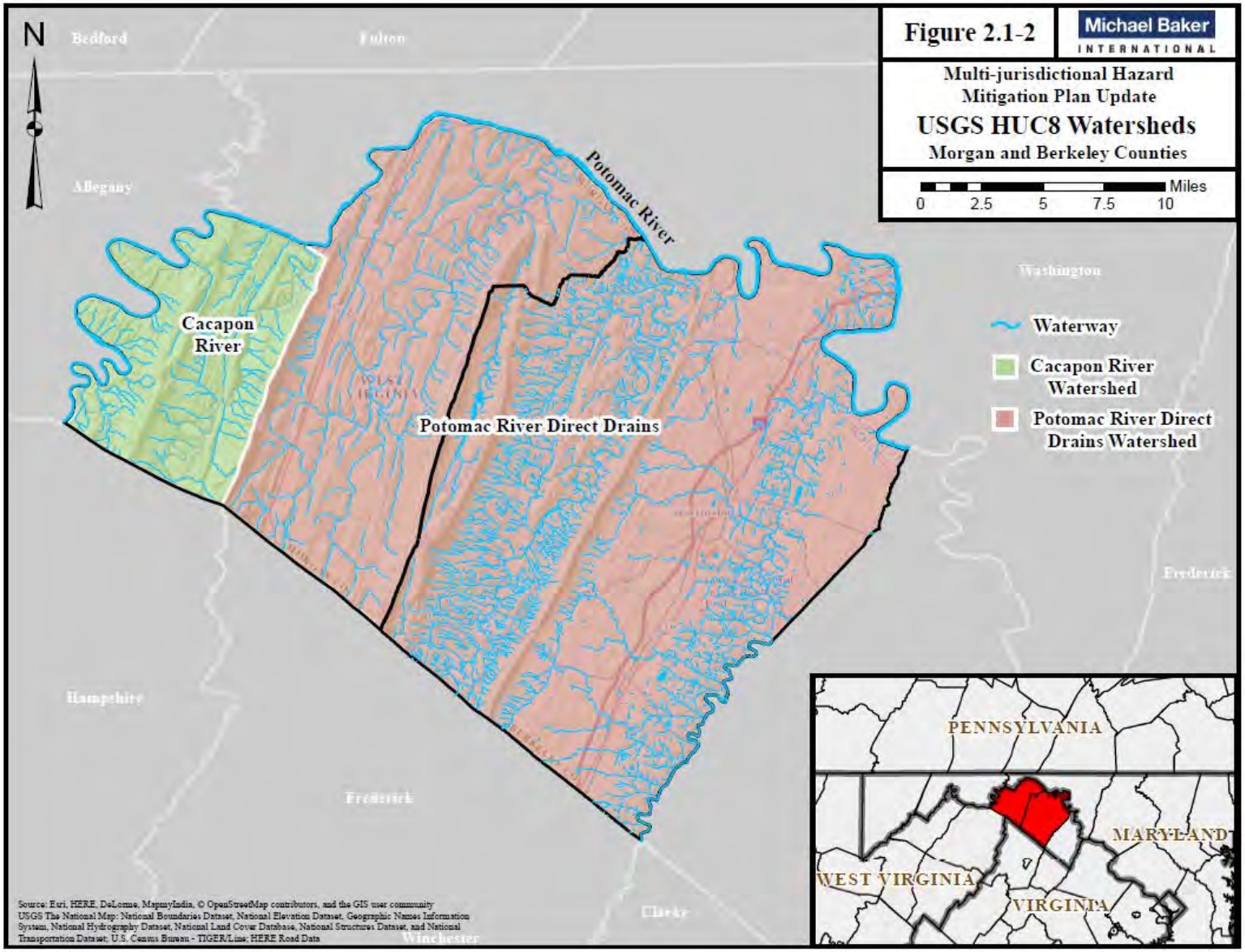
# Proposed 2022 Hazard Rankings

| 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 |
| | Transportation Accidents | 4 | 4 | 3 | 4 | 2 | 3.6 |
| | Winter Storm | 4 | 4 | 4 | 1 | 2 | 3.5 |
| | Windstorm, 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 |
| | Pandemic and Infectious Disease | 3 | 3 | 3 | 2 | 4 | 3.0 |
| | Terrorism | 2 | 3 | 4 | 4 | 2 | 2.9 |
| | Hurricane, Tropical Storm, Nor'easter | 3 | 3 | 4 | 1 | 2 | 2.9 |
| | Opioid Addiction | 3 | 3 | 2 | 2 | 3 | 2.7 |
| | Radon Exposure | 3 | 3 | 2 | 3 | 1 | 2.6 |
| | Cyber Terrorism | 3 | 3 | 2 | 3 | 1 | 2.6 |
| Mod | Flooding | 4 | 2 | 2 | 1 | 1 | 2.4 |
| | Extreme Temperature | 2 | 2 | 3 | 3 | 1 | 2.2 |
| Low | Civil Disturbance | 2 | 2 | 1 | 3 | 2 | 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 |
| | Invasive Species | 1 | 1 | 2 | 1 | 1 | 1.2 |
| | Earthquake | 1 | 1 | 1 | 1 | 1 | 1.0 |
| | Land Subsidence | 1 | 1 | 1 | 1 | 1 | 1.0 |
| | Dam and Levee Failure | 1 | 1 | 1 | 1 | 1 | 1.0 |

# Proposed 2022 Hazard Rankings

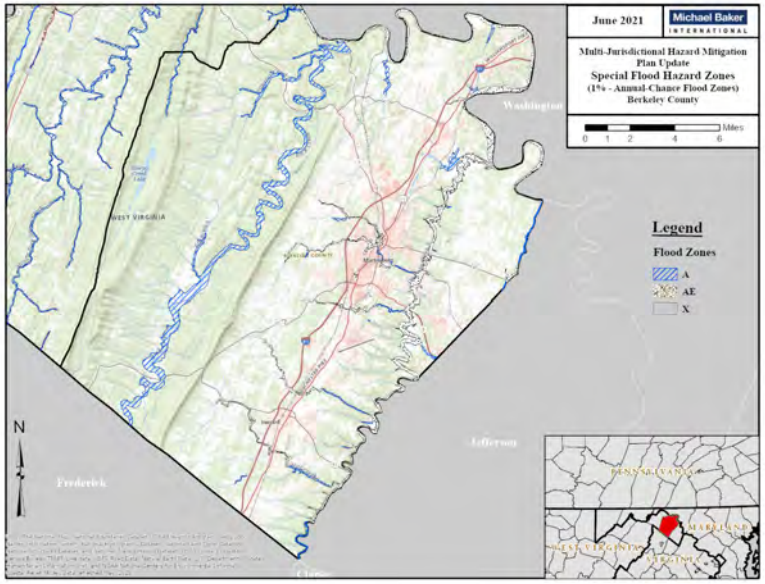
| Morgan County Ranking of Hazard Types Based on Risk Factor Methodology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Risk Class | Hazard | Risk Assessment Category (1 = least severe, 4 = most severe) | | | | | Calculated Risk Factor |
| | | Probability (1-4) | Severity (1-4) | Spatial Extent (1-4) | Warning Time (1-4) | Duration (1-4) | |
| High | Opioid Addiction | 4 | 2 | 3 | 2 | 3 | 2.9 |
| | Pandemic and Infectious Disease | 4 | 2 | 2 | 3 | 2 | 2.7 |
| | Utility Interruption | 3 | 2 | 3 | 4 | 2 | 2.7 |
| | Flooding | 3 | 2 | 2 | 3 | 3 | 2.5 |
| Moderate | Winter Storm | 4 | 2 | 2 | 1 | 1 | 2.4 |
| | Hazardous Materials | 3 | 2 | 2 | 3 | 2 | 2.4 |
| | Wind Storm, Tornado | 3 | 2 | 2 | 3 | 2 | 2.4 |
| | Cyber Terrorism | 2 | 2 | 2 | 3 | 4 | 2.3 |
| | Wildfire | 3 | 2 | 1 | 4 | 2 | 2.3 |
| | Transportation Accidents | 4 | 1 | 1 | 4 | 1 | 2.2 |
| | Hailstorm | 2 | 2 | 2 | 4 | 2 | 2.2 |
| | Hurricane, Tropical Storm, Nor'easter | 2 | 2 | 3 | 1 | 3 | 2.2 |
| | Source Water Contamination | 2 | 2 | 2 | 2 | 3 | 2.1 |
| | Dam and Levee Failure | 2 | 2 | 2 | 3 | 2 | 2.1 |
| Low | Drought | 1 | 1 | 4 | 1 | 4 | 1.9 |
| | Invasive Species | 2 | 1 | 2 | 2 | 2 | 1.7 |
| | Civil Disturbance | 2 | 2 | 1 | 1 | 1 | 1.6 |
| | Terrorism | 1 | 1 | 1 | 4 | 2 | 1.4 |
| | Extreme Temperature | 1 | 2 | 1 | 1 | 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 |

# Hazard Review Example: Flood, Flash Flood, Ice Jam

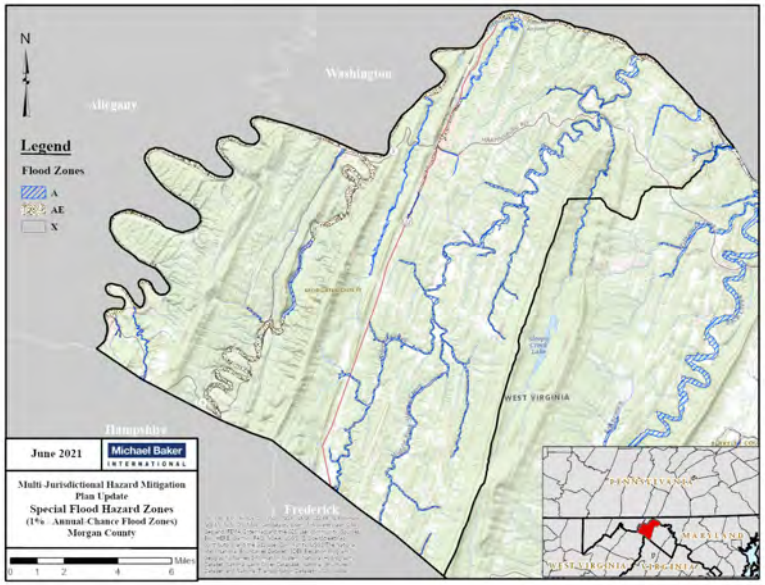


# Hazard Review Example: Flood, Flash Flood, Ice Jam

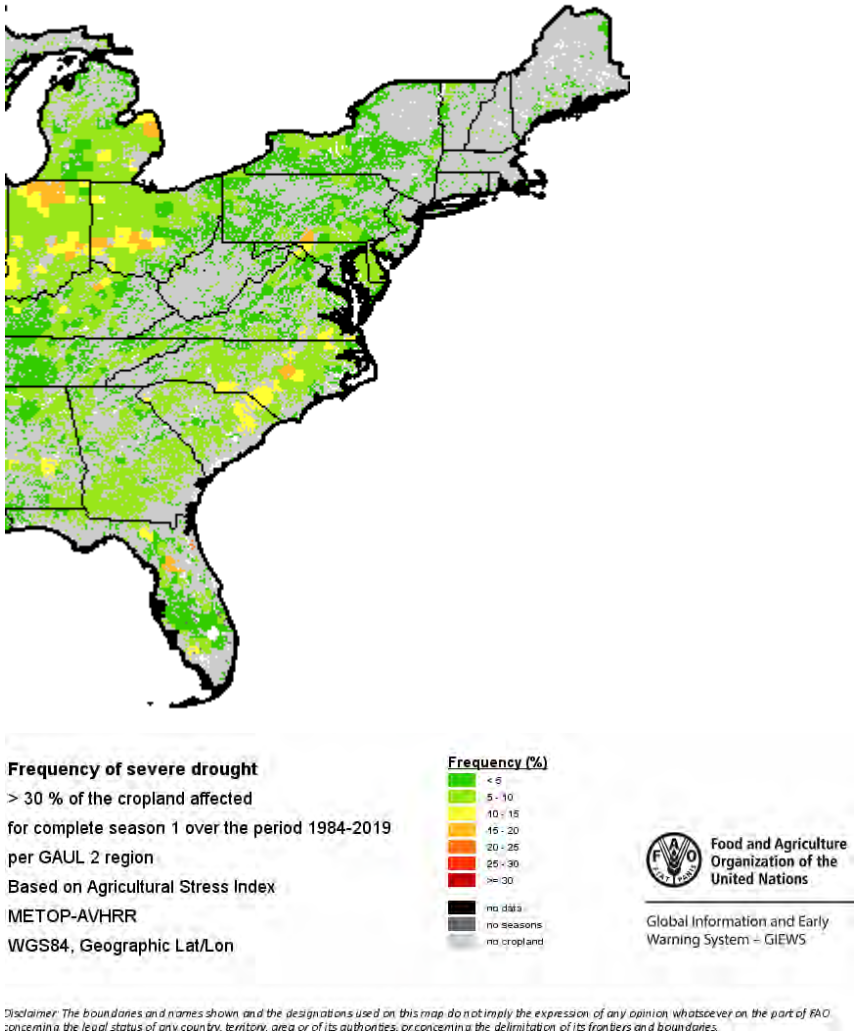





- Berkeley County, Morgan County, and The City of Martinsburg participate in the National Flood Insurance Program's (NFIP) Community Rating System (CRS)
- Steering committee members noted an increase in flooding over the past 5 years. (Ex. 2018 floods)
- Increased impervious surfaces as development and population grow specifically in Berkeley County
- Slope and topography contribute to flash flooding



# Hazard Review Example: Drought




- In October 2019, a State of Emergency was declared in all WV counties due to drought conditions
- The City of Martinsburg brought up that the City and Berkeley County rely on groundwater for potable water
  - Concerns with growing population decreasing water amount

| Crop Loss Insurance Compensation Due to Drought Berkeley and Morgan Counties (USDA RMA, 2021) | |
|---|---|
| **Crop Year** | **Indemnity Amount** |
| 2010 | $560,682 |
| 2011 | $155,890 |
| 2012 | $0 |
| 2013 | $19,837 |
| 2014 | $2,158 |
| 2015 | $51,209 |
| 2016 | $136,930 |
| 2017 | $10,439 |
| 2018 | $0 |
| 2019 | $4385 |
| 2020 | $21,103 |
| 2021 (Year-to-Date) | $0 |

# Has your municipality experienced significant occurrences of opioid addiction, cyber terrorism, or civil disturbances?

# Please tell us about it.

# Mitigation Strategy Components

- Goals and Objectives
- Progress Report on 2017 Mitigation Strategy
- 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.









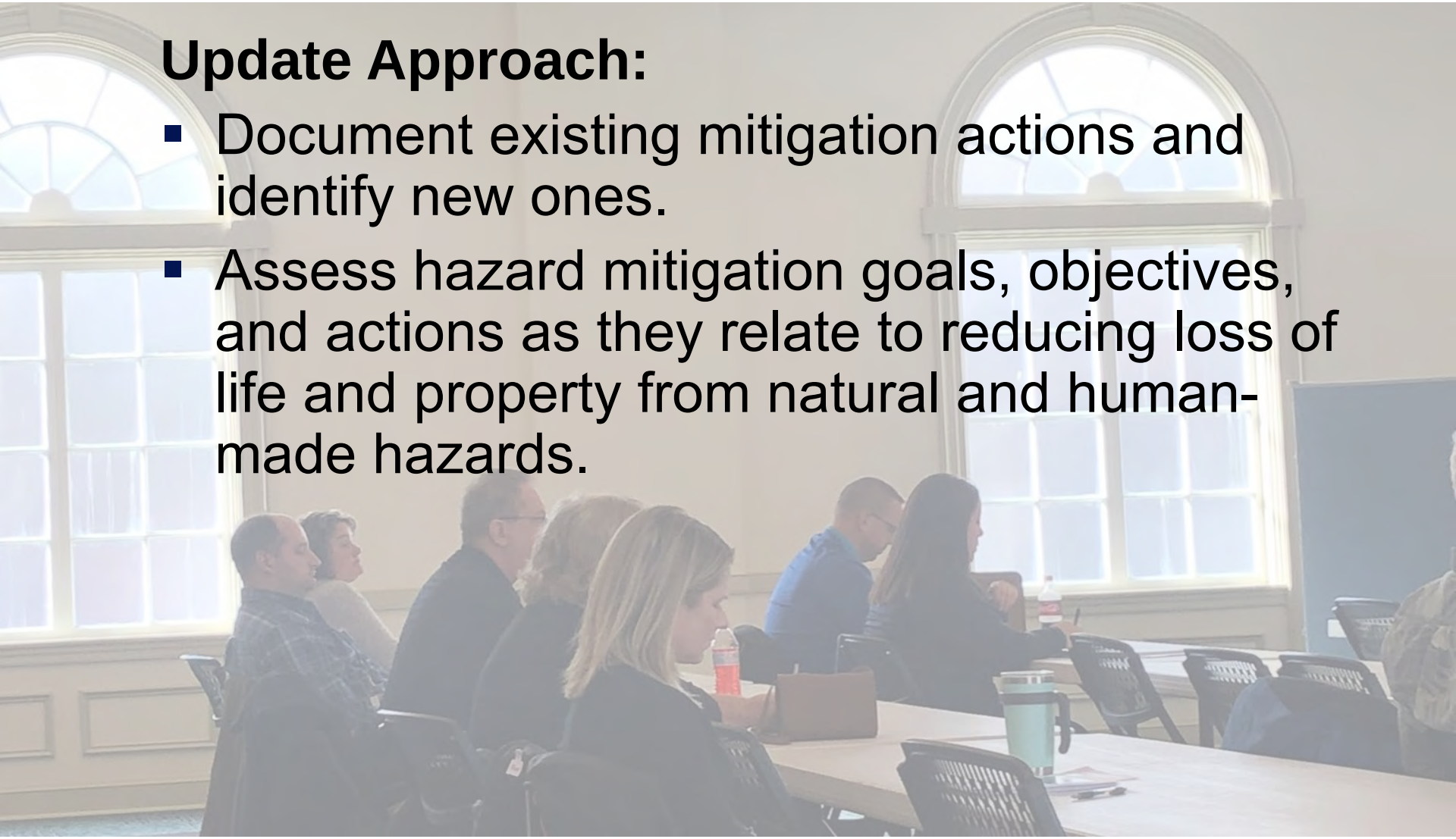



## Mitigation Action Plan:

- 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.
- 2017 MJHMP: **92** actions
  - Some were new for 2017 and some were continued or modified from 2012





## Update Approach:

- Document existing mitigation actions and identify new ones.
- Assess hazard mitigation goals, objectives, and actions as they relate to reducing loss of life and property from natural and human-made hazards.




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



- Government authorities, policies, or codes that influence the way land and buildings are developed and built such as:
  - Comprehensive Plans
  - Subdivision Regulations
  - Building Codes and Enforcement
  - Capital Improvement Programs
  - Stormwater Management Plans
  - Emergency Operations Plans



- Modifying existing structures and infrastructure to remove from a hazard area
- Construction of manmade structures to reduce impacts of hazards

- 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
  - Wetland restoration and preservation



# Education and Awareness Programs

- National preventative programs
- Mailings to hazard-prone communities
- Websites with maps and information
- Presentations to community groups
- Radio or TV spots



# Exercise 1: 2017 Mitigation Action Progress

- Status, progress, and notes on actions from the 2017 MJHMP.
- Can be completed and emailed by **July 7**

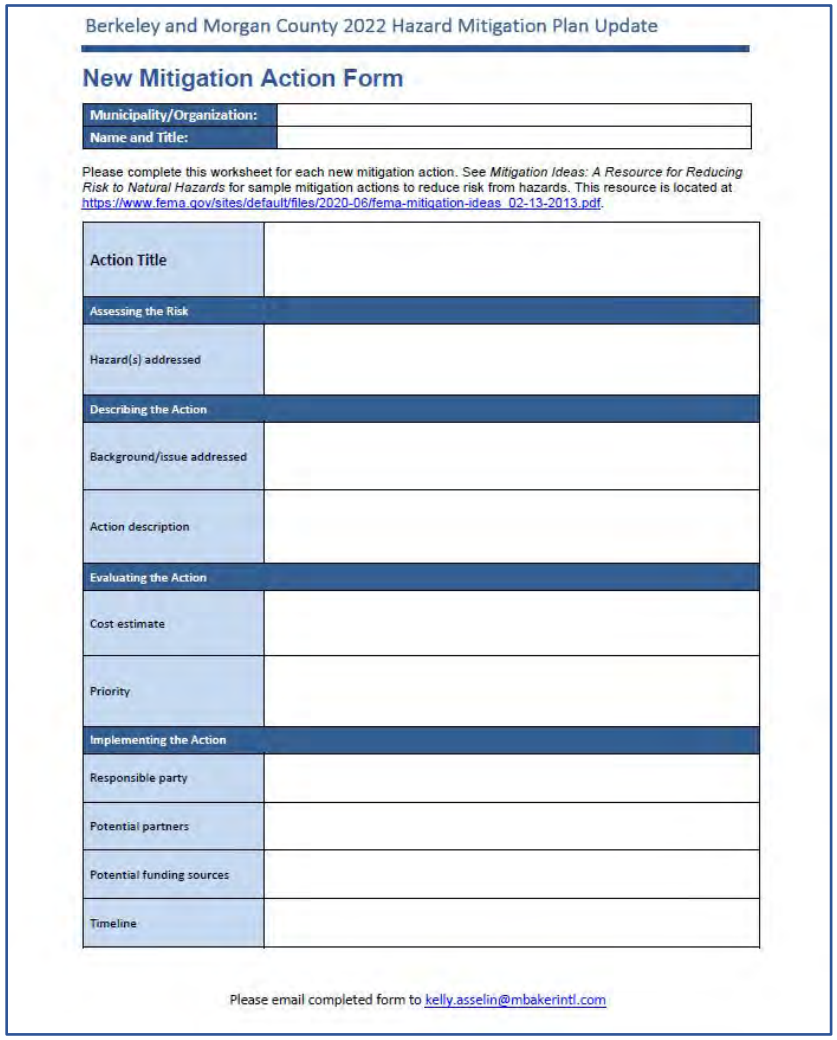
## 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Status | | | | Status Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | Completed | Canceled | Deferred | Ongoing | |
| Berkeley County | 1B | Drought | Develop an informational brochure to distribute to local farmers and residents regarding drought. | | | | | |
| Berkeley County | 2B | Drought, Source Water Contamination | Evaluate current public water system to identify the most feasible locations to construct upgrades that would reduce or eliminate the effects of drought. A survey of residential wells and public water customers should also be conducted to evaluate the status of residential drinking water in the county and identify trends. | | | | | |
| Berkeley County | 3B | Flooding | Develop stringent stormwater management codes for future development. | | | | | |
| Berkeley County | 4B | Flooding | Consider conducting acquisition and relocation projects (buyouts) in flood-prone areas. This includes repetitive, severe repetitive loss and nonrepetitive and severe repetitive loss structures. | | | | | |
| Berkeley County | 5B | Thunderstorm, Lighting Strike | Coordinate with the National Weather Service in Sterling, Virginia to warn residents of impending severe thunderstorm conditions. | | | | | |

Please email completed form to Kelly.asselin@mbakerintl.com

# Exercise 2: New Action Identification

- Determine additional actions based on current risk, vulnerability, and mitigation goals
- Develop actions for new hazards
- Can be completed and emailed by **July 7**



Berkeley and Morgan County 2022 Hazard Mitigation Plan Update

## New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | |
| **Name and Title:** | |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| Action Title | |
| **Assessing the Risk** | |
| Hazard(s) addressed | |
| **Describing the Action** | |
| Background/issue addressed | |
| Action description | |
| **Evaluating the Action** | |
| Cost estimate | |
| Priority | |
| **Implementing the Action** | |
| Responsible party | |
| Potential partners | |
| Potential funding sources | |
| Timeline | |

Please email completed form to kelly.asselin@mbakerintl.com

| Mitigation Technique | Action |
|---|---|
| Local Plans and Regulations | Ensure integration of vulnerabilities into local, regional, and countywide comprehensive planning processes. |
| Structure and Infrastructure Projects | Relocate a section of main waterline currently in an area vulnerable to flooding and transportation accidents. |
| Structure and Infrastructure Projects | Provide alternate power sources for every building with essential or critical functions. |
| Natural Systems Protection | Coordinate to conduct prescribed burns as necessary to reduce wildfire risk. |
| Education and Awareness Programs | Identify senior independent living, extended care, and hospice care residential living facilities and provide targeted information about evacuation and sheltering resources. |

## Historical Resources

- Districts, sites, buildings, structures, and objects. Considerations include:
  - Integrity of location
  - Design, setting, feeling, and association
  - Materials and workmanship
- Associated with events that have made a significant contribution to patterns of history, significant persons, or distinct historical periods and methods of construction.
- Have yielded or may be likely to yield information important in history

# Potential Actions

- Develop an outreach campaign to increase awareness of the potential challenges and dangers associated with managing chronic pain.
- Create an opioid awareness coalition to collaborate with medical and health-care professionals.



## Potential Actions

- Improve cyber security of control systems in critical facilities and infrastructure.
- Provide internal training to staff to reduce frequency and effectiveness of phishing attacks.



## Potential Actions

- Conduct regular threat assessments
- Conduct recurring training for police and first responders, and public officials
- Identify and address deficiencies and needs



*Not a new hazard, but expanded from epidemic in 2017

## Potential Actions

- Create a plan for pandemic response.
- Acquire information and supplies needed for pandemic responses. Stay updated on guidelines.
- Follow mitigation recommendations from State Health Department. This requires having all personal protective equipment (PPE) for employees of the municipality.
- Update pandemic response capabilities in the municipality by updating the Pandemic Plan, purchasing sanitizing supplies for public places, and purchasing PPE for employees and volunteers.



# We want to hear from you! Please visit the following link and complete the survey regarding the 2022 plan update:

https://www.surveymonkey.com/r/RFMF7KM



| Task | Dates |
|---|---|
| Kick-Off Meeting | May 4 |
| Risk Assessment and Vulnerability Analysis | April – June |
| Risk Assessment and Mitigation Solutions Workshop | June 15 |
| Mitigation Strategy Development | June – September |
| Plan Review Public Meeting | Late August |
| Deliver to WVEM/FEMA for Review | October/November |
| Distribute to Municipalities for Adoption | February 2022 |

- Hazard Mitigation Planning Team:
  - Complete Mitigation Action Progress Forms by **July 7**
  - Complete New Mitigation Action Forms by **July 7**
  - Provide photos of disaster events from 2017-2021
  - Review draft plan in Late August
  - Check out the project website:

http://www.region9wv.com/plans---studies.html

- Project Team:
  - Update project website with meeting materials
  - Prepare draft plan




**Next Meeting: Late August (Date TBD)**

# Questions?



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Executive Director, Eastern Panhandle Regional Planning & Development Council

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(304) 263-1743

Troy D. Truax, AICP

Project Manager, Michael Baker International

troy.truax@mbakerintl.com

(717) 213-6241



# Berkeley County Risk Assessment and Mitigation Solutions (RAMS) Workshop Meeting Summary

June 15, 2021

1:00pm-3:00pm

Please view the Zoom recording here:

## Agenda

1. Welcome and Introductions
2. Recap of May 4th Kick-Off Meeting
3. Risk Assessment Overview and Hazard Identification
    a. Hazard Identification and Profiles
    b. Hazard Ranking and Risk Factor (RF)
    c. Exercise Recap: Risk Ranking Evaluation
4. Mitigation Strategy Discussion
    a. Exercise #1: Mitigation Action Progress
    b. Exercise #2: New Mitigation Actions
5. Next Steps and Action Items

## Welcome and Introductions

Troy Truax, a hazard mitigation planning consultant with Michael Baker International, welcomed all members of the Berkeley County Multi-Jurisdictional Hazard Mitigation Planning Team (HMPT). This meeting was held in person in Berkeley County and virtually via Zoom to accommodate for the COVID-19 pandemic. Troy asked participants to introduce themselves as attendance was taken and requested that everyone indicate which community or organization they represented.

See the attached Sign In Sheets for the meeting attendees.

## Project Overview

Troy provided a brief recap of the May 4th Kick-Off Meeting held at Berkeley County Sheriff's Department in Berkeley County, WV and virtually via Zoom.

Troy defined hazard mitigation and described the purpose of the MJHMP Update, including:

- Identifying projects that will reduce risk, both day to day and in a disaster situation
- Identifying potential funding sources for mitigation projects
- Maintaining eligibility for certain mitigation funding through the Federal Emergency Management Agency (FEMA)

Troy emphasized that municipal participation in meetings and completion of worksheets is crucial for FEMA approval. Without active participation, a municipality may be limited in adoption of the plan and therefore may be limited in obtaining grant funding available over the next five years. He suggested individual phone calls for municipalities who may not have made it to a meeting or completed the worksheets. Troy described the main goals of the day's meeting were to review the 2022 proposed hazard rankings, and complete two worksheets regarding 2017 mitigation action progress and new mitigation action ideas.

## Risk Assessment Overview and Hazard Identification

Troy reviewed the hazards profiled in the 2017 HMP, and noted that civil disturbance, cyber terrorism, and opioid addiction will be added to the 2022 update. Troy discussed the use of risk analysis to determine how impactful or prevalent a hazard may be within a community. Risk analysis utilizes a Risk Factor Value, which is calculated by quantitively inputting subjective feedback from municipal representatives and additional stakeholders for each profiled hazard. The Risk Factor Value considers probability of occurrence, impact, spatial extent, warning time, and duration for each hazard.

Troy reviewed the hazards profiled in the 2022 HMP and their proposed rankings.

### High Ranked Hazards

- Source Water Contamination
- Transportation Accidents
- Winter Strom
- Windstorm, Tornado
- Thunderstorm, Lightning Strike
- Hazardous Materials
- Pandemic and infectious Disease
- Terrorism
- Hurricane, Tropical Storm, Nor'easter
- Opioid Addiction
- Radon Exposure
- Cyber Terrorism

### Moderate Ranked Hazards

- Flooding
- Extreme Temperatures

### Low Ranked Hazards

- Civil Disturbance
- Drought
- Utility Interruption
- Wildfire
- Hailstorm
- Invasive Species
- Earthquake
- Landslide and Land Subsidence
- Dam Failure

Troy asked for photos, news articles, or other supporting data attendees may have from hazards in the last 5 years. Matt Pennington noted that the #1 hazard for Morgan County in 2017 is now #4 (flooding) because some of the mitigation strategies implemented in the last 5 years changed the risk ranking.

Many meeting attendees agreed that flooding should be higher in the Berkeley County ranking. Jared Tomlin stated that Warning Time should be changed from 1 to a higher number. Martinsburg City Police Chief commented that Flooding should be higher than Radon Exposure, and to raise flooding to 2 for Warning Time and Duration, which would take Flooding up to the middle of the high-ranking hazards. Kristen Bisom felt that duration, severity, and spatial extent could all increase with both climate change and development in the County.

Zach Walburn suggested that Thunderstorm/Lightning should be lower risk, and possibly switch places with flooding. He thinks of the Thunderstorm/Lightning Strike category being associated with a power outage as opposed to being physically struck by lightning. There is a very low statistical probability of being struck by lightning.

The attendee's final decision was to move flooding, drought, and utility interruption towards the top, and thunderstorm/lightning strike and radon exposure down.

Troy asked the attendees for input on significant occurrences of new hazards: opioid addiction, cyber terrorism, and civil disturbance. Alan Divis mentioned expenses for drug related incarceration, and that the County has a court ordered treatment system. Sheriff Harmon mentioned he would like to see an increase of service hours for drug overdose and abuse to 24/7, rather than standard business hours. Troy mentioned this could be a New Action.

Troy stated that healthcare, public transportation, and water supply could be areas at increased risk for cyber terrorism in the County. He also mentioned annual training for government and private sector employees to make sure that staff are all aware and vigilant against threats as a potential New Action.

Chief Swartwood mentioned that they monitor Facebook, Snapchat, and other social media for incidents of protests and civil disturbances. He stated this is the best way to get real-time data.

Tim Czaja (Berkeley County Community Corrections) suggested changing Opioid Addiction to Substance Use Disorder (SUD), thus expanding the hazard profile to cover more broadly the impact of substance use in the Region.

Troy then provided a brief review of the updated Flooding hazard profile. Berkeley County, Morgan County, and the City of Martinsburg currently participate in the National Flood Insurance Program's (NFIP) Community Rating System (CRS) program, which provides municipal property owners an opportunity to receive a reduction in their flood insurance premiums. This is an example of a mitigation action that is currently in place. Troy also provided a brief overview of the Drought hazard profile and urged stakeholder input on local data.

## Capability Assessment and Mitigation Strategy Overview

Troy explained goals, objectives, and actions and introduced the Mitigation Action Plan, which is a crucial step within the update process. The Mitigation Action Plan identifies specific activities a community will take to reduce or eliminate risk from the identified hazard. The 2017 MJHMP contained a total of 92 actions, some of which were carried over or modified from the 2012 Plan. Troy noted that the main goal of this Plan is to identify at least one mitigation action for each hazard.

Troy discussed the Mitigation Action Progress Report Form, which determines if existing actions are still applicable and if they need to be included in the 2022 Update. Municipalities were asked to note if an action has been completed, cancelled, deferred, or is still ongoing.

Troy also discussed the four types of mitigation techniques (Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, and Education and Awareness Programs) and described how to develop new actions, which are the focus of today's Risk Assessment and Mitigation Solutions Workshop. Municipalities were encouraged to develop mitigation actions using these mitigation techniques to reduce their municipality's vulnerability to a hazard. Matt Pennington mentioned green infrastructure projects in collaboration with watershed groups as something he is working on. This serves multiple purposes: hazard mitigation, sediment erosion control, groundwater recharge, etc.

Troy discussed the importance of historic resources to FEMA. It is critical that historic resources are protected from hazards and that they be identified in the form of a new mitigation action.

Troy emphasized that the three new hazards each need a mitigation action, and that some organizations being represented in the meeting may already have some of these actions underway.

## Next Steps and Action Items

A survey regarding the 2022 plan can be found here: https://www.surveymonkey.com/r/RFMF7KM

Region 9 encourages anyone to complete it, and to share it through any platform they see fit for public engagement.

Troy reviewed the current project timeline, which is shown below. Past events are designated in grey:

| Task | Dates |
|---|---|
| Kick-Off Meeting | May 4, 2021 |
| Risk Assessment and Vulnerability Analysis | April – June |
| Risk Assessment and Mitigation Solutions Workshop | June 15, 2021 |
| Mitigation Strategy Development | June-August |
| Draft Plan Review Public Meeting | Late August 2021 |
| Deliver to WVEM for Review | October 2021 |
| Deliver to FEMA for Review | November 2021 |
| Distribute to Municipalities for Adoption | February 2022 |

Troy encouraged attendees to visit the project website to review the 2022 MJHMP, view meeting materials, find helpful resources, and obtain copies of forms if needed. The project website can be found at: https://region9wv.com/hazard-mitigation.

The hazard mitigation consultant will draft a meeting summary, and Region 9 will post all meeting materials to the project website.

Troy reiterated that we need the municipalities to complete all forms discussed today, but most importantly the New Mitigation Action Form, by July 7. Troy noted that municipalities will need to adopt

the MJHMP as soon as FEMA issues Approval Pending Adoption, however, more information will be provided in coming months.

Troy will be available to answer any questions or to provide assistance to municipalities as they develop new mitigation actions by email at troy.truax@mbakerintl.com and by phone at (717)213-6241.

**The meeting concluded at 2:15pm**

**Action Items:**

1. **Kelly Asselin (MBI) will adjust the Hazard Rankings per discussion amongst the RAMS attendees.**
    a. *Post-meeting update: In progress – Kelly made the adjustments, and the updated table will be circulated for review.*
2. **Participants will submit New Action worksheets by July 7. Examples discussed during the meeting include an Incident Action Plan for protests and cyber security programs.**
3. **Participants will submit the Action Progress worksheets by July 7.**
4. **Participants will submit photos by July 7.**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Status | | | | Status Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | Completed | Canceled | Deferred | Ongoing | |
| Berkeley County | 1B | Drought | Develop an informational brochure to distribute to local farmers and residents regarding drought. | | | | | |
| Berkeley County | 2B | Drought, Source Water Contamination | Evaluate current public water system to identify the most feasible locations to construct upgrades that would reduce or eliminate the effects of drought. A survey of residential wells and public water customers should also be conducted to evaluate the status of residential drinking water in the county and identify trends. | | | | | |
| Berkeley County | 3B | Flooding | Develop stringent stormwater management codes for future development. | | | | | |
| Berkeley County | 4B | Flooding | Consider conducting acquisition and relocation projects (buyouts) in flood-prone areas. This includes repetitive, severe repetitive loss and nonrepetitive and severe repetitive loss structures. | | | | | |
| Berkeley County | 5B | Thunderstorm, Lighting Strike | Coordinate with the National Weather Service in Sterling, Virginia to warn residents of impending severe thunderstorm conditions. | | | | | |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Berkeley County | 6B | Extreme Temperatures, Drought | Educate local residents on the benefits of conserving water during a heat wave. | | | | | |
| Berkeley County | 7B | Wildfire | Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires. | | | | | |
| Berkeley County | 8B | Transportation Accident | Work with airport safety officials to determine how best to respond to a crash involving larger planes. | | | | | |
| Berkeley County | 9B | Hailstorm | Coordinate efforts with local media to post advance warnings of hailstorms. | | | | | |
| Berkeley County | 10B | Flooding | Continue coordinating county efforts to meet the requirements of participation in the CRS. | | | | | |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Berkeley County | 11B | Hazardous Materials | 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 | 12B | Hazardous Materials | Conduct a study to determine what hazardous materials & how much is transported on the roadways and rail. | | | | | |
| Berkeley County | 13B | Winter Storm, Windstorm, Tornado, Thunderstorm, Lightning Strike, Hurricane, Tropical Storm, Nor'easter, Extreme Temperature, Flooding, Epidemic, Drought, Hailstorm, Infestation | 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. | | | | | |
| Berkeley County | 14B | Transportation Accidents | 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. | | | | | |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Berkeley County | 15B | Winter Storm | Create an informational brochure and/or digital media to inform/educate community members on how to be prepared for an event that my render them immobile for a period of time. Brochure should indude suggested items and quantities of goods to have on hand. | | | | | |
| Berkeley County | 16B | Source Water Contamination | Maintain county Source Water protection Plan (SWPP) according to state regulatory requirements. | | | | | |
| Berkeley County | 19B | Flooding | Continue coordinating county efforts to meet the requirements of participation in the CRS. | | | | | |
| Berkeley County | 20B | Infestation | Develop an informational brochure to distribute to local farmers and residents concerning the potential effects of an infestation. | | | | | |
| Berkeley County | 21B | Landslides | Construct a stabilization wall or safety fence along roadways which pass through areas that are prone to landslides. | | | | | |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Berkeley County | 22B | Transportation Accident | 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 | 23B | Structure and Infrastructure | 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 | 24B | Flooding | Utilize electronic tools and/or broadcast systems to communicate to citizens in Special Flood Hazard Areas. | | | | | |
| Berkeley County | 25B | Flooding | Complete Sportsman's Paradise Park acquisition of area within floodplain and turn it into a green space park. | | | | | |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Berkeley County | 26B | Drought | 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 | 27B | Epidemic | 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 | 28B | Extreme Temperature | 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 | 29B | Utility Interruption | 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 | 31B | Hazardous Materials | Consider updating the existing Tier 2 report to include agricultural substances such as herbicides. | | | | | |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Berkeley County | 32B | Dam and Levee Failure | Coordinate with partners throughout the region to identify the location of privately owned dams. | | | | | |
| Berkeley County | 33B | Earthquake | 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 | 34B | Infestation | Create an informational brochure and/or digital media to inform/educate local farmers and residents on the potential effects of an infestation. | | | | | |
| Berkeley County | 35B | Terrorism | 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 | 36B | Wildfire | 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. | | | | | |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Status | | | | Status Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | Completed | Canceled | Deferred | Ongoing | |
| Town of Hedgesville | 17B | Radon Exposure | Assist Berkeley County in educating the public regarding radon systems and home testing available. | | | | | |
| Town of Hedgesville | 30B | Source Water Contamination | Work with area school/libraries/public facilities to include source water protection curriculum/classroom events/public education events. | | | | | |

**Please email completed form to kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Status | | | | Status Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | Completed | Canceled | Deferred | Ongoing | |
| City of Martinsburg | 18B | Flooding, Landslides and Land Subsidence | Prohibit new facilities for persons with special needs or mobility concerns in hazard areas. | | | | | |

**Please email completed form to kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Status | | | | Status Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | Completed | Canceled | Deferred | Ongoing | |
| Region 9 | 1R | Flooding | Perform annual review to ensure communities are maintaining 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. | | | | | |
| Region 9 | 2R | Flooding | Perform annual review to ensure communities are undertaking buyout, elevation, and/or relocation projects in the Region IX Planning and Development Council area when and if funding is available. | | | | | |
| Region 9 | 3R | Dam Failure | Coordinate, as appropriate, with partners throughout the region to identify the location of privately-owned dams. | | | | | |

**Please email completed form to kelly.asselin@mbakerintl.com**

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. |
| **Evaluating the Action** | |
| Cost estimate | Cost is dependent upon the use of the building and critical/essential functions present. |
| 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. |
| 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. |
| **Evaluating the Action** | |
| Cost estimate | $40,000 |
| 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. |
| Worksheet completed by (name/title) | Bonnie Myers, North Newton Township Secretary |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | |
| **Name and Title:** | |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | |
| Assessing the Risk | |
| Hazard(s) addressed | |
| Describing the Action | |
| Background/issue addressed | |
| Action description | |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | |
| Potential partners | |
| Potential funding sources | |
| Timeline | |

Please email completed form to kelly.asselin@mbakerintl.com

## Appendix C-4 Morgan County Risk Assessment/Mitigation Workshop Materials (June 15, 2021)

## Welt, Angela

**Subject:** EXTERNAL: Save The Date - Morgan County Hazard Mitigation Stakeholder Meeting

**Start:** Tue 6/15/2021 9:00 AM
**End:** Tue 6/15/2021 11:00 AM

**Recurrence:** (none)

**Meeting Status:** Accepted

**Organizer:** Matthew Pennington

Good Morning.

Please find the agenda for next week's Hazard Mitigation Planning Meeting. On Tuesday June 15th we will be focusing on Risk Assessment and Mitigation Strategies for hazards in your community.

In preparation for this meeting please feel free to review the Mitigation Actions/Strategies your community identified in 2017 and provide a status update.

Also, If you have not already submitted the attached Community Assessment and Hazard-Risk Evaluation, please take a few moments to review and complete.

If you have any questions, please feel free to contact me, other members of our Region 9 staff, or our consultants at Michael Baker.

Thank you,
Matthew Pennington

| | |
|---|---|
| **From:** | Matthew Pennington |
| **To:** | bclark@morgancountywv.gov; apadilla@morgancountywv.gov; Jennifer Wishmyer; R Davis; Rachel Snavely; "Joel Tuttle"; Dick Myers ; Schetrompf, Jennifer R; Stefanie Allemong; willgrow725@gmail.com; aschumaker@morgancountywv.gov; amoore@morgancountywv.gov; Scott Crunkleton; amorris@starting-points.org; tammy_kees@yahoo.com; Truax, Troy D; Welt, Angela; Asselin, Kelly; David Deamer |
| **Subject:** | EXTERNAL: Save The Date - Morgan County Hazard Mitigation Stakeholder Meeting |
| **Start:** | Tuesday, June 15, 2021 9:00:00 AM |
| **End:** | Tuesday, June 15, 2021 11:00:00 AM |
| **Attachments:** | WV R9 - Capability Assessment_Worksheet.pdf<br>Morgan - Hazard-Risk Evaluation Form.pdf |

---

Good afternoon.

Please save the date for the morning of June 15 for our second Hazard Mitigation Meeting. More details will be provided in the weeks to come.

If you have not already submitted the attached Community Assessment and Hazard-Risk Evaluation, please take a few moments to review and complete.

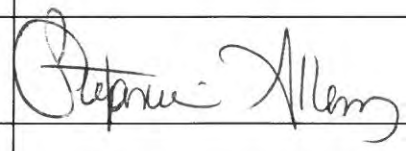
If you have any questions, please feel free to contact me, other members of our Region 9 staff, or our consultants at Michael Baker.

Thank you,
Matthew Pennington

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

# Risk Assessment and Mitigation Solutions Workshop – Morgan County

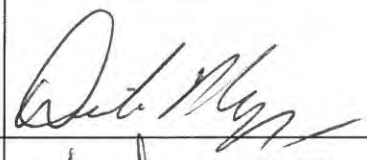
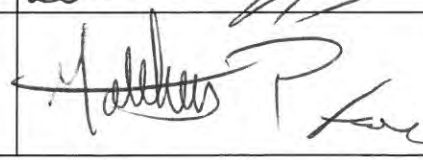
June 15, 2021 | 9:00am – 11:00am

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Abe, Darlene | Town of Paw Paw | Mayor | | |
| Allemong, Stefanie | Morgan County | County Administrator | sallemong@morgancountywv.gov |  |
| Barrett, Chris | US Silica | | sales@ussilica.com | |
| Bisom, Kriston | WV Conservation Agency | | | |
| Cade, Lucas | Potomac Edison | | lcade@firstenergycorp.com | |
| Clark, Bill | Morgan County | County Commissioner | bclark@morgancountywv.gov | |
| Clohan, Ken | WV DOH | | kenneth.l.clohan@wv.gov | |
| Comes, Paul | Comcast | | paul_comes@cable.comcast.com | |
| Crunkleton, Scott | Morgan County | | wspsd@ntelos.net | |
| Davis, Ron | Paw Paw | Town Administrator | rdavis@townofpawpaw.com | |

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Donaldson, Kurt | WVU GIS Tech Center | Senior Project Manager | kurt.donaldson@mail.wvu.edu | |
| Duncan, Sherry | WV Conservation Agency | | | |
| Elliot, Barbie | WV Conservation Agency | | | |
| Francis, Brenna | The Journal | | | |
| Garnett, Casey | FEMA Region 3 | Hazard Mitigation Community Planner | casey.garnett@fema.dhs.gov | |
| Grow, William | Morgan County Homeless Coalition | President | willgrow725@gmail.com | |
| Grubb, Donnie | WVU Medicine | | donald.grubb@wvumedicine.org | |
| Hansroth, Lori | Morgan County Chamber of Commerce | | chamber@berkeleysprings.com | |
| Hartman, Alana | WV DEP | Potomac. Basin Coordinator (PBC) | alana.c.hartman@wv.gov | |
| Hott, Jesse | Red Cross | | jesse.hott@redcross.org | |
| Jackson, Christina | Shenandoah Medical System | | ebartoldson@gmail.com | |

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Jainniney, Ron | Berkeley Springs Water Works | Department Manager | water.town@hotmail.com | |
| Johnson, Timothy | Bath | Police Chief | | |
| Kees, Tammy | Senior Life Services of Morgan County | Executive Director | | |
| Linsenmeyer, Jim | WVDO | | james.f.linsenmeyer@wv.gov | |
| Littleton, Cindy | Frontier | | | |
| Long, Douglas | Winchester & Western | | dlong@winchesterwesternrr.com | |
| Merki, Scott | Town of Bath | Mayor | asst5@aol.com | |
| Moore, Alex | Morgan County | Planning/GIS Director and Floodplain Manager | amoore@morgancountywv.gov |  |
| Morris, Audrey | Morgan County Starting Points | Director | amorris@starting-points.org | |
| Myers, Dick | Morgan County Office of Emergency Management and Homeland Security | Director | dmyers@morgancountywv.gov |  |
| Pennington, Matthew | Eastern Panhandle Regional Planning & Development Council | Environmental Program Coordinator | mpennington@region9wv.com |  |

June 15, 2021 9:00-11:00am

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Schetrompf, Jennifer | Berkeley-Morgan County Board of Health | Threat Preparedness/Health Promotion Coordinator | jennifer.r.schetrompf@wv.gov | Zoom |
| Shannon, Kristi | Valley Health | | kshannon@valleyhealthlink.com | |
| Shumaker, Amy | Morgan County | Planning Director | aschumaker@morgancountywv.gov | |
| Snavely, Rachel | Eastern Panhandle Regional Planning & Development Council | Executive Director | rsnavely@region9wv.com | |
| Taylor, Joe | CSX | | joe_taylor@csx.com | |
| Thompson, Tom | VA Medical Center | | thomas.thompson6@va.gov | |
| Tuttle, Kristen | Morgan County Board of Ed. | | | |
| Wishmyer, Jennifer | Eastern Panhandle Regional Planning & Development Council | Assistant Director | jwishmyer@region9wv.com | |
| Whyte, Monica | WV BPH | | Monica.A.Whyte@wv.gov | |
| Zahnow III, Milo | Berkeley Springs Volunteer Fire Company | President | | |
| Truax, Troy | Michael Baker Intl. | Planning Director | Troy.Truax@mbakerintl.com | |

June 15, 2021

9:00-11:00am

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Welt. Angela | Michael Baker Intl. | Project Manager – Environmental | awelt@mbakerint.com | |
| Asselin, Kelly | Michael Baker Intl. | Environmental Associate | Kelly.asselin@mbakerintl.com | |
| Duell, Jason | Morgan Co. Sch | Director of S.C. | jduell@k12.wv.us | |
| Jeff Blount | Cacapon Institute warm springs watershed Sleepy Creek watershed | TREE coordinator Board member- Board member | @jblount@cacaponinstitute.org pfpjeff@gmail.com | Jeff Blount |
| Lyn Goodwin | MC EDA | | | Zoom |
| David Deamer | Region 9 | | | ↓ |
| Jerry Rogers | Valley Health | | | ↓ |
| Jeff Palmer | PawPaw Recorder | | | ↓ |
| | | | | |
| | | | | |
| | | | | |

June 15, 2021

9:00-11:00am

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

June 15, 2021

9:00-11:00am



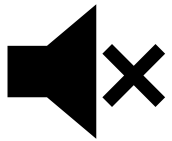
# Berkeley and Morgan County
# 2022 Multi-Jurisdictional Hazard Mitigation Plan Update

Michael Baker INTERNATIONAL

Region 9

**Risk Assessment and Mitigation Solutions Workshop**
**June 15, 2021**

- All attendees are currently muted to reduce background noise.



- Submit your questions <u>at any time</u> during the presentation by:
  - Using the Zoom “Chat”

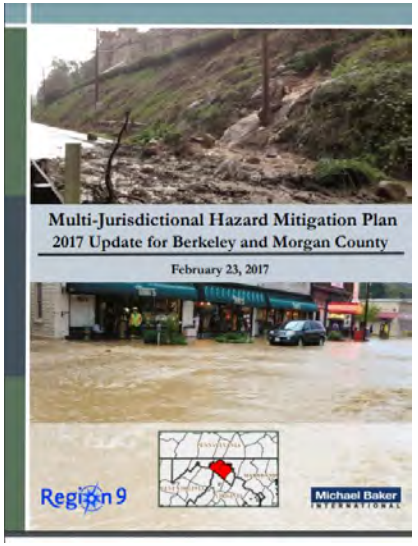


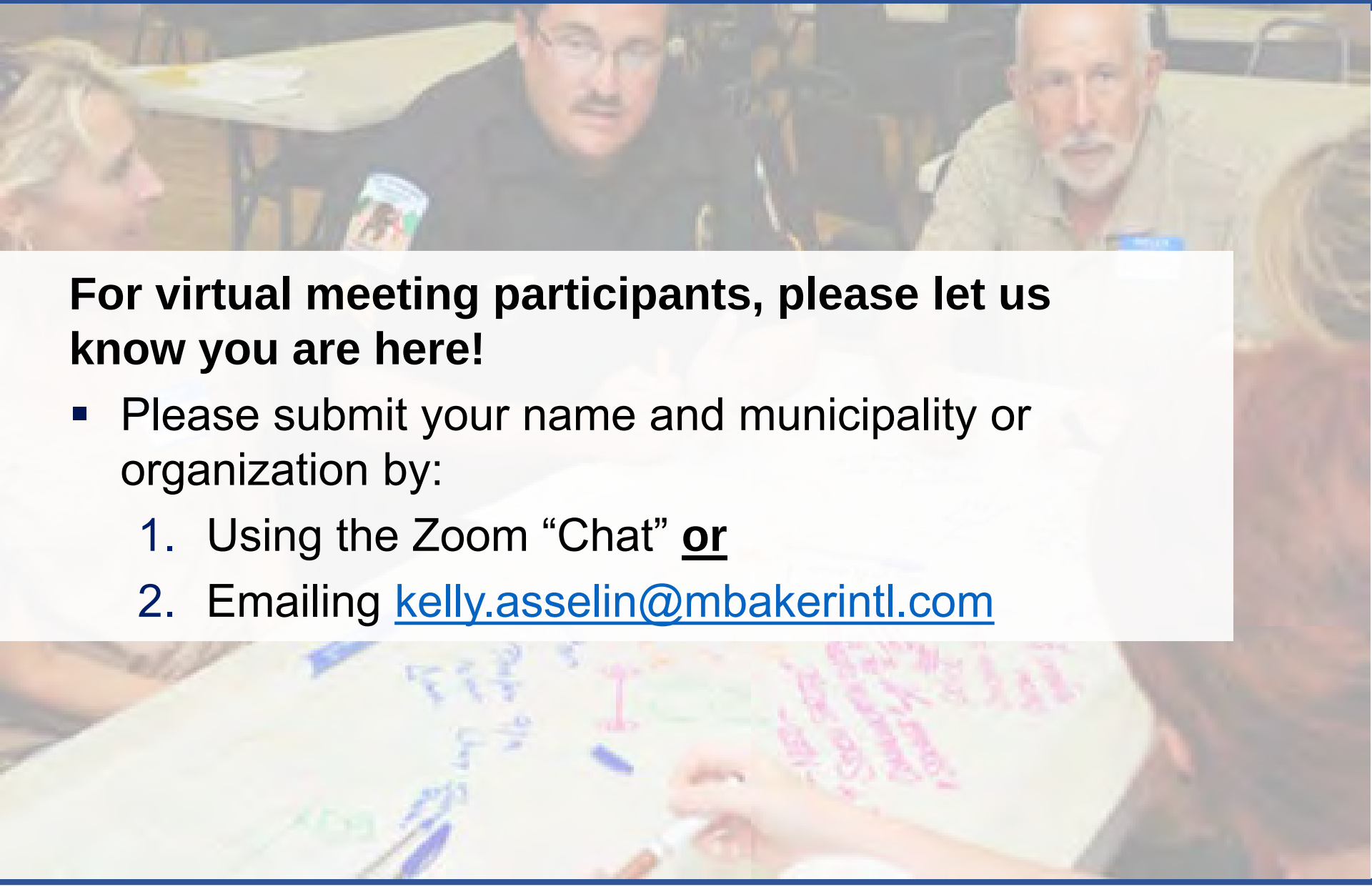
- We will be recording this meeting to share with anyone unable to attend.



# Agenda

- Welcome and Introductions
- Recap of Kick-Off Meeting
- Risk Assessment Overview & Hazard Identification
- Mitigation Strategy Discussion
  - Exercise: Mitigation Action Review
  - Exercise: New Mitigation Actions
- Next Steps and Action Items





**For virtual meeting participants, please let us know you are here!**

- Please submit your name and municipality or organization by:
  1. Using the Zoom “Chat” **or**
  2. Emailing kelly.asselin@mbakerintl.com

# May 4th Kick-Off Meeting Recap



- Discussed the 2022 MJHMP planning process and requirements
- Discussed hazards and risks identified in the 2017 MJHMP
- Completed three worksheets:
  - Hazard-Risk Assessment Exercise
  - Capability Assessment Survey
  - National Flood Insurance Program (NFIP) Survey
- Reviewed mitigation techniques
- Discussed participation opportunities

If you haven't already, please fill out and return any worksheets you may have missed!

| County and Municipal Participation in 2022 HMP Planning Process | | | | | | | |
|---|---|---|---|---|---|---|---|
| Participation Summary | | Berkeley County | | | Morgan County | | |
| | | Berkeley County | City of Martinsburg | Town of Hedgesville | Morgan County | Town of Bath | Town of Paw Paw |
| Meetings | **Steering Committee Kick-Off** May 4, 2021 | ✓ | ✓ | - | ✓ | - | ✓ |
| | **Risk Assessment/Mitigation Workshop** June 15, 2021 | | | | | | |
| | **Public Meeting** tbd | | | | | | |
| Worksheets | **Identified Hazards and Risk** | ✓ | ✓ | | ✓ | | |
| | **Community Capability Assessment** | ✓ | ✓ | | | | |
| | **Checking in on the NFIP** | ✓ | ✓ | | | | |
| | **Mitigation Action Review** | | | | | | |
| | **New Mitigation Action** | | | | | | |

# Risk Assessment Overview



# 2022 Hazards

## Natural Hazards

- Drought
- Earthquake
- Extreme Temperature
- Flooding
- Hailstorm
- Hurricane, Tropical Storm, Nor'easter
- Invasive Species
- Landslide and Land Subsidence
- Pandemic and Infectious Disease
- Thunderstorm, Lightning
- Wildfire
- Windstorm, Tornado
- Winter Storm
- Radon

## Human-Made Hazards

- Dam and Levee Failure
- Hazardous Materials
- Terrorism
- Source Water Contamination
- Transportation Accidents
- Utility Interruption
- Opioid Addiction
- Cyber Terrorism
- Civil Disturbance

*Blue denotes newly added hazards*

- 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

Risk Factor Value =
[(Probability x .30) + (Impact x .30) +
(Spatial Extent x .20) + (Warning Time x .10) +
(Duration x .10)]

# Risk Ranking Evaluation

- Evaluated the hazards profiled in the plan and determined changes in risk
- Identified three new hazards
  - Opioid Addiction
  - Cyber Terrorism
  - Civil Disturbance

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

## Evaluation of Identified Hazards and Risk
### PART I: Identified Hazards

| | |
|---|---|
| Community/Organization: | |
| Name and Title: | |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | | |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | | |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 3.0 | | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | | |
| Flooding (N) | 4 | 2 | 1 | 1 | 1 | 2.2 | | |

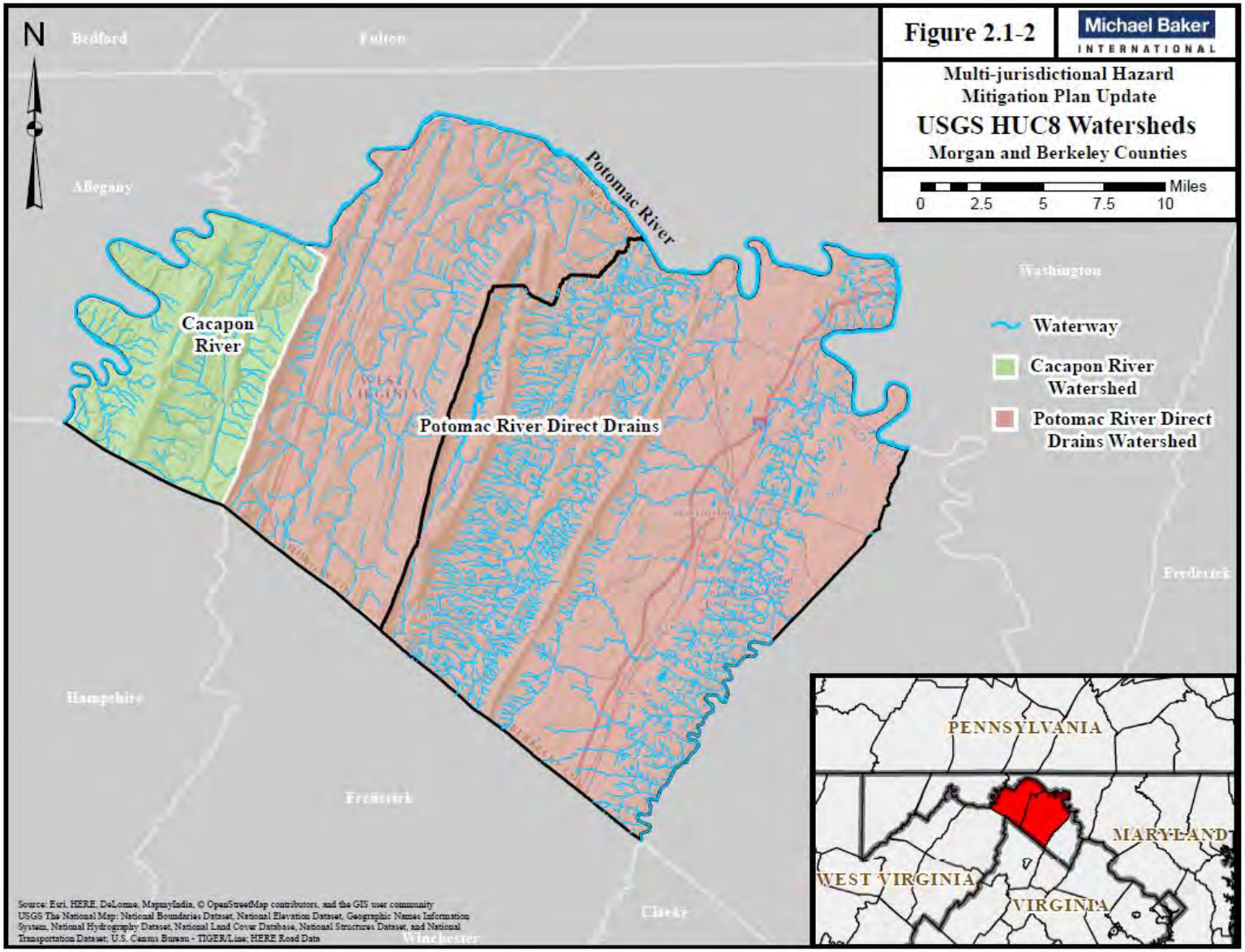
# Proposed 2022 Hazard Rankings

| 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 |
| | Transportation Accidents | 4 | 4 | 3 | 4 | 2 | 3.6 |
| | Winter Storm | 4 | 4 | 4 | 1 | 2 | 3.5 |
| | Windstorm, 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 |
| | Pandemic and Infectious Disease | 3 | 3 | 3 | 2 | 4 | 3.0 |
| | Terrorism | 2 | 3 | 4 | 4 | 2 | 2.9 |
| | Hurricane, Tropical Storm, Nor'easter | 3 | 3 | 4 | 1 | 2 | 2.9 |
| | Opioid Addiction | 3 | 3 | 2 | 2 | 3 | 2.7 |
| | Radon Exposure | 3 | 3 | 2 | 3 | 1 | 2.6 |
| | Cyber Terrorism | 3 | 3 | 2 | 3 | 1 | 2.6 |
| Mod | Flooding | 4 | 2 | 2 | 1 | 1 | 2.4 |
| | Extreme Temperature | 2 | 2 | 3 | 3 | 1 | 2.2 |
| Low | Civil Disturbance | 2 | 2 | 1 | 3 | 2 | 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 |
| | Invasive Species | 1 | 1 | 2 | 1 | 1 | 1.2 |
| | Earthquake | 1 | 1 | 1 | 1 | 1 | 1.0 |
| | Land Subsidence | 1 | 1 | 1 | 1 | 1 | 1.0 |
| | Dam and Levee Failure | 1 | 1 | 1 | 1 | 1 | 1.0 |

# Proposed 2022 Hazard Rankings

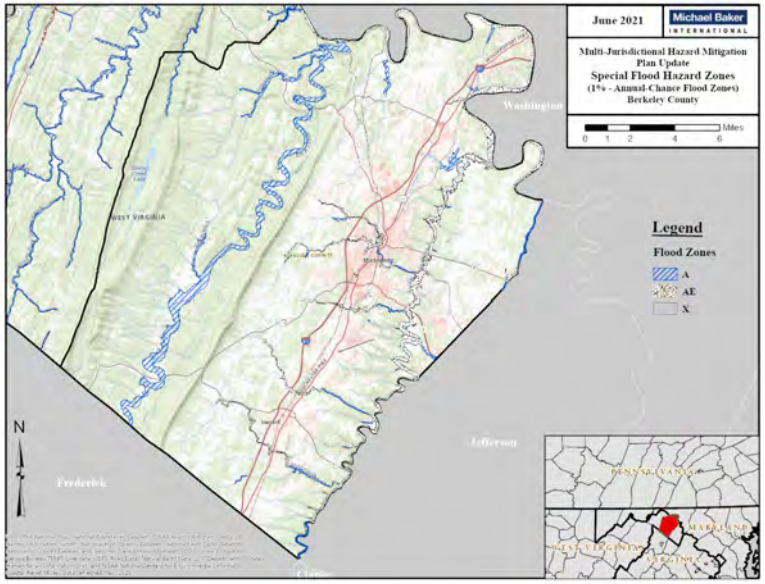
| Morgan County Ranking of Hazard Types Based on Risk Factor Methodology | | | | | | | |
|---|---|---|---|---|---|---|---|
| Risk Class | Hazard | Risk Assessment Category (1 = least severe, 4 = most severe) | | | | | Calculated Risk Factor |
| | | Probability (1-4) | Severity (1-4) | Spatial Extent (1-4) | Warning Time (1-4) | Duration (1-4) | |
| High | Opioid Addiction | 4 | 2 | 3 | 2 | 3 | 2.9 |
| | Pandemic and Infectious Disease | 4 | 2 | 2 | 3 | 2 | 2.7 |
| | Utility Interruption | 3 | 2 | 3 | 4 | 2 | 2.7 |
| | Flooding | 3 | 2 | 2 | 3 | 3 | 2.5 |
| Moderate | Winter Storm | 4 | 2 | 2 | 1 | 1 | 2.4 |
| | Hazardous Materials | 3 | 2 | 2 | 3 | 2 | 2.4 |
| | Wind Storm, Tornado | 3 | 2 | 2 | 3 | 2 | 2.4 |
| | Cyber Terrorism | 2 | 2 | 2 | 3 | 4 | 2.3 |
| | Wildfire | 3 | 2 | 1 | 4 | 2 | 2.3 |
| | Transportation Accidents | 4 | 1 | 1 | 4 | 1 | 2.2 |
| | Hailstorm | 2 | 2 | 2 | 4 | 2 | 2.2 |
| | Hurricane, Tropical Storm, Nor'easter | 2 | 2 | 3 | 1 | 3 | 2.2 |
| | Source Water Contamination | 2 | 2 | 2 | 2 | 3 | 2.1 |
| | Dam and Levee Failure | 2 | 2 | 2 | 3 | 2 | 2.1 |
| Low | Drought | 1 | 1 | 4 | 1 | 4 | 1.9 |
| | Invasive Species | 2 | 1 | 2 | 2 | 2 | 1.7 |
| | Civil Disturbance | 2 | 2 | 1 | 1 | 1 | 1.6 |
| | Terrorism | 1 | 1 | 1 | 4 | 2 | 1.4 |
| | Extreme Temperature | 1 | 2 | 1 | 1 | 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 |

# Hazard Review Example: Flood, Flash Flood, Ice Jam

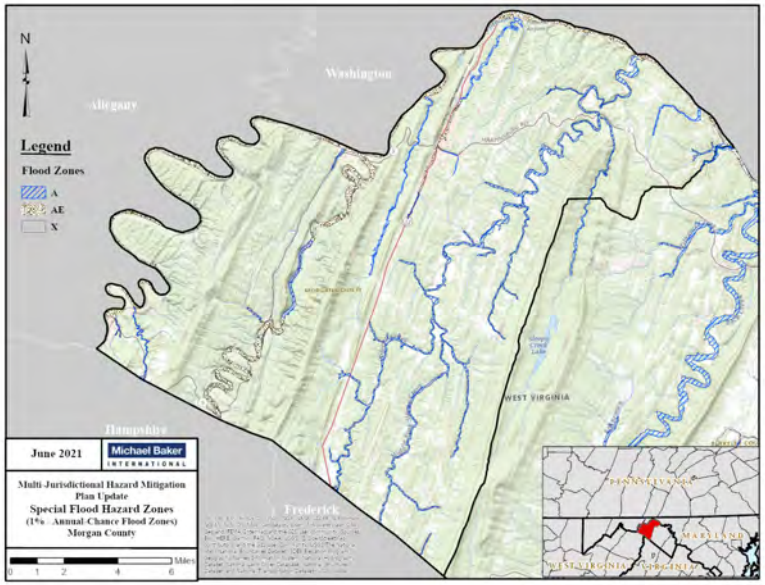


# Hazard Review Example: Flood, Flash Flood, Ice Jam

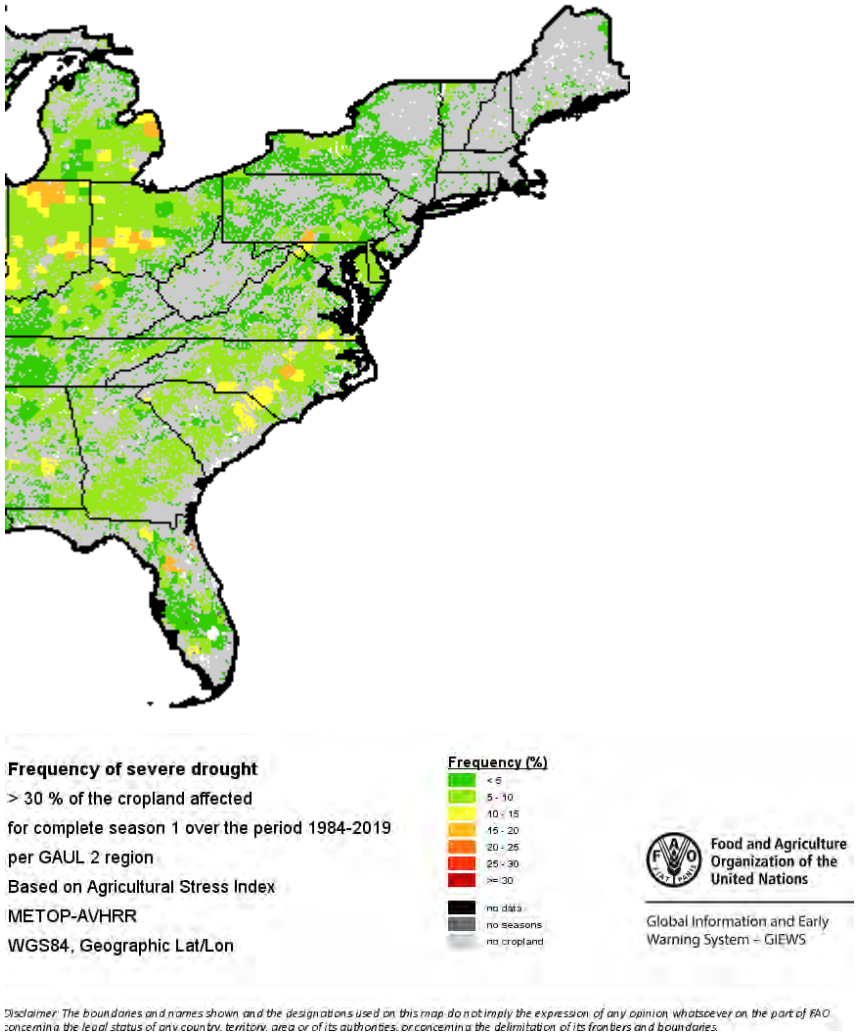





- Berkeley County, Morgan County, and The City of Martinsburg participate in the National Flood Insurance Program's (NFIP) Community Rating System (CRS)
- Steering committee members noted an increase in flooding over the past 5 years. (Ex. 2018 floods)
- Increased impervious surfaces as development and population grow specifically in Berkeley County
- Slope and topography contribute to flash flooding



# Hazard Review Example: Drought




- In October 2019, a State of Emergency was declared in all WV counties due to drought conditions
- The City of Martinsburg brought up that the City and Berkeley County rely on groundwater for potable water
  - Concerns with growing population decreasing water amount

| Crop Loss Insurance Compensation Due to Drought Berkeley and Morgan Counties (USDA RMA, 2021) | |
|---|---|
| **Crop Year** | **Indemnity Amount** |
| 2010 | $560,682 |
| 2011 | $155,890 |
| 2012 | $0 |
| 2013 | $19,837 |
| 2014 | $2,158 |
| 2015 | $51,209 |
| 2016 | $136,930 |
| 2017 | $10,439 |
| 2018 | $0 |
| 2019 | $4385 |
| 2020 | $21,103 |
| 2021 (Year-to-Date) | $0 |

# Has your municipality experienced significant occurrences of opioid addiction, cyber terrorism, or civil disturbances?

# Please tell us about it.

# Mitigation Strategy Components

- Goals and Objectives
- Progress Report on 2017 Mitigation Strategy
- 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.









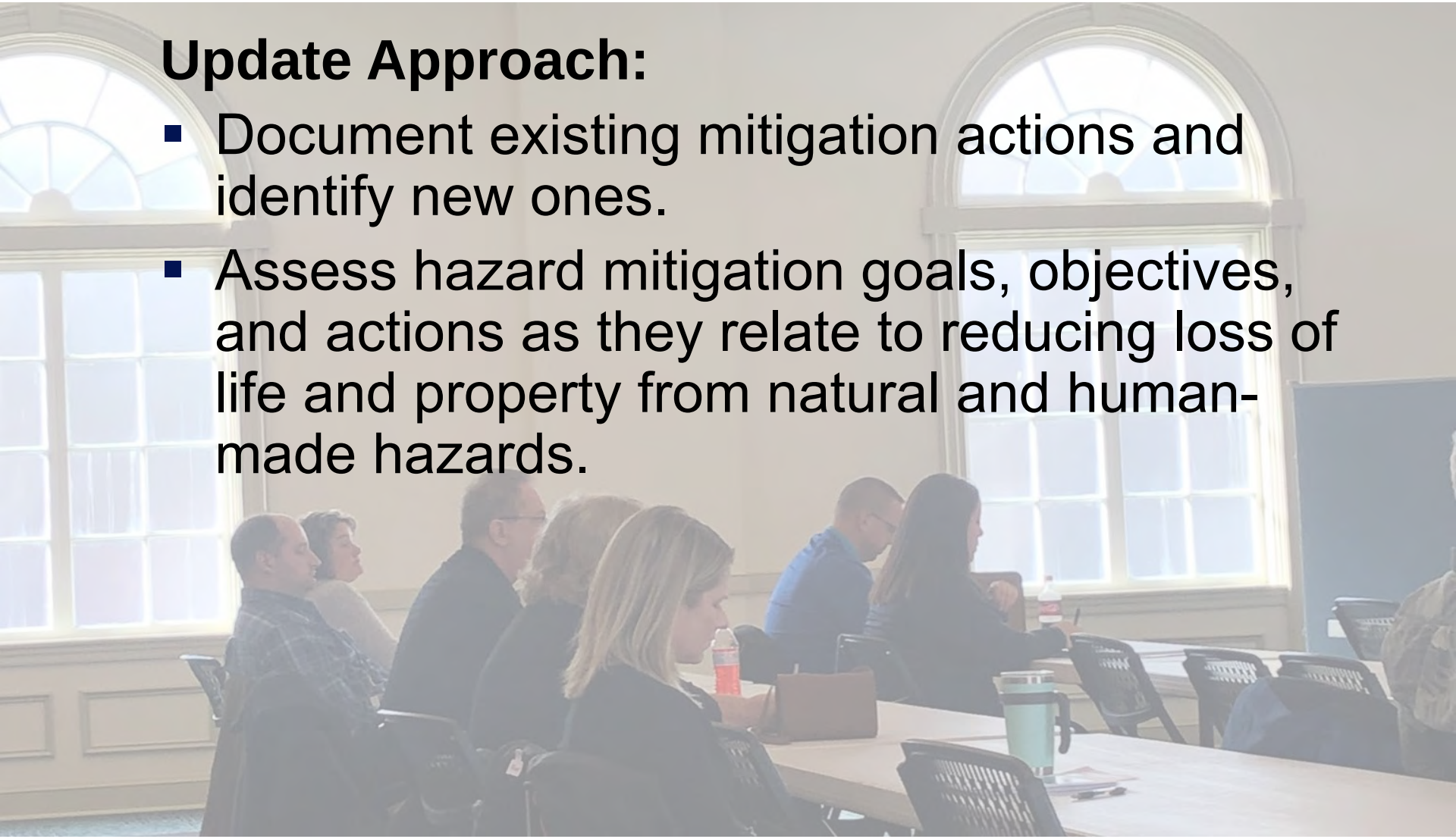



## Mitigation Action Plan:

- 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.
- 2017 MJHMP: **92** actions
  - Some were new for 2017 and some were continued or modified from 2012





## Update Approach:

- Document existing mitigation actions and identify new ones.
- Assess hazard mitigation goals, objectives, and actions as they relate to reducing loss of life and property from natural and human-made hazards.




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



- Government authorities, policies, or codes that influence the way land and buildings are developed and built such as:
  - Comprehensive Plans
  - Subdivision Regulations
  - Building Codes and Enforcement
  - Capital Improvement Programs
  - Stormwater Management Plans
  - Emergency Operations Plans



- Modifying existing structures and infrastructure to remove from a hazard area
- Construction of manmade structures to reduce impacts of hazards

- 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
  - Wetland restoration and preservation



# Education and Awareness Programs

- National preventative programs
- Mailings to hazard-prone communities
- Websites with maps and information
- Presentations to community groups
- Radio or TV spots



# Exercise 1: 2017 Mitigation Action Progress

- Status, progress, and notes on actions from the 2017 MJHMP.
- Can be completed and emailed by **July 7**

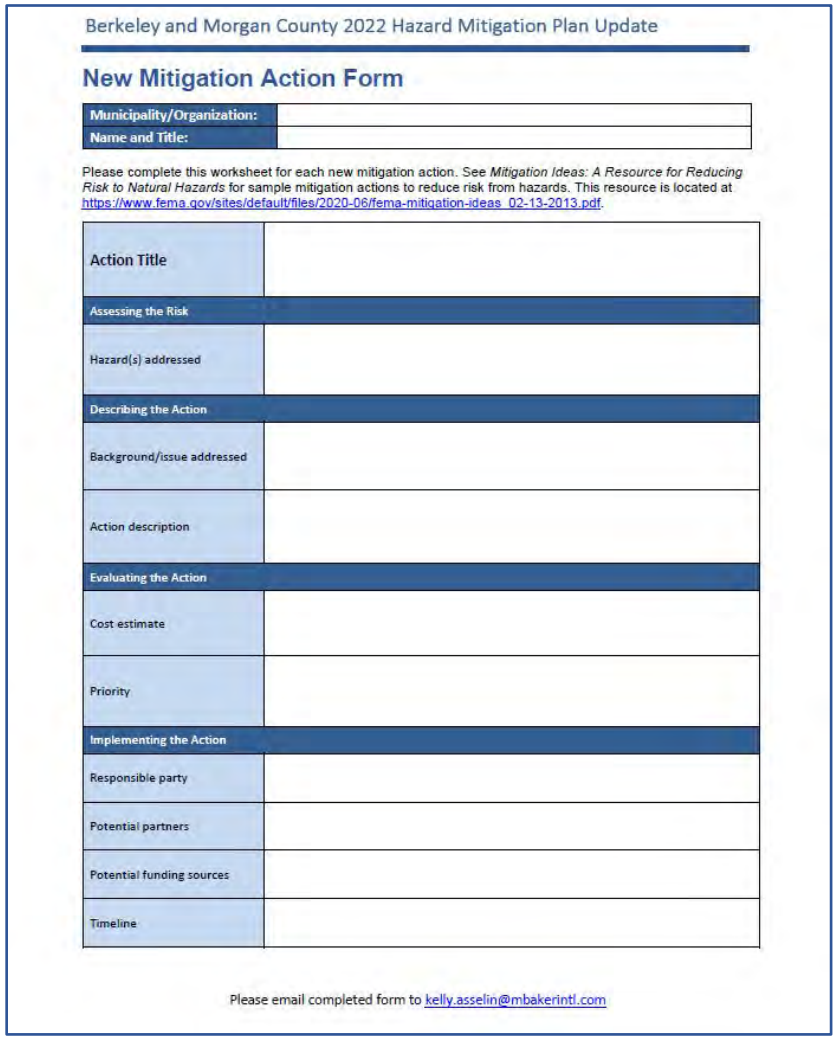
## 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Status | | | | Status Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | Completed | Canceled | Deferred | Ongoing | |
| Berkeley County | 1B | Drought | Develop an informational brochure to distribute to local farmers and residents regarding drought. | | | | | |
| Berkeley County | 2B | Drought, Source Water Contamination | Evaluate current public water system to identify the most feasible locations to construct upgrades that would reduce or eliminate the effects of drought. A survey of residential wells and public water customers should also be conducted to evaluate the status of residential drinking water in the county and identify trends. | | | | | |
| Berkeley County | 3B | Flooding | Develop stringent stormwater management codes for future development. | | | | | |
| Berkeley County | 4B | Flooding | Consider conducting acquisition and relocation projects (buyouts) in flood-prone areas. This includes repetitive, severe repetitive loss and nonrepetitive and severe repetitive loss structures. | | | | | |
| Berkeley County | 5B | Thunderstorm, Lighting Strike | Coordinate with the National Weather Service in Sterling, Virginia to warn residents of impending severe thunderstorm conditions. | | | | | |

Please email completed form to Kelly.asselin@mbakerintl.com

# Exercise 2: New Action Identification

- Determine additional actions based on current risk, vulnerability, and mitigation goals
- Develop actions for new hazards
- Can be completed and emailed by **July 7**



Berkeley and Morgan County 2022 Hazard Mitigation Plan Update

## New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | |
| **Name and Title:** | |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| Action Title | |
| **Assessing the Risk** | |
| Hazard(s) addressed | |
| **Describing the Action** | |
| Background/issue addressed | |
| Action description | |
| **Evaluating the Action** | |
| Cost estimate | |
| Priority | |
| **Implementing the Action** | |
| Responsible party | |
| Potential partners | |
| Potential funding sources | |
| Timeline | |

Please email completed form to kelly.asselin@mbakerintl.com

| Mitigation Technique | Action |
|---|---|
| Local Plans and Regulations | Ensure integration of vulnerabilities into local, regional, and countywide comprehensive planning processes. |
| Structure and Infrastructure Projects | Relocate a section of main waterline currently in an area vulnerable to flooding and transportation accidents. |
| Structure and Infrastructure Projects | Provide alternate power sources for every building with essential or critical functions. |
| Natural Systems Protection | Coordinate to conduct prescribed burns as necessary to reduce wildfire risk. |
| Education and Awareness Programs | Identify senior independent living, extended care, and hospice care residential living facilities and provide targeted information about evacuation and sheltering resources. |

## Historical Resources

- Districts, sites, buildings, structures, and objects. Considerations include:
  - Integrity of location
  - Design, setting, feeling, and association
  - Materials and workmanship
- Associated with events that have made a significant contribution to patterns of history, significant persons, or distinct historical periods and methods of construction.
- Have yielded or may be likely to yield information important in history

# Potential Actions

- Develop an outreach campaign to increase awareness of the potential challenges and dangers associated with managing chronic pain.
- Create an opioid awareness coalition to collaborate with medical and health-care professionals.



## Potential Actions

- Improve cyber security of control systems in critical facilities and infrastructure.
- Provide internal training to staff to reduce frequency and effectiveness of phishing attacks.



## Potential Actions

- Conduct regular threat assessments
- Conduct recurring training for police and first responders, and public officials
- Identify and address deficiencies and needs



*Not a new hazard, but expanded from epidemic in 2017

## Potential Actions

- Create a plan for pandemic response.
- Acquire information and supplies needed for pandemic responses. Stay updated on guidelines.
- Follow mitigation recommendations from State Health Department. This requires having all personal protective equipment (PPE) for employees of the municipality.
- Update pandemic response capabilities in the municipality by updating the Pandemic Plan, purchasing sanitizing supplies for public places, and purchasing PPE for employees and volunteers.



# We want to hear from you! Please visit the following link and complete the survey regarding the 2022 plan update:

https://www.surveymonkey.com/r/RFMF7KM



| Task | Dates |
|---|---|
| Kick-Off Meeting | May 4 |
| Risk Assessment and Vulnerability Analysis | April – June |
| Risk Assessment and Mitigation Solutions Workshop | June 15 |
| Mitigation Strategy Development | June – September |
| Plan Review Public Meeting | Late August |
| Deliver to WVEM/FEMA for Review | October/November |
| Distribute to Municipalities for Adoption | February 2022 |

- Hazard Mitigation Planning Team:
  - Complete Mitigation Action Progress Forms by **July 7**
  - Complete New Mitigation Action Forms by **July 7**
  - Provide photos of disaster events from 2017-2021
  - Review draft plan in Late August
  - Check out the project website:

http://www.region9wv.com/plans---studies.html

- Project Team:
  - Update project website with meeting materials
  - Prepare draft plan




**Next Meeting: Late August (Date TBD)**

# Questions?



Rachel Snavely

Executive Director, Eastern Panhandle Regional Planning & Development Council

rsnavely@region9wv.com

(304) 263-1743

Troy D. Truax, AICP

Project Manager, Michael Baker International

troy.truax@mbakerintl.com

(717) 213-6241



# Morgan County Risk Assessment and Mitigation Solutions (RAMS) Workshop Meeting Summary

June 15, 2021

9:00am-11:00am

Please view the Zoom recording here:

## Agenda

1. Welcome and Introductions
2. Recap of May 4th Kick-Off Meeting
3. Risk Assessment Overview and Hazard Identification
    a. Hazard Identification and Profiles
    b. Hazard Ranking and Risk Factor (RF)
    c. Exercise Recap: Risk Ranking Evaluation
4. Mitigation Strategy Discussion
    a. Exercise #1: Mitigation Action Progress
    b. Exercise #2: New Mitigation Actions
5. Next Steps and Action Items

## Welcome and Introductions

Troy Truax, a hazard mitigation planning consultant with Michael Baker International, welcomed all members of the Morgan County Multi-Jurisdictional Hazard Mitigation Planning Team (HMPT). This meeting was held in person in Morgan County and virtually via Zoom to accommodate for the COVID-19 pandemic. Troy asked participants to introduce themselves as attendance was taken and requested that everyone indicate which community or organization they represented.

See the attached Sign In Sheets for the meeting attendees.

## Project Overview

Troy provided a brief recap of the May 4th Kick-Off Meeting held at Blue Ridge Community and Technical College in Morgan County, WV and virtually via Zoom.

Troy defined hazard mitigation and described the purpose of the MJHMP Update, including:

- Identifying projects that will reduce risk, both day to day and in a disaster situation
- Identifying potential funding sources for mitigation projects
- Maintaining eligibility for certain mitigation funding through the Federal Emergency Management Agency (FEMA)

Troy emphasized that municipal participation in meetings and completion of worksheets is crucial for FEMA approval. Without active participation, a municipality may be limited in adoption of the plan and therefore may be limited in obtaining grant funding available over the next five years. He suggested individual phone calls for municipalities who may not have made it to a meeting or completed the worksheets. Troy described the main goals of the day's meeting were to review the 2022 proposed hazard rankings, and complete two worksheets regarding 2017 mitigation action progress and new mitigation action ideas.

## Risk Assessment Overview and Hazard Identification

Troy reviewed the hazards profiled in the 2017 HMP, and noted that civil disturbance, cyber terrorism, and opioid addiction will be added to the 2022 update. Troy discussed the use of risk analysis to determine how impactful or prevalent a hazard may be within a community. Risk analysis utilizes a Risk Factor Value, which is calculated by quantitively inputting subjective feedback from municipal representatives and additional stakeholders for each profiled hazard. The Risk Factor Value considers probability of occurrence, impact, spatial extent, warning time, and duration for each hazard.

Troy reviewed the hazards profiled in the 2022 HMP and their proposed rankings.

### High Ranked Hazards

- Opioid Addiction
- Pandemic and Infectious Disease
- Utility Interruption
- Flooding

### Moderate Ranked Hazards

- Winter Storm
- Hazardous Materials
- Wind Strom, Tornado
- Cyber Terrorism
- Wildfire
- Transportation Accidents
- Hailstorm
- Hurricane, Tropical Storm, Nor'easter
- Source Water Contamination
- Dam Failure

### Low Ranked Hazards

- Drought
- Invasive Species
- Civil Disturbance
- Terrorism
- Extreme Temperatures
- Thunderstorm, Lightning Strike
- Earthquake
- Landslide and lad subsidence
- Radon Exposure

Troy asked for photos, news articles, or other supporting data attendees may have from hazards in the last 5 years. Dick Myers commented that utility interruption is more frequent than flooding. Meeting attendees think the High rankings should be Opioid Addiction, Pandemic and Infectious Disease, Utility Interruption, and then flooding. There was a discussion on flood mitigation strategies taken since the last HMP update, which have lessened the County's vulnerability to flooding. Jen Schetrompf mentioned there has been good progress with utility interruption mitigation actions, such as the cutting of trees near power lines, in partnership with Potomac Edison Energy. Participants had no comments about the moderate and low-ranking hazards.

Troy asked the attendees for input on significant occurrences of new hazards, opioid addiction, cyber terrorism, and civil disturbance. Jen Schetrompf mentioned the County has quick response and harm reduction teams. The state website tracks EMS calls and responses to overdoses as well. Jeromy Duelley mentioned that they hand out educational information about opioid abuse at school, and Troy asked if he could provide this information.

Rachel Snavely mentioned Morgan County's server was hacked last year, so the County installed firewalls, are working on a cloud, have a backup server, and hired an IT Director year. The school system is also taking measures.

Dick Myers noted an Incident Action Plan was developed based on Black Lives Matter protests regarding civil disturbance.

Troy then provided a brief review of the updated Flooding hazard profile. Berkeley County, Morgan County, and the City of Martinsburg currently participate in the National Flood Insurance Program's (NFIP) Community Rating System (CRS) program, which provides municipal property owners an opportunity to receive a reduction in their flood insurance premiums. This is an example of a mitigation action that is currently in place. Troy also provided a brief overview of the Drought hazard profile and urged stakeholder input on local data.

## Mitigation Strategy Discussion

Troy explained goals, objectives, and actions and introduced the Mitigation Action Plan, which is a crucial step within the update process. The Mitigation Action Plan identifies specific activities a community will take to reduce or eliminate risk from the identified hazard. The 2017 MJHMP contained a total of 92 actions, some of which were carried over or modified from the 2012 Plan. Troy noted that the main goal of this Plan is to identify at least one mitigation action for each hazard.

Troy discussed the Mitigation Action Progress Report Form, which determines if existing actions are still applicable and if they need to be included in the 2022 Update. Municipalities were asked to note if an action has been completed, cancelled, deferred, or is still ongoing.

Troy also discussed the four types of mitigation techniques (Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, and Education and Awareness Programs) and described how to develop new actions, which are the focus of today's Risk Assessment and Mitigation Solutions Workshop. Municipalities were encouraged to develop mitigation actions using these mitigation techniques to reduce their municipality's vulnerability to a hazard. Matt Pennington mentioned green infrastructure projects in collaboration with watershed groups as something he is working on. This serves multiple purposes: hazard mitigation, sediment erosion control, groundwater recharge, etc.

Troy discussed the importance of historic resources to FEMA. It is critical that historic resources are protected from hazards and that they be identified in the form of a new mitigation action.

Troy emphasized that the three new hazards each need a mitigation action, and that some organizations being represented in the meeting may already have some of these actions underway. He also mentioned that the plan needs a new action for High Hazard Potential Dams, and Michael Baker will coordinate with Region 9 to obtain dam owner names, and if they are planning any capital improvements for their dams. Rachel Snavely mentioned that the new 522 bypass' impact on dams in the Sugar Hollow Road region is of major concern for the community.

## Next Steps and Action Items

A survey regarding the 2022 plan can be found here: https://www.surveymonkey.com/r/RFMF7KM

Region 9 encourages anyone to complete it, and to share it through any platform they see fit for public engagement.

Troy reviewed the current project timeline, which is shown below. Past events are designated in grey:

| Task | Dates |
|---|---|
| Kick-Off Meeting | May 4, 2021 |
| Risk Assessment and Vulnerability Analysis | April – June |
| Risk Assessment and Mitigation Solutions Workshop | June 15, 2021 |
| Mitigation Strategy Development | June-August |
| Draft Plan Review Public Meeting | Late August 2021 |
| Deliver to WVEM for Review | October 2021 |
| Deliver to FEMA for Review | November 2021 |
| Distribute to Municipalities for Adoption | February 2022 |

Troy encouraged attendees to visit the project website to review the 2022 MJHMP, view meeting materials, find helpful resources, and obtain copies of forms if needed. The project website can be found at: https://region9wv.com/hazard-mitigation.

The hazard mitigation consultant will draft a meeting summary, and Region 9 will post all meeting materials to the project website. Region 9 will follow up with each meeting participant about action items in two weeks from the meeting date. The consultant and Region 9 will follow up with municipal contacts who were unable to attend this meeting.

Troy reiterated that we need the municipalities to complete all forms discussed today, but most importantly the New Mitigation Action Form, by July 7. Troy noted that municipalities will need to adopt the MJHMP as soon as FEMA issues Approval Pending Adoption, however, more information will be provided in coming months.

Troy will be available to answer any questions or to provide assistance to municipalities as they develop new mitigation actions by email at troy.truax@mbakerintl.com and by phone at (717)213-6241.

**The meeting concluded at 11:00am**

**Action Items**

1. **Michael Baker or Region 9 staff will conduct a one-on-one call with the Town of Bath.**
    a. *Post-meeting update: Completed -- Matt Pennington (R9) called the Mayor of Bath and provided a detailed phone log to Michael Baker on 6/16/21.*
2. **Kelly Asselin (MBI) will adjust the Hazard Rankings per discussion amongst the RAMS attendees.**
    a. *Post-meeting update: In progress – Kelly made the adjustments, and the updated table will be circulated for review.*
3. **Matt Pennington (R9) will forward worksheets completed by Paw Paw.**
    a. *Post-meeting update: Completed -- Matt Pennington (R9) provided the worksheets to MBI on 6/17/21.*
4. **Participants will submit New Action worksheets by July 7. Examples discussed during the meeting include an Incident Action Plan for protests and cyber security programs.**
5. **Participants will submit the Action Progress worksheets by July 7.**
6. **Kelly Asselin (MBI) may contact Jennifer Schetrompf, Jeromy Duelley, and/or Stefanie Allemong regarding opioid addiction resources and actions.**
    a. *Post-meeting update: Completed – Jennifer provided information to Kelly.*
7. **Troy Truax (MBI) will follow up with Matt Pennington (R9) regarding HHPD, capital improvement projects, and 522 bypass concerns.**
8. **Kelly Asselin (MBI) will check the State Fusion Center for civil disturbance and terrorism incidents and information.**
9. **Kelly Asselin (MBI) will check the Morgan County Board of Education Facebook page for posting of HMP information and will include it in the HMP as evidence of outreach.**
10. **Participants will submit photos by July 7.**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Status | | | | Status Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | Completed | Canceled | Deferred | Ongoing | |
| Town of Bath | 10M | Flooding | Review and maintain agreement with Morgan County Planning Commission to provide floodplain management. | | | | | |
| Town of Bath | 37M | Flooding | 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 | 38M | All Natural Hazards | Establish shelters within existing government facilities. | | | | | |
| Town of Bath | 39M | Utility Interruption | Seek funding for generators and other equipment to aid in the continuation of essential services in the event of utility interruption. | | | | | |

**Please email completed form to kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Status | | | | Status Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | Completed | Canceled | Deferred | Ongoing | |
| Morgan County | 1M | All Hazards | Review all existing regulations to ensure adequacy in reducing the amount of future identified hazard areas. | | | | | |
| Morgan County | 2M | All Hazards | Expand the mission and membership of the Morgan County Local Emergency Planning Committee to act as a countywide disaster task force. | | | | | |
| Morgan County | 3M | All Hazards | Develop adequate emergency shelter and evacuation plans for citizens and animals (domestic pets, livestock and wildlife). | | | | | |
| Morgan County | 4M | Transportation Accidents | Construct a bypass along US Route 522 to improve safety and ease of access. | | | | | |
| Morgan County | 5M | Utility Interruption | Reduce utility interruption by establishing standards for tree trimming, burying power lines, and install redundancies and loop feeds. | | | | | |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Morgan County | 6M | Source Water Contamination | Educate water system operators and workers about the importance of safe available water and SWPPs, update the SWPP as necessary. | | | | | |
| Morgan County | 7M | Flooding | 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 | 8M | Hazardous Materials | Increase awareness of key hazardous material transportation routes and storage areas and conduct drills with local agencies focusing on high risk areas. | | | | | |
| Morgan County | 9M | Winter Storm | Assist vulnerable populations and publicize road conditions using news stations, newspapers, and radio during winter storms. | | | | | |
| Morgan County | 13M | All Hazards | Collect address data to assist in the creation of accurate disaster mapping. | | | | | |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Morgan County | 14M | All Hazards | Develop updated aerial photography to assist in analyzing disaster risks to property. | | | | | |
| Morgan County | 15M | Flooding | Ensure that flood insurance policies remain affordable through the county and municipal government programs. | | | | | |
| Morgan County | 16M | Flooding | 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 | 17M | Flooding | 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 | 18M | Flooding | Identify owners of repetitive and severe repetitive loss properties that may be willing to participate in future property acquisition and relocation projects. | | | | | |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Morgan County | 19M | All Hazards | Review all comprehensive plans to ensure that designated growth areas are not in hazard areas. | | | | | |
| Morgan County | 20M | Flooding | Provide training to municipalities on the CRS program and encourage them to participate. | | | | | |
| Morgan County | 21M | Flooding | Work with WV Department of Highways to identify areas of frequent roadway flooding and develop mitigation strategies. | | | | | |
| Morgan County | 22M | Transportation Accidents, Hazardous Materials | Identify strategies to mitigate risks from the transportation and/or storage of hazardous materials in Morgan County. | | | | | |
| Morgan County | 23M | All Hazards | 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. | | | | | |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Morgan County | 24M | All Hazards | 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 | 25M | All Hazards | Conduct training exercises that include representatives from the city and the Park Service to facilitate increased coordination. | | | | | |
| Berkeley County | 26M | Flooding | Continue to enforce ordinances that new structures do not interfere with flood mitigation measures. | | | | | |
| Morgan County | 27M | Flooding | Obtain updated information on the number of NFIP policyholders in Morgan County and its municipalities. | | | | | |
| Morgan County | 28M | All Hazards | Develop mitigation strategies to protect any at-risk historic properties. | | | | | |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Morgan County | 29M | Flooding | Conduct a survey of all historic sites that are located in hazard areas. | | | | | |
| Morgan County | 30M | Hazardous Materials | Apply for Hazardous Materials Emergency Preparedness (HMEP) grant from WVOES to finance the development of a hazardous materials survey for Morgan County. | | | | | |
| Morgan County | 31M | Flooding, Landslide and Land Subsidence | Review all capital improvement plans to ensure that infrastructure improvements are not directed towards hazardous areas. | | | | | |
| Morgan County | 32M | All Hazards | Continue to support initiatives established under the Morgan County Office of Emergency Services. | | | | | |
| Morgan County | 33M | Flooding | 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 | | | | | |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 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 | 34M | Hailstorm | Reinforce structures and infrastructure against hail and increase awareness before hailstorms with public announcements. | | | | | |
| Morgan County | 35M | Wind Storm, Tornado | Use building codes, retrofits, and increased risk awareness to protect property, infrastructure, and utilities from wind storms and tornadoes. | | | | | |
| Morgan County | 36M | Wildfire | Assess areas vulnerable to wildfires and publicize outdoor burning regulations and wildfire risks using pamphlets, news articles, and the Firewise Program. | | | | | |
| Morgan County | 43M | Terrorism | Post and distribute terrorism preparedness information based on current data. | | | | | |
| Morgan County | 44M | Hurricane, Tropical Storm, Nor' Easter | 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. | | | | | |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Morgan County | 45M | Radon Exposure | Provide pamphlets and educational material to county residents to encourage annual residential radon testing. | | | | | |
| Morgan County | 46M | Drought | Monitor water supply and conserve water through public awareness campaigns conducted using news and radio stations. A survey of residential wells and public water customers should also be conducted to evaluate the status of residential drinking water in the county and identify trends. | | | | | |
| Morgan County | 47M | Dam and Levee Failure | Monitor rainfall and conduct annual inspections of berms to protect against structural failures. | | | | | |
| Morgan County | 48M | Earthquake | Adopt and enforce building codes, perform building inspections, and conduct outreach to the public and builders through pamphlets. | | | | | |
| Morgan County | 49M | Extreme Temperatures | Educate the public about the risks associated with extreme temperatures using the county website and local radio stations. | | | | | |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Morgan County | 50M | Epidemic | When a disease reoccurs in a community use pamphlets, local news media, and online resources to educate the public about mitigation. | | | | | |
| Morgan County | 51M | Landslide and Land Subsidence | Protect roadways and remove buildings in potential landslide and land subsidence hazard areas. | | | | | |
| Morgan County | 52M | Thunderstorm, Lightning Strike | Utilize pamphlets and articles about the warning signs and the potential damages of thunderstorms and lightning strikes. | | | | | |
| Morgan County | 53M | Infestation | Conduct control initiatives, such as the Gypsy Moth Spray Program, and conduct public education and awareness campaigns. | | | | | |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Status | | | | Status Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | Completed | Canceled | Deferred | Ongoing | |
| Town of Paw Paw | 11M | Flooding | Review and maintain agreement with Morgan County Planning Commission to provide floodplain management. | | | | | |
| Town of Paw Paw | 12M | Flooding | 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 | 40M | All Natural Hazards | Establish shelters within existing government facilities. | | | | | |
| Town of Paw Paw | 41M | Source Water Contamination | 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 | 42M | Utility Interruption | Seek funding for generators and other equipment to aid in the continuation of essential services in the event of utility interruption. | | | | | |

**Please email completed form to kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Status | | | | Status Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | Completed | Canceled | Deferred | Ongoing | |
| Region 9 | 1R | Flooding | Perform annual review to ensure communities are maintaining 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. | | | | | |
| Region 9 | 2R | Flooding | Perform annual review to ensure communities are undertaking buyout, elevation, and/or relocation projects in the Region IX Planning and Development Council area when and if funding is available. | | | | | |
| Region 9 | 3R | Dam Failure | Coordinate, as appropriate, with partners throughout the region to identify the location of privately-owned dams. | | | | | |

**Please email completed form to kelly.asselin@mbakerintl.com**

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | |
| **Name and Title:** | |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | |
| Assessing the Risk | |
| Hazard(s) addressed | |
| Describing the Action | |
| Background/issue addressed | |
| Action description | |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | |
| Potential partners | |
| Potential funding sources | |
| Timeline | |

Please email completed form to kelly.asselin@mbakerintl.com

## Appendix C-5 Watershed Group Gathering Meting June 8, 2021)

# Eastern Panhandle Watershed Group Gathering

Hosted by the Eastern Panhandle Conservation District

**June 8, 2021**

Virtual via Microsoft Teams:

Join on your computer or mobile app: **Click here to join the meeting**

Or call in (audio only): 1-304-935-0697 (phone Conference ID: 652 026 093#)

## Agenda

| Time | Topic | Speaker |
|---|---|---|
| 9:00 - 9:15 | Welcome & Introductions | Jim Michael, *Eastern Panhandle Conservation District* |
| 9:15 – 10:15 | Watershed Highlights – Facilitating: Tanner Haid, *WV Rivers Coalition*<br>• *WV Rivers Coalition*<br>• *Berkeley County Farmland Protection Board*<br>• *Sleepy Creek Watershed Association*<br>• *WV Environmental Council*<br>• *Land Trust of the Eastern Panhandle*<br>• *Potomac Valley Audubon Society*<br>• *South Branch Science Consortium*<br>• *Cacapon & Lost Rivers Land Trust*<br>• *Warm Springs Watershed Association*<br>• *Cacapon Institute*<br>• *The Opequon Watershed*<br>• *Berkeley County Public Service Storm Water District*<br>• *Blue Ridge Watershed Coalition* | |
| 10:15 – 10:30 | Updates to Water Reporter & Field Doc | Bill Howard, *The Downstream Project* |
| 10:30 – 11:00 | Natural Systems Protections | Matt Pennington, *Region 9 (Eastern Panhandle Regional Planning & Development Council)* |
| 11:00 – 11:10 | ***Break*** | |
| 11:10 – 11:40 | Wetlands and Healthy Watersheds in the Eastern Panhandle | Elizabeth Byers, *WV Dept. of Environmental Protection* |
| 11:40 – 12:10 | Region 9 Multi-Jurisdictional Hazard Mitigation Plan | Troy Truax, *Michael Baker International* |
| 12:10 – 12:40 | Changes to WV Conservation Law/7-1-3u Agreements | Brian Farkas, *WV Conservation Agency* |
| 12:40 – 1:00 | Q & A Session | All presenters/participants |

| 2021 Virtual Eastern Panhandle Watershed Group Gathering Attendance List (via participant list) | |
|---|---|
| Name | Affiliation |
| Austin | |
| Autumn Crowe | WV Rivers Coalition |
| Becca Russell | City of Martinsburg Stormwater |
| Bill Howard | The Downstream Project |
| Brian Farkas | WV Conservation Agency |
| Briana Roche | |
| Callie Sams | WV Department of Environmental Protection |
| Chris Ellison | WV Conservation Agency |
| Christina Davis | Interstate Commission on the Potomac River Basin |
| Chuck Marsh | Sleepy Creek Watershed Association |
| Colleen Seager | |
| Crys Bauer | Cacapon Institute |
| Danny Lutz | Eastern Panhandle Conservation District |
| David Clumley | Berkeley County Public Service Stormwater District |
| Davin White | WV Conservation Agency |
| Elizabeth Byers | Sr Wetland Scientist/WV Dept of Environmental Conservation/Watershed Assessment Branch |
| Guest | |
| Hannah King | Outreach Cooridnator & Lobbysit, WV Environmental Council |
| Heather Duncan | Eastern Panhandle Conservation District |
| Jared Tomlin | Martinsburg Stormwater |
| Jennifer Jones | Cacapon & Lost Rivers Land Trust |
| Jennifer Pauer | WV DEP WIB/WV Stream Partners/Chesapeake Bay Program Grant Manager |
| Jim Egenrieder | South Branch Science Consortium |
| Jim Michael | Eastern Panhandle Conservation District |
| John Maxey | Blue Ridge Watershed Association |
| KC Walters | Potomac Valley Audobon Society |
| Kristen Bisom | WV Conservation Agency |
| Kristi Woodward | Berkeley County stormwater |
| Mark Schiavone | Berkeley County Farmland Protection Board |
| Matthew Pennington | Eastern Panhandle Regional Planning & Development Council (Region 9) |
| Michael Brooks | Warm Springs Run Watershed Association |
| Monica Whyte | Bureau of Public Health, Environmental Resource Specialist |
| Nancy Lutz | Eastern Panhandle Conservation District |
| Sam Urban | WV Conservation Agency |
| Steve Bauserman | The Opequon Watershed, Inc |
| Susan Taylor-Dropp | Sleepy Creek Watershed Association |
| Susan Whalton | Land Trust of the Eastern Panhandle |
| Tanner Haid | WV Rivers Coalition |

| | |
|---|---|
| Timothy D. Craddock | WV Department of Environmental Protection |
| Troy D Truax | Michael Baker International |
| Victoria Lusk | Cacapon Institute |
| Wyatt Derr | Martinsburg Stormwater |
| Zach Norris | Cacapon Institute |
| Zack Walburn | Berkeley County Public Service Stormwater District |



# Eastern Panhandle Watershed Group Gathering

## Region 9 Multijurisdictional Hazard Mitigation Plan Update

Michael Baker INTERNATIONAL

Region 9

June 8, 2021

# Agenda

- Welcome and Introductions
- About Region 9?
- What is Hazard Mitigation?
- What is a Hazard Mitigation Plan?
- Region 9 HMP Components
- Hazard Identification and Risk Assessment
- Mitigation Strategy

Region 9

Organized on June 20, 1972

Appalachian Regional Commission (ARC) designated **Local Development District (LDD)**

Economic Development Administration (EDA) designated **Economic Development District (EDD)**

The Federal Highway Administration and the State of West Virginia designated **West Virginia counterpart for the Hagerstown/Eastern Panhandle Metropolitan Planning Organization (HEPMPO)**

West Virginia designated **Planning and Development Council (PDC)**

- 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.



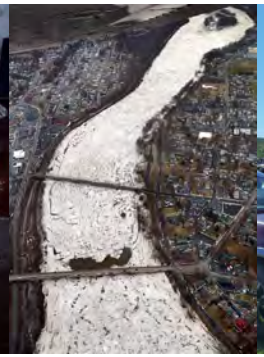
# What is Hazard Mitigation?

- Mitigation is most effective when it is based on a comprehensive, long-term plan that is developed before a disaster occurs.
- The purpose is to identify local policies and actions that can be implemented over the long term to reduce risk and future losses from hazards.



# What is a Hazard Mitigation Plan?

- A Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) is five-year, community-driven, living document that communities use to reduce their vulnerability to hazards.
- Counties and municipalities must adopt a FEMA-approved plan to be eligible for certain Hazard Mitigation Assistance (HMA) funds.
- HMA funds may be used to augment local mitigation activities already being accomplished and can leverage other funding sources.



# What is a Hazard Mitigation Plan?

- Stakeholder and public outreach are critical to the mitigation planning process.
- Federal law requires that stakeholders and the general public are given opportunities to be involved during the planning process and in the plan's maintenance and implementation.

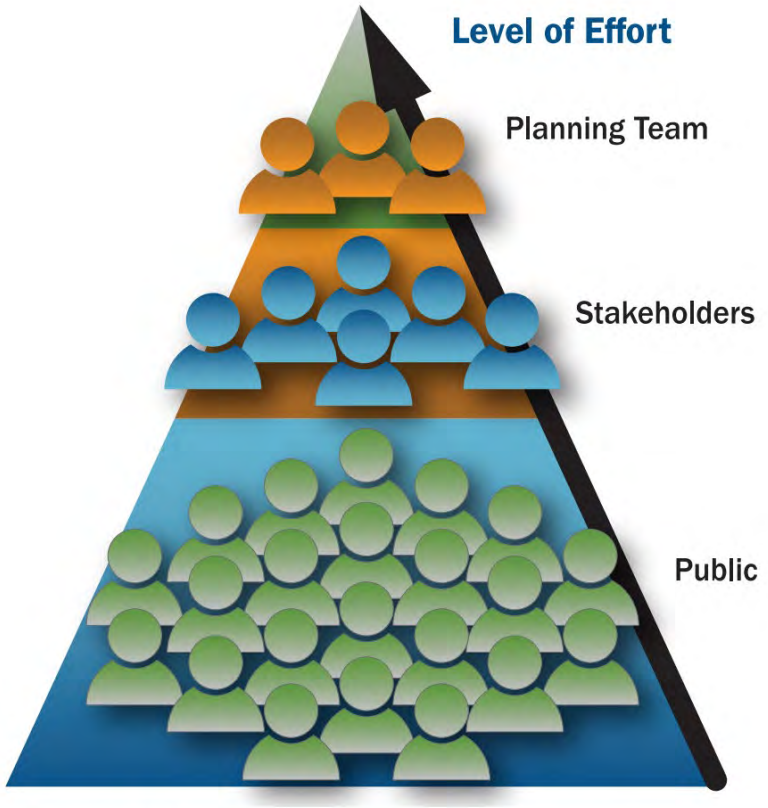



Figure 3.1: Outreach strategy framework

# Pre-Disaster Mitigation Funding Assistance

## Hazard Mitigation Grant Program (HMGP)

*Assists in implementing long-term hazard mitigation planning and projects following a Presidential major disaster declaration.*

## Building Resilient Infrastructure & Communities (BRIC)

*BRIC will support communities as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards.*

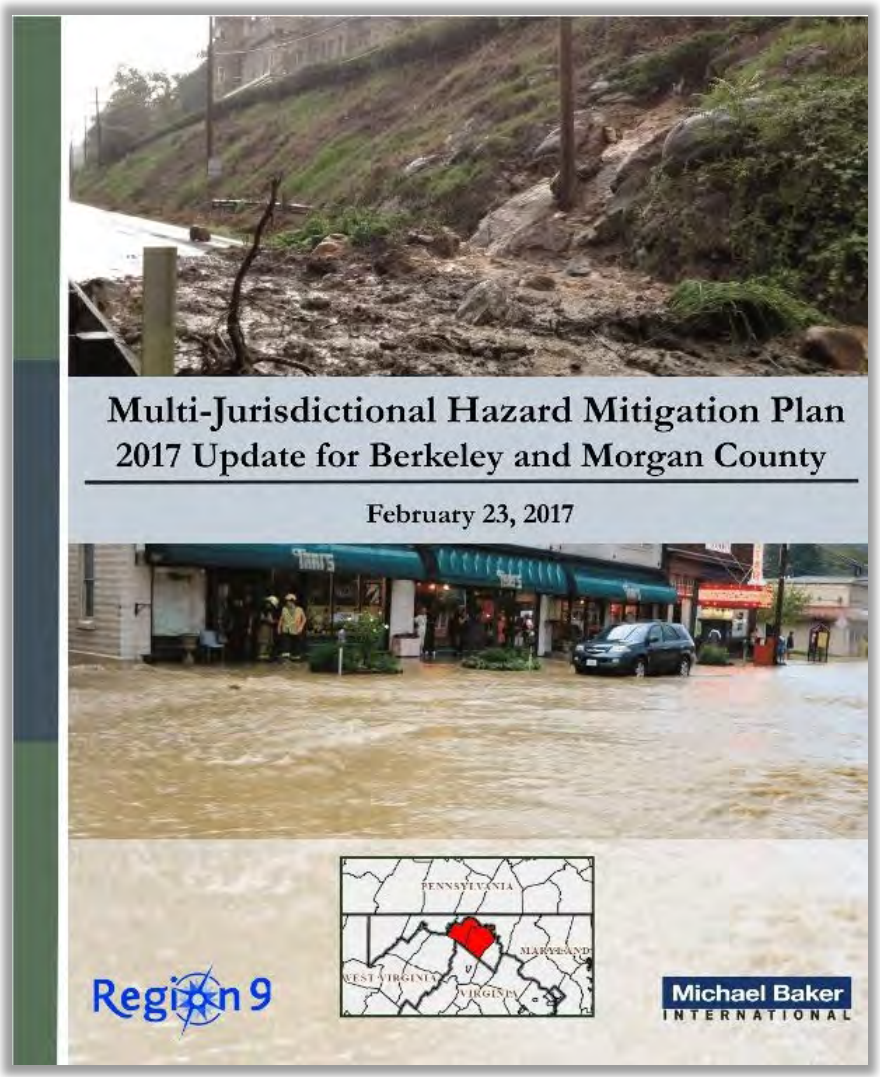
*BRIC is a new FEMA pre-disaster hazard mitigation program that replaces the existing Pre-Disaster Mitigation (PDM) program.*

## Flood Mitigation Assistance (FMA) Program

*Provides funds for planning and projects to reduce or eliminate risk of repetitive flood damage to buildings that are insured annually under the NFIP.*

# Pre-Disaster Mitigation Funding Assistance

| Mitigation Projects |
|---|
| Property Acquisition and Structure Relocation |
| Structure Elevation |
| Mitigation Reconstruction |
| Dry Floodproofing of Historic Residential Structures |
| Dry Floodproofing of Non-residential Structures |
| Generators |
| Localized Flood Risk Reduction Projects |
| Non-Localized Flood Risk Reduction Projects |
| Structural Retrofitting of Existing Buildings |
| Non-structural Retrofitting of Existing Buildings and Facilities |
| Safe Room Construction |
| Wind Retrofit for One- and Two-Family Residences |
| Infrastructure Retrofit |
| Soil Stabilization |
| Wildfire Mitigation |
| Post-Disaster Code Enforcement |
| Advance Assistance |
| 5 Percent Initiative Projects |
| Aquifer and Storage Recovery |
| Flood Diversion and Storage |
| Floodplain and Stream Restoration |
| Green Infrastructure |
| Miscellaneous/Other |




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

- Identify new hazards
- Hazard profile includes:
  - Location and extent
  - Range of magnitude
  - Past occurrence
  - Future occurrence
  - Vulnerability assessment









| Berkeley County Hazards Profiled in the 2017 MJHMP | Calculated Risk Factor |
|---|---|
| Source Water Contamination | 3.7 |
| Winter Storm | 3.6 |
| Transportation Accidents | 3.6 |
| Wind Storm, Tornado | 3.5 |
| Thunderstorm, Lightning Strike | 3.5 |
| Hazardous Materials | 3.4 |
| Terrorism | 2.9 |
| Hurricane, Tropical Storm, Nor'easter | 2.9 |
| Radon Exposure | 2.6 |
| Extreme Temperature | 2.2 |
| Flooding | 2.2 |

| Berkeley County Hazards Profiled in the 2017 MJHMP | Calculated Risk Factor |
|---|---|
| Epidemic | **1.9** |
| Drought | **1.8** |
| Utility Interruption | **1.5** |
| Wildfire | **1.2** |
| Hailstorm | **1.2** |
| Earthquake | **1.0** |
| Land Subsidence | **1.0** |
| Infestation | **1.0** |
| Dam and Levee Failure | **1.0** |

| Morgan County Hazards Profiled in the 2017 MJHMP | Calculated Risk Factor |
|---|---|
| Flooding | 2.6 |
| Utility Interruption | 2.4 |
| Epidemic | 2.4 |
| Winter Storm | 2.3 |
| Hazardous Materials | 2.3 |
| Wind Storm, Tornado | 2.2 |
| Hailstorm | 2.2 |
| Transportation Accidents | 2.2 |
| Hurricane, Tropical Storm, Nor'easter | 2.2 |
| Source Water Contamination | 2.0 |
| Wildfire | 2.0 |

| Morgan County Hazards Profiled in the 2017 MJHMP | Calculated Risk Factor |
|---|---|
| Drought | **1.9** |
| Dam and Levee Failure | **1.9** |
| Terrorism | **1.4** |
| Extreme Temperature | **1.4** |
| Infestation | **1.4** |
| Thunderstorm, Lightning Strike | **1.3** |
| Earthquake | **1.3** |
| Land Subsidence | **1.3** |
| Radon Exposure | **1.0** |

- FEMA Hazus Flood Modeling
- Calculates physical damage and economic loss due to coastal and/or riverine inundation
- Losses are calculated using functions that relate the depth and type of flooding to the degree of damage for various categories of buildings

WV GIS TC West Virginia GIS Technical Center



- Goals and Objectives
- Mitigation Techniques
- Mitigation Action Plan



## 2017 Region 9 Mitigation Goals

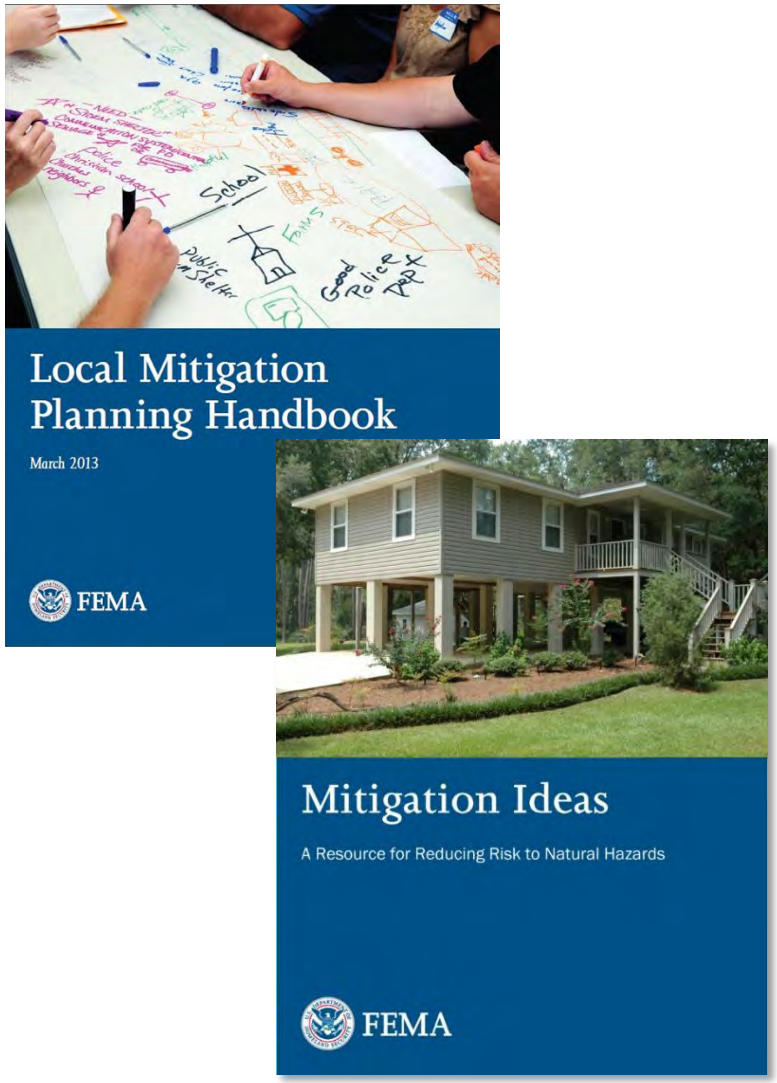
- Support communities in lessening flood risk by encouraging them to maintain compliance with the National Flood Insurance Program (NFIP) and undertaking buyout projects when funding is available; Perform annual checks regarding NFIP Compliance.
- Support Counties in performing annual HMP strategies review.

## 2017 Berkeley County Mitigation Goals

- 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.
- Reduce the current and future risks in Berkeley County.
- Improve emergency preparedness and response in Berkeley County, Martinsburg, and Hedgesville.
- Promote hazard mitigation as a public value in recognition of its importance to the health, safety and welfare of the population.

## 2017 Morgan County Mitigation Goals

- Minimize flood damages and risks from flood hazards in Morgan County.
- Reduce the current and future risks from hazards in Morgan County.
- Improve emergency preparedness in Morgan County, Bath, and Paw Paw.
- Reduce the potential impact of natural and man-made disasters on private property.
- Reduce the potential impact of natural disasters on the county's historic treasures.




- FEMA mitigation planning guidance identifies four types of mitigation activities:
  - Plans and Regulations
  - Structure and Infrastructure Projects
  - Natural Systems Protection
  - Education and Awareness Programs
- As well as ideas for mitigation projects



- Government authorities, policies, or codes that influence the way land and buildings are developed and built such as:
  - Comprehensive Plans
  - Subdivision Regulations
  - Building Codes and Enforcement
  - Capital improvement Programs
  - Stormwater Management Plans
  - Emergency Operations Plans



- Modifying existing structures and infrastructure to remove from a hazard area
- Construction of manmade structures to reduce impacts of hazards

- 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
  - Wetland restoration and preservation



# Education and Awareness Programs



- National preventative programs
- Mailings to hazard-prone communities
- Websites with maps and information
- Presentations to community groups
- Radio or TV spots

| Task | Dates |
|---|---|
| Risk Assessment and Vulnerability Analysis | April-June |
| Kick-Off Meeting | May |
| Risk Assessment and Mitigation Solutions Workshop | Late June |
| Mitigation Strategy Development | July-September |
| Plan Review Public Meeting | Late August |
| Deliver to WVEM for Review | October |
| Deliver to FEMA for Review | November |
| Distribute to Counties and Municipalities for Adoption | February |

# Questions?



Matthew Pennington

Environmental Program Coordinator, Eastern Panhandle Regional Planning & Development Council

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(304) 263-1743

Troy D. Truax, AICP

Project Manager, Michael Baker International

troy.truax@mbakerintl.com

(717) 213-6241



## Appendix C-6 Berkeley County Public Draft Plan Review Meeting (August 24, 2021)

## Welt, Angela

**From:** Rachel Snavely <rsnavely@region9wv.com>
**Sent:** Thursday, July 29, 2021 9:53 AM
**To:** bssadmin2@berkeleyseniorservices.org; jesse.hott@redcross.org; willgrow725@gmail.com; ebartoldson@gmail.com; cjackson@svms.net; donald.grubb@wvumedicine.org; thomas.thompson6@va.gov; kshannon@valleyhealthlink.com; Monica.A.Whyte@wv.gov; kenneth.l.clohan@wv.gov; james.f.linsenmeyer@wv.gov; lcade@firstenergycorp.com; paul_comes@cable.comcast.com; cindy.littleton@ftr.com; ebobo@k12.wv.us; sfarthing@cityofmartinsburg.org; shamilton@developmentauthority.com; tina@berkeleycounty.org; chull@blueridgectc.edu; dvanmetre@k12.wv.us; jklein@shepherd.edu; lhower@argos-us.com; obrien.sf@pg.com; todd.marino@qg.com; susan.huber@macys.com; scullen@rustoleum.com; rbrown@orgill.com; allan.schreiner@knaufinsulation.com; Randall.Rude@ecolab.com; margaret.butts@clorox.com; nic@flymrb.com; joe_taylor@csx.com; dlong@winchesterwesternrr.com; Hartman, Alana C; Bisom, Kristen; Frank Rodgers; Jennifer Wishmyer; adavis@berkeleywv.org; bill.g.kearns@wv.gov; Mark S. Baldwin; James Barnhart; ceg511@yahoo.com; Randy Lilly; hjohnson@cityofmartinsburg.org; jennifer.r.schetrompf@wv.gov; 'Jim Ouellet'; Curtis Keller; Zach Walburn; Doug Copenhaver; Heather Williams; bross@berkeleywv.org; bcostello@berkeleywv.org; cwinebrenner@bceaa.com; jswisher@berkeleywv.org; Mark Schiavone; gsrhoe@comcast.net; kpetrucci@cityofmartinsburg.org; Jared Tomlin; jdhummingbird@martinsburgfire.org; ablake@cityofmartinsburg.org; g_swartwood@martinsburgpd.org; jkelly@cityofmartinsburg.org; Jeff Wilkerson; jwhitacre@berkeleywv.org; Steven DeRidder; nharmon@berkeleywv.org; eddiegochenour@berkeleywv.org; Kurt.Donaldson@mail.wvu.edu; Matthew Umstead; dkeith@cityofmartinsburg.org; Breeanna Sims; kdavis@berkeleywv.org; Timothy Czaja; jesse.hott@redcross.org; acdraper@frontier.com; jennifer.blood@us.af.mil; bclark@morgancountywv.gov; apadilla@morgancountywv.gov; Jennifer Wishmyer; R Davis; 'Joel Tuttle'; Dick Myers ; Schetrompf, Jennifer R; Stefanie Allemong; willgrow725@gmail.com; aschumaker@morgancountywv.gov; amoore@morgancountywv.gov; Scott Crunkleton; amorris@starting-points.org; tammy_kees@yahoo.com; Truax, Troy D; Welt, Angela; Asselin, Kelly; David Deamer; Hartman, Alana C; Whyte, Monica A; Kate Lehman; marshbc@aol.com; Tanner Haid; timothyareese@gmail.com; Frank Rodgers; Zach Norris; rm; ktuttle@k12.wv.us; lgoodwin@morgancountyeda.com; sales@ussilica.com; chamber@berkeleysprings.com; rrogers2@valleyhealthlink.com; Jeromy Duelley
**Cc:** Truax, Troy D; Asselin, Kelly; Welt, Angela; Jennifer Wishmyer
**Subject:** EXTERNAL: SAVE THE DATE Berkeley-Morgan County Hazard Mitigation Plan Public Meeting

Good morning all,

The next meetings of the Berkeley and Morgan County Hazard Mitigation Plan Update is scheduled for the following:

MORGAN COUNTY
August 24, 2021 9AM-11AM
Blue Ridge Community and Technical College
The Pines Opportunity Center
109 War Memorial Drive
Berkeley Springs, WV 25411

BERKELEY COUNTY
August 24, 2011 1:30PM-3:30PM

Berkeley County Council Chambers
400 W. Stephen Street, 2nd Floor
Martinsburg, WV 25401

Please note that the Berkeley County meeting will not be at the Sheriff's Department this time.
We will be discussing the draft plan, key changes, and receiving your final input, as well as going over the results of the public survey which garnered nearly 900 responses.
This meeting is open to the public.

If you have any outstanding worksheets or would like to add any mitigation strategies to ones previously submitted, please send them to me asap for inclusion.

I will send out a Zoom/calendar invite shortly. We look forward to seeing you.

Thank you,

Rachel Snavely
Executive Director
Eastern Panhandle Regional
Planning & Development Council
400 W. Stephen Street, Ste. 301
Martinsburg, WV 25401
304-263-1743
304-702-0408 (c)

## Appendix C-12 Berkeley County Mitigation Action Review Worksheets

| | |
|---|---|
| **From:** | Rachel Snavely |
| **To:** | bssadmin2@berkeleyseniorservices.org; jesse.hott@redcross.org; willgrow725@gmail.com; ebartoldson@gmail.com; cjackson@svms.net; donald.grubb@wvumedicine.org; thomas.thompson6@va.gov; kshannon@valleyhealthlink.com; Monica.A.Whyte@wv.gov; kenneth.l.clohan@wv.gov; james.f.linsenmeyer@wv.gov; lcade@firstenergycorp.com; paul_comes@cable.comcast.com; cindy.littleton@ftr.com; ebobo@k12.wv.us; sfarthing@cityofmartinsburg.org; shamilton@developmentauthority.com; tina@berkeleycounty.org; chull@blueridgectc.edu; dvanmetre@k12.wv.us; jklein@shepherd.edu; lhower@argos-us.com; obrien.sf@pg.com; todd.marino@qg.com; susan.huber@macys.com; scullen@rustoleum.com; rbrown@orgill.com; allan.schreiner@knaufinsulation.com; Randall.Rude@ecolab.com; margaret.butts@clorox.com; nic@flymrb.com; joe_taylor@csx.com; dlong@winchesterwesternrr.com; Hartman, Alana C; Bisom, Kristen; Frank Rodgers; Jennifer Wishmyer; adavis@berkeleywv.org; bill.g.kearns@wv.gov; Mark S. Baldwin; James Barnhart; ceg511@yahoo.com; Randy Lilly; hjohnson@cityofmartinsburg.org; jennifer.r.schetrompf@wv.gov; "Jim Ouellet"; Curtis Keller; Zach Walburn; Doug Copenhaver; Kate Lehman; Heather Williams; bross@berkeleywv.org; bcostello@berkeleywv.org; cwinebrenner@bceaa.com; jswisher@berkeleywv.org; Mark Schiavone; gsrhoe@comcast.net; kpetrucci@cityofmartinsburg.org; Jared Tomlin; jdhummingbird@martinsburgfire.org; ablake@cityofmartinsburg.org; g_swartwood@martinsburgpd.org; jkelly@cityofmartinsburg.org; Jeff Wilkerson; jwhitacre@berkeleywv.org; Steven DeRidder; nharmon@berkeleywv.org; eddiegochenour@berkeleywv.org; Kurt.Donaldson@mail.wvu.edu; Matthew Umstead; dkeith@cityofmartinsburg.org; Breeanna Sims; kdavis@berkeleywv.org; Timothy Czaja; jesse.hott@redcross.org; acdraper@frontier.com; jennifer.blood@us.af.mil; bclark@morgancountywv.gov; apadilla@morgancountywv.gov; Jennifer Wishmyer; R Davis; "Joel Tuttle"; Dick Myers; Schetrompf, Jennifer R; Stefanie Allemong; willgrow725@gmail.com; aschumaker@morgancountywv.gov; amoore@morgancountywv.gov; Scott Crunkleton; amorris@starting-points.org; tammy_kees@yahoo.com; Truax, Troy D; Welt, Angela; Asselin, Kelly; David Deamer; Hartman, Alana C; Whyte, Monica A; Kate Lehman; marshbc@aol.com; Tanner Haid; timothyareese@gmail.com; Frank Rodgers; Zach Norris; rm; ktuttle@k12.wv.us; lgoodwin@morgancountyeda.com; sales@ussilica.com; chamber@berkeleysprings.com; rrogers2@valleyhealthlink.com; Jeromy Duelley; planningdepartment@jeffersoncountywv.org; planning@hampshirewv.com; jsquires@allegany.org; Baker, Jill; cperkins@fcva.us; bstidham@clarkecounty.gov; info@sleepycreekwatershed.org; epdc@wvca.us; jennifer@cacapon.org; jsbauserman@frontier.com; info@thedownstreamproject.org; office@goblueflame.com |
| **Cc:** | Jennifer Wishmyer; David Deamer; Truax, Troy D; Welt, Angela; Asselin, Kelly |
| **Subject:** | EXTERNAL: Multi-Jurisdictional Hazard Mitigation Plan Update: Save the Date |
| **Date:** | Wednesday, August 4, 2021 9:31:43 AM |
| **Attachments:** | Berkeley Co MJHMP Draft Plan Review Mtg Agenda Aug.pdf<br>Morgan Co MJHMP Draft Plan Review Mtg Agenda Aug.pdf |

---

Good morning all,

As a reminder, the next meetings of the Berkeley and Morgan County Hazard Mitigation Plan Update is scheduled for the following:

MORGAN COUNTY
August 24, 2021 9AM-11AM
Blue Ridge Community and Technical College
The Pines Opportunity Center
109 War Memorial Drive
Berkeley Springs, WV 25411

BERKELEY COUNTY
August 24, 2011 1:30PM-3:30PM
Berkeley County Council Chambers
400 W. Stephen Street, 2nd Floor
Martinsburg, WV 25401

Regional representatives/bordering county representatives: Please feel free to join in to either the Berkeley or Morgan County meetings.

You should have received a calendar invite for both of these meetings from Troy yesterday. Please note that the Berkeley County meeting will not be at the Sheriff's Department this time. We will be discussing the draft plan, key changes, and receiving your final input, as well as

going over the results of the public survey which garnered nearly 900 responses.
This meeting is open to the public. Please feel free to share the meeting information on your respective social media pages.

We look forward to seeing you,

Rachel Snavely
Executive Director
Eastern Panhandle Regional
Planning & Development Council
226 Pilot Way, Ste. E
Martinsburg, WV 25405
304-263-1743
304-702-0408 (c)

| | |
|---|---|
| **From:** | Rachel Snavely |
| **To:** | bssadmin2@berkeleyseniorservices.org; jesse.hott@redcross.org; willgrow725@gmail.com; ebartoldson@gmail.com; cjackson@svms.net; donald.grubb@wvumedicine.org; thomas.thompson6@va.gov; kshannon@valleyhealthlink.com; Monica.A.Whyte@wv.gov; kenneth.l.clohan@wv.gov; james.f.linsenmeyer@wv.gov; lcade@firstenergycorp.com; paul_comes@cable.comcast.com; cindy.littleton@ftr.com; ebobo@k12.wv.us; sfarthing@cityofmartinsburg.org; shamilton@developmentauthority.com; tina@berkeleycounty.org; chull@blueridgectc.edu; dvanmetre@k12.wv.us; jklein@shepherd.edu; lhower@argos-us.com; obrien.sf@pg.com; todd.marino@qg.com; susan.huber@macys.com; scullen@rustoleum.com; rbrown@orgill.com; allan.schreiner@knaufinsulation.com; Randall.Rude@ecolab.com; margaret.butts@clorox.com; nic@flymrb.com; joe_taylor@csx.com; dlong@winchesterwesternrr.com; Hartman, Alana C; Bisom, Kristen; Frank Rodgers; Jennifer Wishmyer; adavis@berkeleywv.org; bill.g.kearns@wv.gov; Mark S. Baldwin; James Barnhart; ceg511@yahoo.com; Randy Lilly; hjohnson@cityofmartinsburg.org; jennifer.r.schetrompf@wv.gov; "Jim Ouellet"; Curtis Keller; Zach Walburn; Doug Copenhaver; Kate Lehman; Heather Williams; bross@berkeleywv.org; bcostello@berkeleywv.org; cwinebrenner@bceaa.com; jswisher@berkeleywv.org; Mark Schiavone; gsrhoe@comcast.net; kpetrucci@cityofmartinsburg.org; Jared Tomlin; jdhummingbird@martinsburgfire.org; ablake@cityofmartinsburg.org; g_swartwood@martinsburgpd.org; jkelly@cityofmartinsburg.org; Jeff Wilkerson; jwhitacre@berkeleywv.org; Steven DeRidder; nharmon@berkeleywv.org; eddiegochenour@berkeleywv.org; Kurt.Donaldson@mail.wvu.edu; Matthew Umstead; dkeith@cityofmartinsburg.org; Breeanna Sims; kdavis@berkeleywv.org; Timothy Czaja; jesse.hott@redcross.org; acdraper@frontier.com; jennifer.blood@us.af.mil; bclark@morgancountywv.gov; apadilla@morgancountywv.gov; Jennifer Wishmyer; R Davis; "Joel Tuttle"; Dick Myers; Schetrompf, Jennifer R; Stefanie Allemong; willgrow725@gmail.com; aschumaker@morgancountywv.gov; amoore@morgancountywv.gov; Scott Crunkleton; amorris@starting-points.org; tammy_kees@yahoo.com; Truax, Troy D; Welt, Angela; Asselin, Kelly; David Deamer; Hartman, Alana C; Whyte, Monica A; Kate Lehman; marshbc@aol.com; Tanner Haid; timothyareese@gmail.com; Frank Rodgers; Zach Norris; rm; ktuttle@k12.wv.us; lgoodwin@morgancountyeda.com; sales@ussilica.com; chamber@berkeleysprings.com; rrogers2@valleyhealthlink.com; Jeromy Duelley; planningdepartment@jeffersoncountywv.org; planning@hampshirewv.com; jsquires@allegany.org; Baker, Jill; cperkins@fcva.us; bstidham@clarkecounty.gov; info@sleepycreekwatershed.org; epdc@wvca.us; jennifer@cacapon.org; jsbauserman@frontier.com; info@thedownstreamproject.org; office@goblueflame.com |
| **Cc:** | Jennifer Wishmyer; David Deamer; Truax, Troy D; Welt, Angela; Asselin, Kelly; casey.garnett@fema.dhs.gov; McCullough, Matthew (Matthew.McCullough@fema.dhs.gov); Keaton, Tim W |
| **Subject:** | EXTERNAL: REMINDER: Multi-Jurisdictional Hazard Mitigation Plan Update Meeting |
| **Date:** | Wednesday, August 18, 2021 8:21:35 AM |

---

Good morning all,

As a reminder, the next meetings of the Berkeley and Morgan County Hazard Mitigation Plan Update is scheduled for the following:

MORGAN COUNTY
August 24, 2021 9AM-11AM
Blue Ridge Community and Technical College
The Pines Opportunity Center
109 War Memorial Drive
Berkeley Springs, WV 25411

BERKELEY COUNTY
August 24, 2011 1:30PM-3:30PM
Berkeley County Council Chambers
400 W. Stephen Street, 2nd Floor
Martinsburg, WV 25401

Regional representatives/bordering county representatives: Please feel free to join in to either the Berkeley or Morgan County meetings.

Please note that the Berkeley County meeting will not be at the Sheriff's Department this time. We will be discussing the draft plan, key changes, and receiving your final input, as well as going over the results of the public survey which garnered nearly 900 responses.
This meeting is open to the public.

Please feel free to share the meeting information on your respective social media pages.

We look forward to seeing you,

Rachel Snavely
Executive Director
Eastern Panhandle Regional
Planning & Development Council
226 Pilot Way, Ste. E
Martinsburg, WV 25405
304-263-1743
304-702-0408 (c)

**NOTICE OF PUBLIC MEETING**

**BERKELEY COUNTY HAZARD MITIGATION PLAN UPDATE**

The Berkeley County Hazard Mitigation Plan Update Committee will meet on August 24, 2021 from 1:30 - 3:30 PM at the Berkeley County Council Chambers located at 400 W. Stephen Street, 2nd Floor, Martinsburg, WV 25401. 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 226 Pilot Way Ste. E., Martinsburg, WV 25405 or by phone at 304-263-1743.

8:5 (1t)

# Certificate of Publication

This is to certify the annexed advertisement

Notice of Public Meeting

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

Aug 5, 2021

and ending:

Aug 5, 2021

The Journal
207 W. King Street
Martinsburg, WV 25401

Fee $ 18.05

THE STATE OF WEST VIRGINIA
COUNTY OF BERKELEY

The foregoing instrument was acknowledged before me this 11 Aug 2021

_____ by

_____

My commission expires April 29, 2013

_____
Notary Public

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Carol Bush
[illegible]
My Commission Expires April 29, 2013

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

## Draft Plan Review Meeting – Berkeley County

**August 24, 2021 | 1:30pm – 3:30pm**

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Baldwin, Mark | City of Martinsburg | City Manager | mbaldwin@cityofmartinsburg.org | |
| Barnhart, James | Berkeley County Council | Council Person | jbarnhart@berkeleywv.org | |
| Bartoldson, Elaine | Eastern Panhandle Transit Authority | | ebartoldson@gmail.com | |
| Bisom, Kriston | WV Conservation Agency | | | |
| Blake, Andy | City of Martinsburg | Asst. City Manager | ablake@cityofmartinsburg.org | |
| Blood, Jenn | 167 Airlift Wing | Installation Emergency Manger | Jennifer.blood@us.af.mil | |
| Bobo, Elaine | Berkeley County Board of Ed. | | ebobo@k12.wv.us | |
| Boots, Monique | Berkeley County Council | Planner II | mboots@berkeleywv.org | |
| Brown, Rob | Orgill | | rbrown@orgill.com | |
| Butts, Margaret | Clorox | | margaret.butts@clorox.com | |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Carder, Adam | 167 Airlift Wing | Emergency Management | Adam.carder@us.af.mil | |
| Combs, Tina | Berkeley County Chamber of Commerce | | tina@berkeleycounty.org | |
| Copenhaver, Doug | Berkeley County | Council President | dcopenhaver@berkeleywv.org | |
| Costello, Brian | Berkeley County Emergency Ambulance Authority | EMS Director | bcostello@berkeleywv.org | |
| Corbin, Allen | Berkeley County Parks and Rec | | Allen@mbcparks-rec.org | |
| Cullen, Sherye | Rust-Oleum | | scullen@rustoleum.com | |
| Czaja, Tim | Berkeley County | Community Corrections Director | tczaja@berkeleywv.org | |
| Davis, Alan | Berkeley County | County Administrator | adavis@berkeleywv.org | |
| DeRidder, Steve | Berkeley County Public Service Water District (PSSD) | Superintendent of Operations | sderidder@berkeleywater.org | Zoom |
| Diehl, Nicolas | Eastern WV Regional Airport | Executive Director | nic@flymrb.com | |
| Donaldson, Kurt | WVU GIS Tech Center | Senior Project Manager | kurt.donaldson@mail.wvu.edu | Zoom |

August 24, 2021

1:30-3:30pm

## Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Faircloth, Ronnie | WVSP | Detachment Commander | Lonnie.a.faircloth@wvsp.com | |
| Farthing, Shane | City of Martinsburg | Economic Development Director | sfarthing@cityofmartinsburg.org | |
| Gano, Carey | Town of Hedgesville | Mayor | ceg511@yahoo.com | |
| Garnett, Casey | FEMA Region 3 | Hazard Mitigation Community Planner | casey.garnett@fema.dhs.gov | Zoom |
| Gibbson, Erin | City of Martinsburg | Deputy Chief | e.gibbson@martinsburgpd.org | |
| Gochenour, Eddie | Berkeley County | County Commissioner | egochenour@berkeleywv.org | present in person |
| Golden, Jim | Berkeley County | | jgolden@berkeleywv.org | |
| Good, Ronnie | Town of Hedgesville | | hedgesvillewv@frontier.com | |
| Hamilton, Sandy | Berkeley County Development Authority | Executive Director | shamilton@developmentauthority.com | present in person |
| Harmon, Nathan | Berkeley County | Sheriff | nharmon@berkeleywv.org | |
| Hoffmaster, Laura | Berkeley County | | lhoffmaster@berkeleywv.org | |

August 24, 2021

1:30-3:30pm

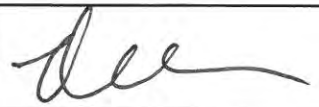
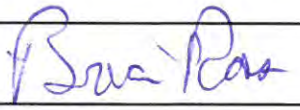
## Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Hower, Lesley | Argos | | lhower@argos-us.com | |
| Huber, Susan | Macy's | | susan.huber@macys.com | |
| Hummingbird, J.D. | Martinsburg Fire Department | Fire Chief | jdhummingbird@martinsburgfire.org | |
| Hull, Cynthia | Blue Ridge CTC | | chull@blueridgectc.edu | |
| Jennifer Wishmyer | Eastern Panhandle Regional Planning & Development Council | Assistant Director | jwishmyer@region9wv.com | |
| Johnson, Harriet | City of Martinsburg | Mayor | hjohnson@cityofmartinsburg.org | |
| Kearns, Bill | Berkeley County Health Dept | Executive Director | bill.g.kearns@wv.gov | |
| Keith, Dana | City of Martinsburg | City Planner | dkeith@cityofmartinsburg.org | |
| Keller, Curtis | Berkeley County PSSD | | cbkeller@bcpssd.com | |
| Kelly, Jim | City of Martinsburg | Utility Director | jkelly@cityofmartinsburg.org | |
| Klein, Jim | Shepherd-Martinsburg Center | | jklein@shepherd.edu | |

August 24, 2021

1:30-3:30pm

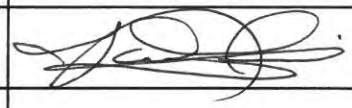
## Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Kristi, Shannon | Valley Health | | kshannon@valleyhealthlink.com | |
| Lilly, Randy | Berkeley County Office of Homeland Security & Emergency Management | | rlilly@berkeleywv.org |  |
| Long, Douglas | Winchester & Western | | dlong@winchesterwesternrr.com | |
| Marino, Todd | QuadGraphics | | todd.marino@qg.com | |
| Obrien, Steve | Proctor & Gamble | | obrien.sf@pg.com | |
| Ouellet, Jim | Berkeley County PSSD | Executive Director | jouellet@berkeleywater.org | |
| Pennington, Matthew | Eastern Panhandle Regional Planning & Development Council | Environmental Program Coordinator | mpennington@region9wv.com | |
| Petrucci, Kim | City of Martinsburg | City Engineer | kpetrucci@cityofmartinsburg.org | |
| Rhoe, Greg | Berkeley County Public Service Water District | Chairman | gsrhoe@comcast.net | |
| Ross, Brian | Berkeley County | Engineering Director | bross@berkeleywv.org |  |
| Rude, Randall | EcoLab | | Randall.Rude@ecolab.com | |

August 24, 2021

1:30-3:30pm

## Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Schiavone, Mark | Berkeley County Farmland Protection Board | Executive Director | berkeley@wvfp.org | |
| Schreiner, Allan | Knauff Insulation | | allan.schreiner@knaufinsulation.com | |
| Sims, Breanna | Berkeley County OEM | Admin. Assistant | bsims@berkeleywv.org | |
| Snavely, Rachel | Eastern Panhandle Regional Planning & Development Council | Executive Director | rsnavely@region9wv.com |  |
| Strovel, Cindy | Berkeley County Senior Center | | bssadmin2@berkeleyseniorservices.org | |
| Swartwood, George | City of Martinsburg | Police Chief | g_swartwood@martinsburgpd.org | Zoom |
| Swisher, Jennifer | Berkeley County | Central Dispatch | jswisher@berkeleywv.org |  |
| Taylor, Joe | CSX | | joe_taylor@csx.com | |
| Tomlin, Jared | City of Martinsburg | Stormwater Coordinator | jtomlin@cityofmartinsburg.org |  |
| Umstead, Matthew | Berkeley County | Director, Office of Strategic Planning & Communications | mumstead@berkeleywv.org | |
| VanMetre, Donna | James Rumsey Technical Institute | | dvanmetre@k12.wv.us | |

August 24, 2021

1:30-3:30pm

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Walburn, Zach | Berkeley County | MS4 Coordinator | zwalburn@bcpssd.com | |
| Wilkerson, Jeff | City of Martinsburg | Public Works Director | jwilkerson@cityofmartinsburg.org | |
| Williams, Heather | Berkeley County | Planning Director | hwilliams@berkeleywv.org | |
| Winebrenner, Chad | Berkeley County Emergency Ambulance Authority | EMS Chief | cwinebrenner@bceaa.com | |
| Wolford, Shawn | Berkeley County | Emergency Manager | jwolford ~~swolford~~@berkeleywv.org | |
| Truax, Troy | Michael Baker Intl. | Planning Director | Troy.Truax@mbakerintl.com | |
| Welt. Angela | Michael Baker Intl. | Project Manager – Environmental | awelt@mbakerint.com | |
| Asselin, Kelly | Michael Baker Intl. | Environmental Associate | Kelly.asselin@mbakerintl.com | |
| Deputy L. Gibbons | Martinsburg PD | | | |
| Brig. Jim Van Metre | Private Investor | | | |
| Tom Young | BCSO | Chief Deputy | Tyoung@berkeleywv.org | |

August 24, 2021

1:30-3:30pm

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Tim Keaton | DHSEM | | | |
| Casey Garnett | FEMA | | | " |
| David Deamer | Region 9 | | | " |
| Monica Whyte | BPH | | | " |
| Matt McCullough | FEMA | | | " |
| Jennifer Schetrompf | Hazard Reduction | | | " |
| Josse Hatt | Red Cross | | | " |
| | | | | " |
| | | | | |
| | | | | |
| | | | | |

August 24, 2021

1:30-3:30pm

# MEETING AGENDA

# Berkeley County

| | |
|---|---|
| Date: | August 24, 2021 |
| Time: | 1:30 PM – 3:30 PM |
| Location: | Berkeley County Council Chambers<br>400 W. Stephen Street, 2nd Floor<br>Martinsburg, WV 25401<br><br>Zoom:<br>https://us02web.zoom.us/j/87587453629<br>Meeting ID: 875 8745 3629<br>(301) 715-8592 |
| Meeting Name: | 2022 Multi-Jurisdictional Hazard Mitigation Plan Update Draft Plan Review Meeting |

| Topic: | Time: |
|---|---|
| 1. Welcome and Introductions<br>o Facilitator: Troy Truax, AICP, Michael Baker International<br>o Eastern Panhandle Regional Planning and Development Council (Region 9)<br>o Berkeley County Steering Committee and Stakeholders | 1:30 PM |
| 2. Hazard Mitigation Plan and Project Overview | 1:40 PM |
| 3. Planning Process Overview | 1:50 PM |
| 4. Risk Assessment Summary<br>o HAZUS Analysis Presentation | 2:00 PM |
| 5. Capability Assessment Overview | 2:35 PM |
| 6. Mitigation Strategy Summary | 2:50 PM |
| 7. Next Steps and Action Items | 3:25 PM |

Visit the project website at https://region9wv.com/hazard-mitigation

*Questions? Comments? Contact:*

*Troy Truax:* Troy.Truax@mbakerintl.com*, (717) 213-6241*



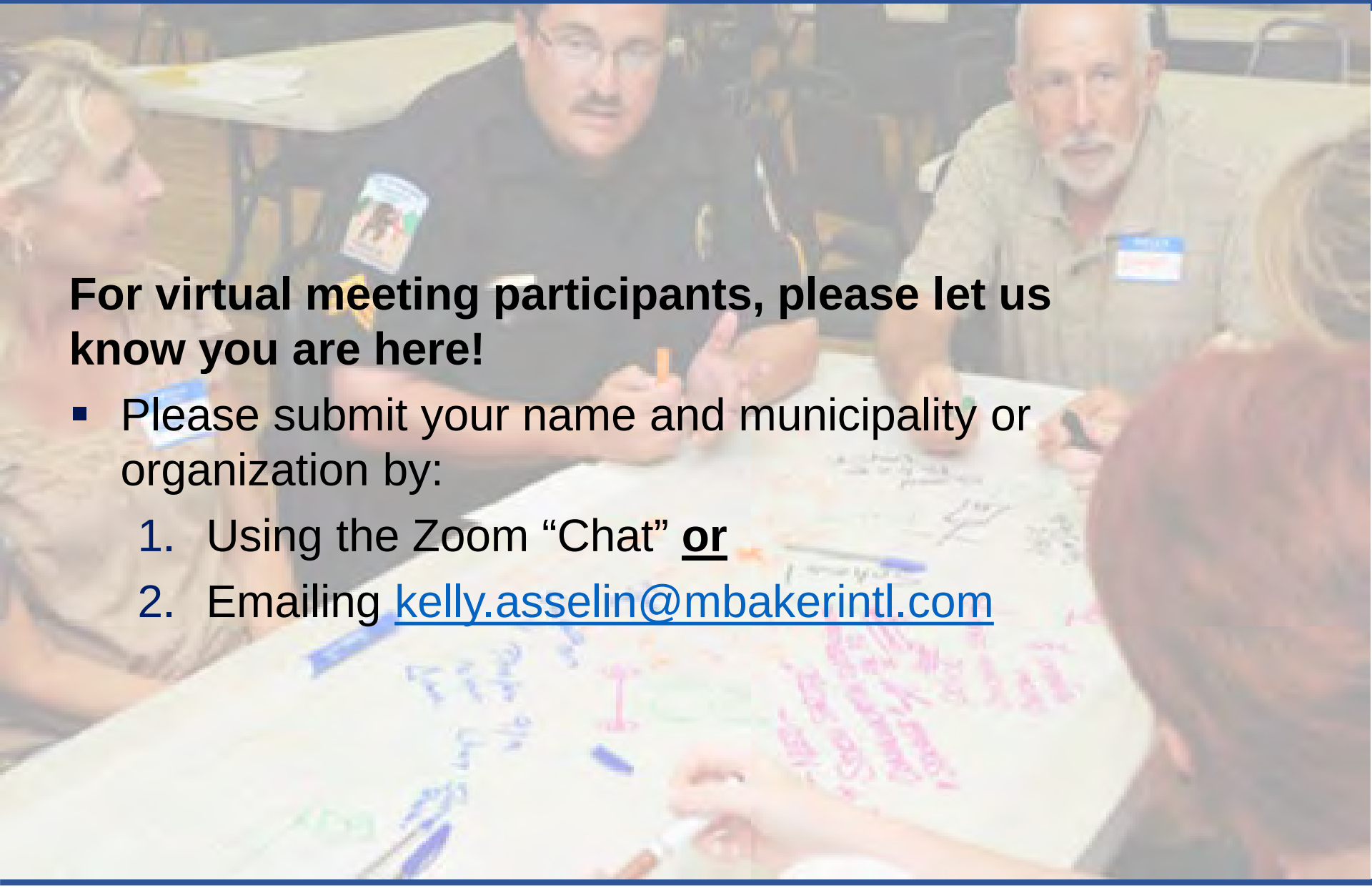
# Berkeley and Morgan County
# 2022 Multi-Jurisdictional Hazard Mitigation Plan Update

Michael Baker INTERNATIONAL

Region 9

**Draft Plan Review Meeting**
**August 24, 2021**

# Welcome and Introductions



**For virtual meeting participants, please let us know you are here!**

- Please submit your name and municipality or organization by:
  1. Using the Zoom “Chat” **or**
  2. Emailing kelly.asselin@mbakerintl.com

# Agenda

- Welcome and Introductions
- Hazard Mitigation Plan and Project Overview
  - Planning Process Overview
  - Risk Assessment Summary
  - Capability Assessment Overview
  - Mitigation Strategy Summary
- Next Steps and Action Items

- The Disaster Mitigation Act of 2000 (Public Law 106-390) requires State, local, or tribal governments to develop and submit for approval a mitigation plan that outlines processes for identifying the natural hazards, risks, and vulnerabilities of the area under the jurisdiction of the government.
- Plans must be updated every 5 years.
- **The current Region 9 Multi-jurisdictional HMP expires in February 2022**.

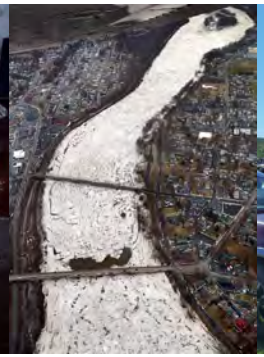
- Region 9 has been working to **update its Multi-Jurisdictional Hazard Mitigation Plan (MJHMP)** since April 2021.
- Municipal and County officials and other stakeholders participated in **meetings in May and June.**
- Today, the goal is to learn more about **the Draft Plan** and **next steps.**

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.



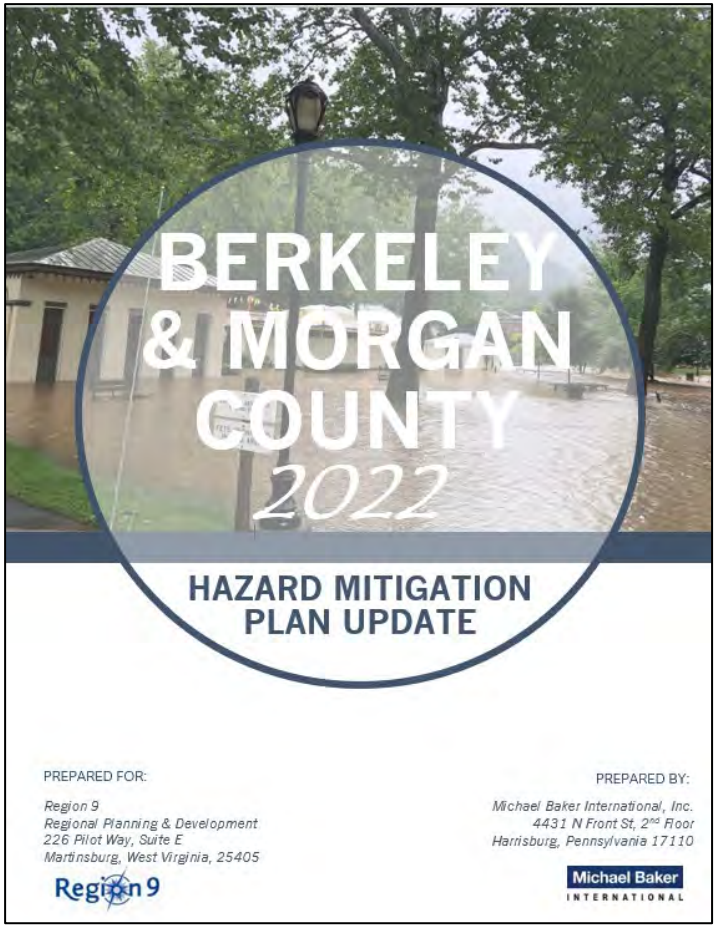
# What is a Hazard Mitigation Plan?

- A Hazard Mitigation Plan (HMP) is **a community-driven, living document** that communities use to reduce their vulnerability to hazards.
- Counties **must have a plan to maintain access to certain mitigation grants**.

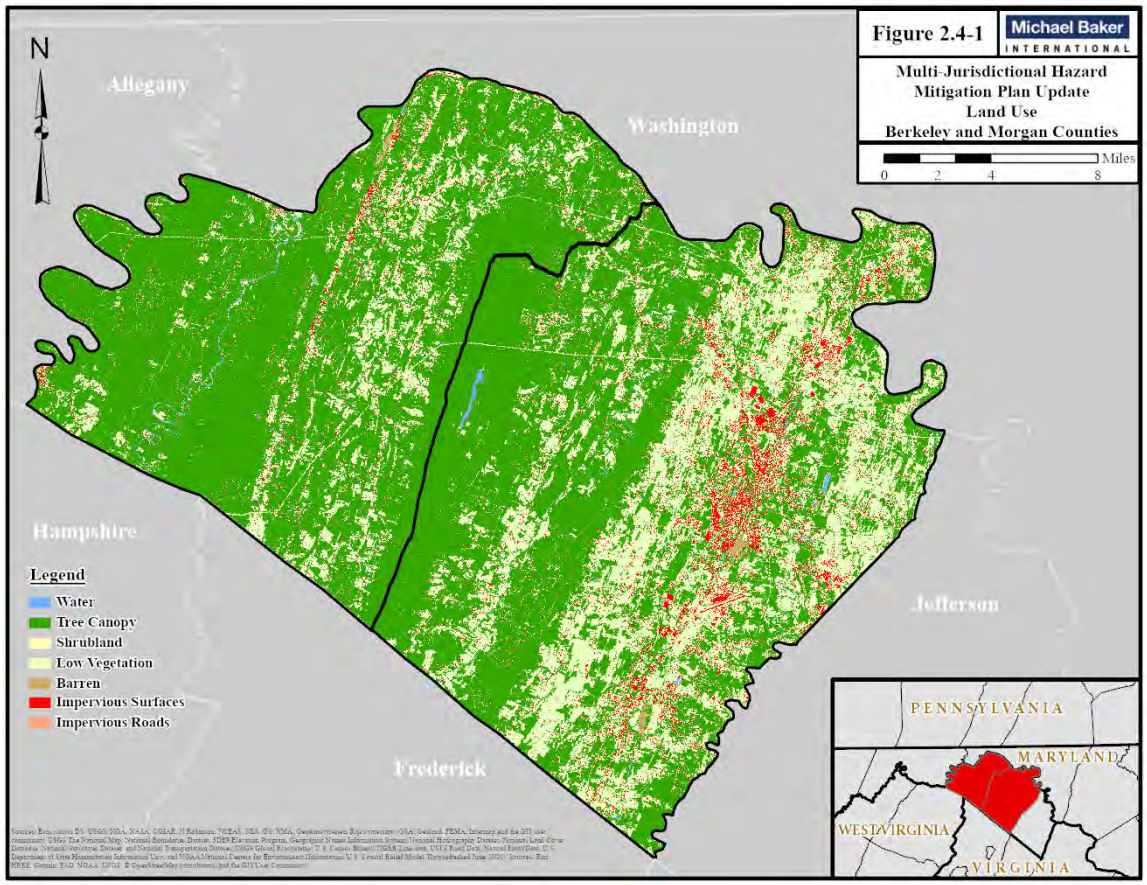







1. Introduction
2. Community Profile
3. Planning Process
4. Risk Assessment
5. Capability Assessment
6. Mitigation Strategy
7. Plan Maintenance
8. Adoption

- Community Profile:
  - Geography in the Eastern Panhandle and its environment
  - Community facts and key statistics
  - Population and demographic patterns and historical changes
  - Land use and development patterns




- Region 9:
  - Approximately 322 square miles
  - Two Hydraulic Unit Code (HUC)8 watersheds: Cacapon River Watershed, Potomac River District Drains Watershed
  - Approximately 137,015 people (2019 ACS)
  - Educational services, health care, and social assistance are the major employers

- Hazard Mitigation Planning Team
- Municipal Participation
  - If you have not completed a Community Capability Assessment, NFIP Worksheet, Action Review Worksheet, or New Mitigation Action Form, please do!

| County and Municipal Participation in 2022 HMP Planning Process | | | | | | | |
|---|---|---|---|---|---|---|---|
| Participation Summary | | Berkeley County | | | Morgan County | | |
| | | Berkeley County | City of Martinsburg | Town of Hedgesville | Morgan County | Town of Bath | Town of Paw Paw |
| Worksheets | Identified Hazards and Risk | ✓ | ✓ | - | ✓ | - | ✓ |
| | Community Capability Assessment | ✓ | ✓ | - | ✓ | - | ✓ |
| | Checking in on the NFIP | ✓ | ✓ | N/A[2] | ✓ | - | - |
| | Mitigation Action Review | ✓ | - | ✓ | ✓ | ✓ | ✓ |
| | New Mitigation Action | ✓ | ✓ | - | ✓ | ✓ | - |

- Planning Team Assessment and Participation:
  - Kick-Off Meeting (May)
    - Hazard Risk Review
    - Capability Assessment
    - National Flood Insurance Program Survey
    - Risk Ranking Evaluation
  - Risk Assessment-Mitigation Solutions Workshop (June)
    - Mitigation Action Progress Report
    - New Mitigation Action Identification
- Risk and Vulnerability Analysis
  - Data Collection and Analysis
  - GIS Assessment
  - Hazus (Potential Loss Estimation)

# Risk Assessment Overview



## Natural Hazards

- Drought
- Earthquake
- Extreme Temperatures
- Flooding
- Hailstorm
- Hurricane, Tropical Storm, Nor'easter
- Invasive Species
- Landslide/Land Subsidence
- Pandemic and Infectious Disease
- Radon Exposure
- Tornado & Windstorm
- Wildfire
- Winter Storm

## Human-Made Hazards

- Civil Disturbance
- Cyber Terrorism
- Dam Failure
- Hazardous Materials Release
- Substance Use Disorder
- Source Water Contamination
- Terrorism
- Transportation Accidents
- Utility Interruption

*Blue denotes newly added hazard*

# Risk Assessment Overview: Hazard Profiles

- 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?

# Risk Assessment Overview: 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

***Risk Factor Value =***
***[(Probability x .30) + (Impact x .30) +***
***(Spatial Extent x .20) +***
***(Warning Time x .10) + (Duration x .10)]***

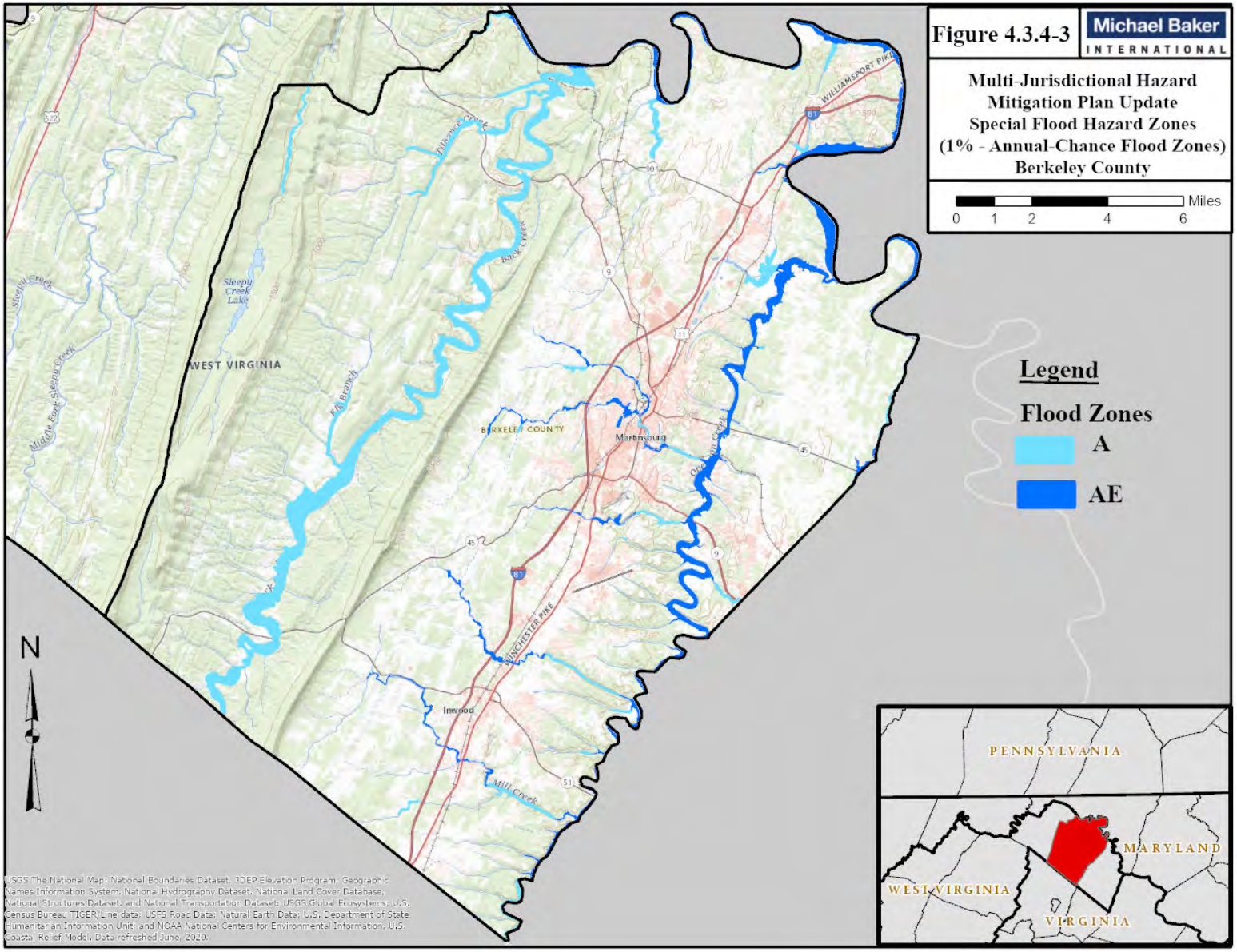
# Risk Assessment Overview: Berkeley County Ranking Results

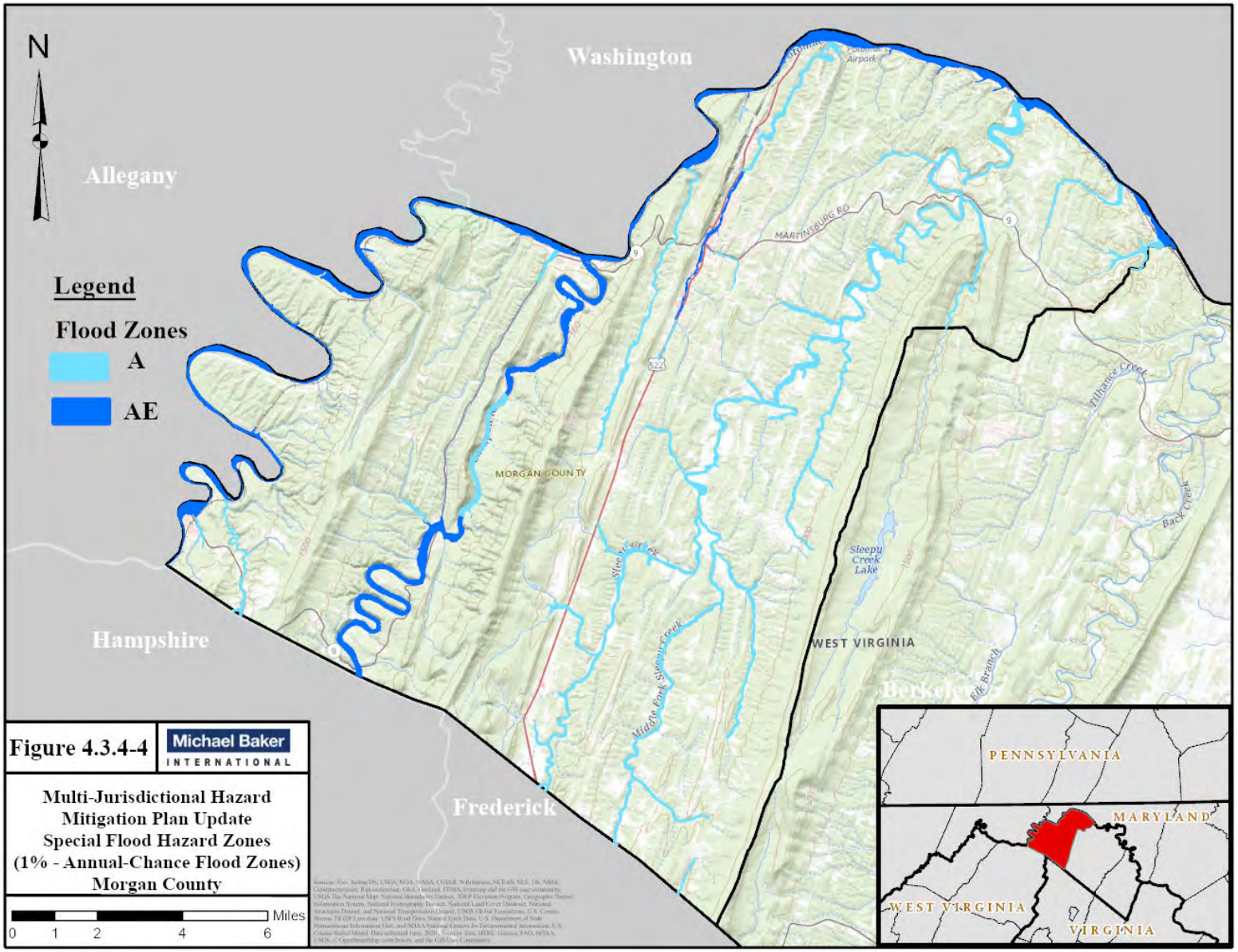
| Risk Class | Hazard | Risk Assessment Category (1 = least severe, 4 = most severe) | | | | | Calculated Risk Factor |
|---|---|---|---|---|---|---|---|
| | | Probability (1-4) | Severity (1-4) | Spatial Extent (1-4) | Warning Time (1-4) | Duration (1-4) | |
| High | Source Water Contamination | 3 | 4 | 4 | 4 | 4 | 3.7 |
| | Transportation Accidents | 4 | 4 | 3 | 4 | 2 | 3.6 |
| | Winter Storm | 4 | 4 | 4 | 1 | 2 | 3.5 |
| | Windstorm, Tornado | 4 | 4 | 4 | 2 | 1 | 3.5 |
| | Hazardous Materials | 4 | 2 | 4 | 4 | 4 | 3.4 |
| | Flooding | 4 | 3 | 3 | 2 | 2 | 3.1 |
| | Utility Interruption | 4 | 3 | 2 | 3 | 2 | 3.0 |
| | Pandemic and Infectious Disease | 3 | 3 | 3 | 2 | 4 | 3.0 |
| | Terrorism | 2 | 3 | 4 | 4 | 2 | 2.9 |
| | Hurricane, Tropical Storm, Nor'easter | 3 | 3 | 4 | 1 | 2 | 2.9 |
| | Substance Use Disorder | 3 | 3 | 2 | 2 | 3 | 2.7 |
| | Drought | 3 | 1 | 4 | 3 | 3 | 2.6 |
| | Cyber Terrorism | 3 | 3 | 2 | 3 | 1 | 2.6 |
| Mod. | Thunderstorm, Lightning Strike | 3 | 2 | 3 | 2 | 1 | 2.4 |
| | Radon Exposure | 2 | 3 | 2 | 3 | 1 | 2.3 |
| | Extreme Temperature | 2 | 2 | 3 | 3 | 1 | 2.2 |
| Low | Civil Disturbance | 2 | 2 | 1 | 3 | 2 | 1.9 |
| | Wildfire | 1 | 1 | 1 | 3 | 1 | 1.2 |
| | Hailstorm | 1 | 1 | 2 | 1 | 1 | 1.2 |
| | Invasive Species | 1 | 1 | 2 | 1 | 1 | 1.2 |
| | Earthquake | 1 | 1 | 1 | 1 | 1 | 1.0 |
| | Land Subsidence | 1 | 1 | 1 | 1 | 1 | 1.0 |
| | Dam Failure | 1 | 1 | 1 | 1 | 1 | 1.0 |

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# Risk Assessment Overview: Morgan County Ranking Results

| 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 | Substance Use Disorder | 4 | 3 | 3 | 2 | 3 | 3.2 |
| | Pandemic and Infectious Disease | 3 | 3 | 3 | 1 | 4 | 2.9 |
| | Utility Interruption | 3 | 2 | 3 | 4 | 2 | 2.7 |
| | Flooding | 3 | 2 | 3 | 3 | 2 | 2.6 |
| Moderate | Winter Storm | 4 | 2 | 2 | 1 | 1 | 2.4 |
| | Hazardous Materials | 3 | 2 | 2 | 3 | 2 | 2.4 |
| | Wind Storm, Tornado | 3 | 2 | 2 | 3 | 2 | 2.4 |
| | Cyber Terrorism | 2 | 2 | 2 | 3 | 4 | 2.3 |
| | Wildfire | 3 | 2 | 1 | 4 | 2 | 2.3 |
| | Transportation Accidents | 4 | 1 | 1 | 4 | 1 | 2.2 |
| | Hailstorm | 2 | 2 | 2 | 4 | 2 | 2.2 |
| | Hurricane, Tropical Storm, Nor'easter | 2 | 2 | 3 | 1 | 3 | 2.2 |
| | Source Water Contamination | 2 | 2 | 2 | 2 | 3 | 2.1 |
| | Dam Failure | 2 | 2 | 2 | 3 | 2 | 2.1 |
| Low | Drought | 1 | 1 | 4 | 1 | 4 | 1.9 |
| | Invasive Species | 2 | 1 | 2 | 2 | 2 | 1.7 |
| | Civil Disturbance | 2 | 2 | 1 | 1 | 1 | 1.6 |
| | Terrorism | 1 | 1 | 1 | 4 | 2 | 1.4 |
| | Extreme Temperature | 1 | 2 | 1 | 1 | 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 |


Figure 4.3.4-3
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Multi-Jurisdictional Hazard Mitigation Plan Update
Special Flood Hazard Zones
(1% - Annual-Chance Flood Zones)
Berkeley County
Miles
0 1 2 4 6
Legend
Flood Zones
A
AE
WEST VIRGINIA
BERKELEY COUNTY
Martinsburg
Inwood
Sleepy Creek Lake
Back Creek
Tuscarora Creek
Opequon Creek
Mill Creek
WINCHESTER PIKE
WILLIAMSPORT PIKE
N
PENNSYLVANIA
MARYLAND
WEST VIRGINIA
VIRGINIA
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed June, 2020.


N
Washington
Allegany
Legend
Flood Zones
A
AE
MORGAN COUNTY
Hampshire
Frederick
WEST VIRGINIA
Sleepy Creek Lake
Tuthance Creek
Back Creek
Elk Branch
Middle Fork Sleepy Creek
Sleepy Creek
MARTINSBURG RD
PENNSYLVANIA
MARYLAND
WEST VIRGINIA
VIRGINIA
Figure 4.3.4-4
Michael Baker INTERNATIONAL
Multi-Jurisdictional Hazard Mitigation Plan Update
Special Flood Hazard Zones
(1% - Annual-Chance Flood Zones)
Morgan County
Miles
0 1 2 4 6

# Risk Assessment Overview: Flood

- The various tributary streams and creeks generally flow towards the northern region of Berkeley and Morgan Counties, towards the Potomac River.
  - Large tributaries in the Region include Opequon Creek, Back Creek, Sleepy Creek, and Cacapon River
- In the winter and early spring, major flooding has occurred as a result of heavy rainfall on dense snowpack throughout contributing watersheds.
- Summer floods have occurred from intense rainfall on previously saturated soils.
- Every two to three years, serious flooding occurs along one or more of the area's major rivers or streams and it is not unusual for such events to happen several years in succession

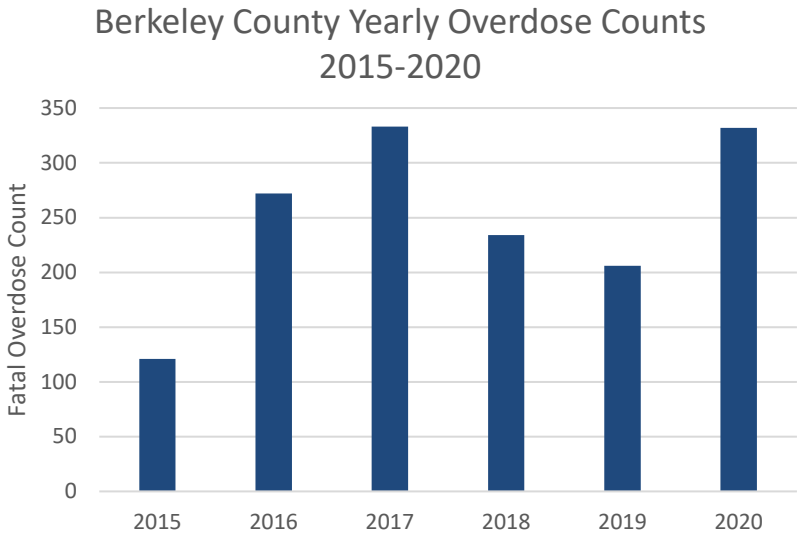
# Risk Assessment Overview: Flood

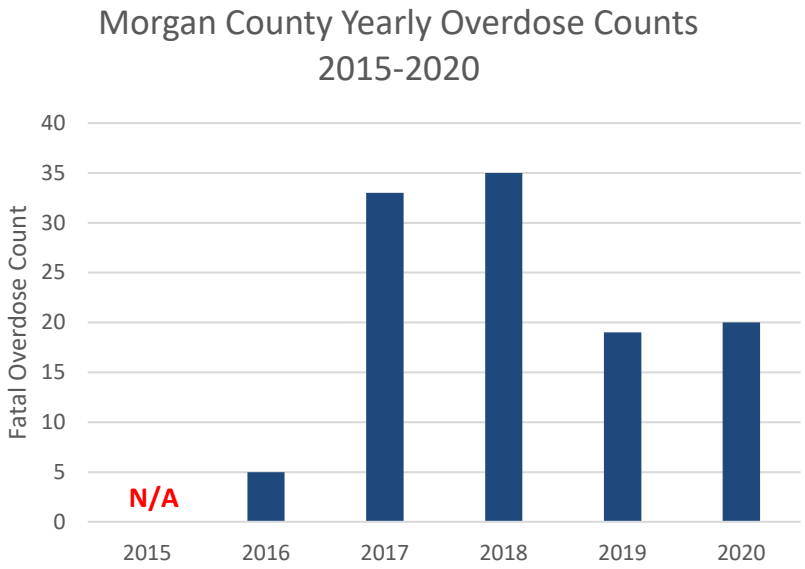
- 168 flooding events reported since 1993
- 640 claims for flood damage have been made since 1978, exceeding $9.5 million in NFIP payments
- 1,836 (2.57%) of Berkeley County Structures in SFHA
- 547 (4.77%) of Morgan County structures in SFHA



# Hazard Review: Substance Use Disorder – New Hazard

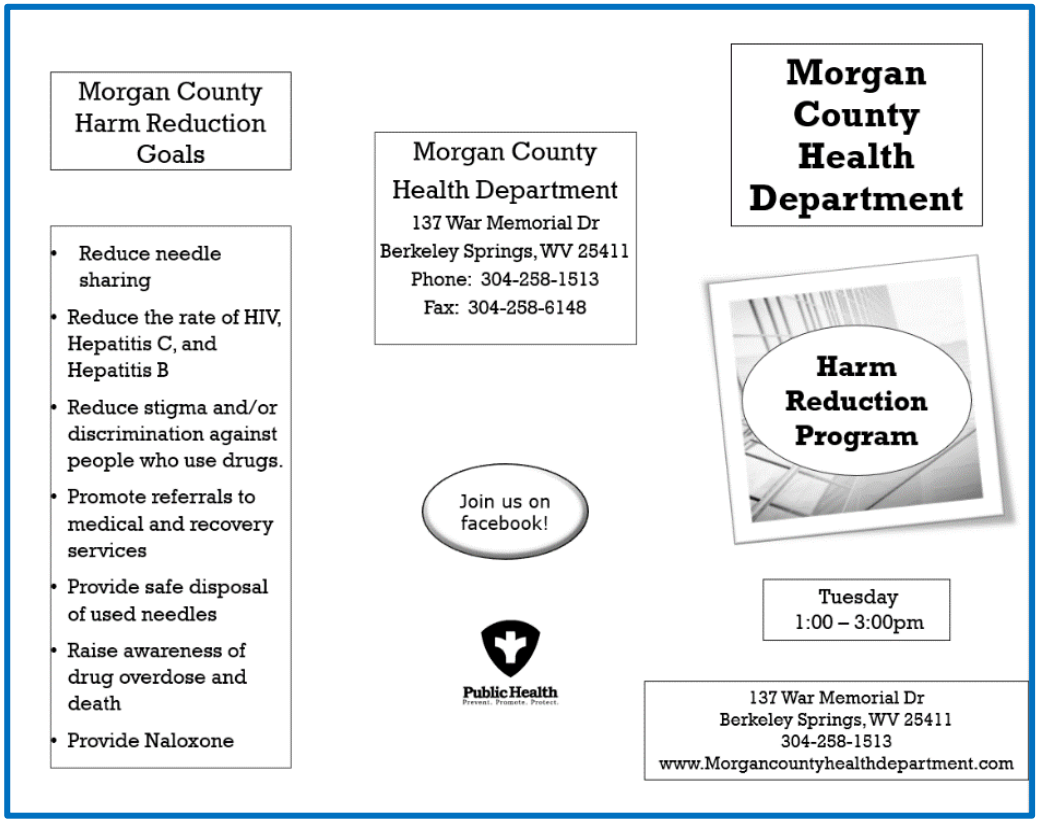
- Substance Use Disorder (SUD) is a complex condition in which there is uncontrolled use of a substance despite harmful consequences.



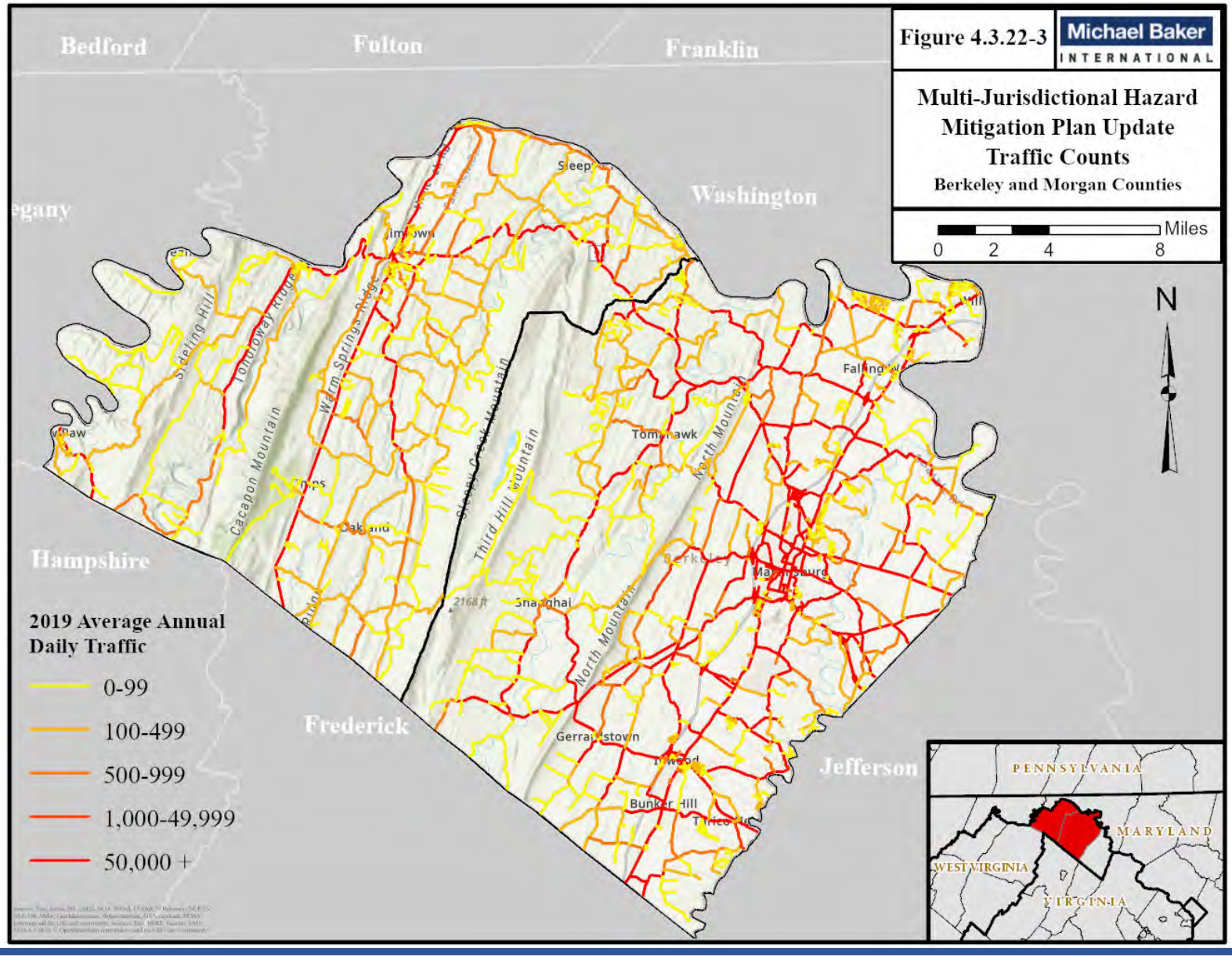




- Drugs most abused throughout the Region include opioids, fentanyl, heroin, cocaine, and methamphetamines.

- Jurisdictional losses from the SUD crisis stem from lost wages, productivity, and resources rather than losses to buildings or land.
- The American Enterprise Institute (AEI), using national data from the CDC and White House Council of Economic Advisors, calculated a total cost per capita ($4,739), of the opioid epidemic for West Virginia, the highest in the Country.
- Programs and organizations within the Region focused on SUD include Berkeley County Day Report Center, Morgan County Harm Reduction Steering Committee, Life or Drugs, Tri-State Support, and Team Hope.



# Hazard Review: Transportation Accidents



# Risk Assessment Overview: Transportation Accidents

- The Region's most serious road transportation concerns involve U.S. 522, I-81, and WV 9.
  - I-81 continues to be an issue for Berkeley County - highest accident rate of the Region.
  - WV Route 9 is of concern for both Counties. Often backed up during peak traffic times and sees a fair number of accidents. Area is predicted to see increased development as well.
- Possibility for freight transportation accidents
  - WV State Freight Plan estimates domestic freight flow increase of 23M tons by 2045.
- Mitigation Action completed from 2017: Construct new U.S. 522 bypass.



# Survey Results

- Survey garnered nearly 900 responses!
- Top rated hazard concerns: cyber terrorism, substance use disorder, pandemic, thunderstorms, transportation accidents, and utility interruption.
- Lowest rated hazard concerns: earthquakes, landslides, and Dam/Levee Failure
- Most of the participants feel the community's ability to handle a hazard event is "average" to "good".



- Community members are most concerned with:
  - Not having electrical power for an extended period
  - Not having access to clean water during a hazard event,
  - Not having police or fire protection, and
  - Not being able to get warning messages or other information regarding the hazard.
- Residents prefer to be notified about hazard events via cellphone, email, or social media.
  - These are also the suggested best methods for receiving information about preventative measures relating to hazard mitigation.



- Suggested Actions:
  - Implement more paid fire service positions
  - Provide broadband for everyone
  - Ensure preparedness and comprehensive planning for hazard events, particularly health hazards such as the COVID-19 pandemic
  - Provide clear and timely communication about the location of existing hazards and early warning systems
  - Improve and monitor major transportation corridors such as I-81 and Route 9
  - Construct shelters



- West Virginia GIS Technical Center provided a HAZUS analysis for the 2022 Plan Update.
- They will provide a brief (15 minute) presentation on the HAZUS results and how to view/interpret them.
- More on the suggested Mitigation Actions from the HAZUS analysis later.

# Capability Assessment Overview



# Capability Assessment Overview: Planning & Regulatory Capabilities

- Berkeley County Comprehensive Plan (2016), Morgan County Comprehensive Plan (2017), Martinsburg Comprehensive Plan (2018)
- Zoning Ordinances and Subdivision Regulations – Berkeley County and City of Martinsburg have both, Morgan County has a subdivision ordinance
- Berkeley County EOP and Morgan County EOP
- HEPMPO Long Range Transportation Plan 2045 – Berkeley County

- **NFIP**: 5 out of 6 jurisdictions participate.
- **Community Rating System (CRS):** 10 CRS classes that provide varied reduction in insurance premiums for property owners in both the SFHA and non-SFHA. Floodplain management programs go beyond the NFIP requirements
- The City of Martinsburg participates in the CRS

NATIONAL FLOOD INSURANCE PROGRAM

# Capability Assessment Overview: Administrative & Technical Capabilities

- Berkeley County Development Authority and Morgan County Development Authority
- Some County or City Engineers, while other jurisdictions contract engineering resources from consulting firms.
  - Address hazardous impacts through adopted building code/ordinance, storm water ordinance, and MS4 compliance, etc.
- Administrative and technical capability varies between the municipalities due mainly to population size and resources.

# Capability Assessment Overview: Plan Integration

- A **two-way exchange of information** between a hazard mitigation plan and other community plans
  - Incorporation of risk reduction concepts in community plans
  - Consistent information and goals between all plans
- An **understanding** between agencies and organizations with a stake in the built environment of their role in hazard mitigation



# Mitigation Strategy Overview: Components

- Progress Report on 2022 Mitigation Strategy
- Goals and Objectives
- Mitigation Techniques
- Mitigation Action Plan and Projects






# Mitigation Strategy Overview: 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



# Mitigation Strategy Overview: Region 9

| GOALS |
| --- |
| **Goal 1:** Support communities in lessening flood risk by encouraging them to maintain compliance with the National Flood Insurance Program (NFIP) and undertaking buyout projects when funding is available; Perform annual checks regarding NFIP compliance.<br>. |
| **Goal 2:** Support counties in performing annual HMP strategies review. |

# Mitigation Strategy Overview: Berkeley and Morgan County

## GOALS – Berkeley County

**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.

## GOALS – Morgan County

**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.

# Mitigation Strategy Overview: 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 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 Strategy Overview: 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 attainable

| Mitigation Technique | Example of BC or MC Action |
|---|---|
| Structure and Infrastructure Projects | Work towards a complete network that allows convenient pedestrian and/or bicycle travel to all areas of the City by increased road and sidewalk maintenance and increased access to Downtown and West End redevelopment zones. |
| Education and Awareness Programs | Educate water system operators and workers about the importance of safe available water and SWPPs, update the SWPP as necessary. |
| Local Plans and Regulations | Review all comprehensive plans to ensure that designated growth areas are not in hazard areas. |
| Natural Systems Protection | Assess areas vulnerable to wildfires and publicize outdoor burning regulations and wildfire risks using pamphlets, news articles, and the Firewise Program. |

# Suggested New Mitigation Actions for all jurisdictions based on HAZUS Analysis:

| Action Number | Action | Jurisdiction | Category | Hazard(s) Addressed | Lead Agency/ Department | Implementation Schedule | Funding Source | Priority |
|---|---|---|---|---|---|---|---|---|
| **All Jurisdictions** | | | | | | | | |
| 1 | Conduct a comprehensive review and evaluation of the Flood Hazus analysis information and communicate any deficiencies/inaccuracies to the West Virginia GIS Technical Center. This includes obtaining and providing flood elevation certificates to the Technical Center for incorporation into the WV Flood Tool. | All | Structure and Infrastructure | Flooding | Local Floodplain Coordinators, WV GIS Tech. Center | Year 1 | | High |
| 2 | Conduct a thorough review of all community assets in order to assess status, vulnerabilities, and prioritization of mitigation funding. This includes compiling a list or database to be referenced in future updates to the Plan. | All | Structure and Infrastructure | Flooding | Local Floodplain Coordinators | Years 2 – 5 | | High |

- Region 9: 3 Actions
- Berkeley County: 21 Actions
- City of Martinsburg: 28 Actions (Up from 1 in 2017!)
- Town of Hedgesville: 4 Actions
- Morgan County: 47 Actions
- Town of Bath: 9 Actions
- Town of Paw Paw: 6 Actions

# 2022 Berkeley County Mitigation Actions Summary

## Mitigation Techniques Used for All Hazards in Berkeley County

| Hazard *(In Order of Risk Factor Ranking)* | Mitigation Technique | | | |
|---|---|---|---|---|
| | Plans and Regulations | Structure and Infrastructure | Natural Systems Protection | Education and Awareness |
| Source Water Contamination | X | X | X | X |
| Transportation Accidents | X | X | | |
| Winter Storm | | X | | |
| Windstorm, Tornado | X | X | | |
| Hazardous Materials | X | | | |
| Flooding | X | X | X | |
| Utility Interruption | | X | | |
| Pandemic and Infectious Disease | | X | | X |
| Terrorism | | X | | X |
| Hurricane, Tropical Storm, Nor'easter | X | X | | |
| Substance Use Disorder | X | | | X |
| Drought | X | X | | X |
| Cyber Terrorism | | X | | |
| Thunderstorm, Lightning Strike | | X | | |
| Radon Exposure | | | | X |
| Extreme Temperature | | X | X | |
| Civil Disturbance | X | | | X |
| Wildfire | X | | | |
| Hailstorm | | | | |
| Invasive Species | | | | X |
| Earthquake | X | X | | X |
| Land Subsidence | X | X | X | |
| Dam Failure | | | | X |

# 2022 Morgan County Mitigation Actions Summary

| Mitigation Techniques Used for All Hazards in Morgan County | | | | |
|---|---|---|---|---|
| Hazard *(In Order of Risk Factor Ranking)* | Mitigation Technique | | | |
| | Plans and Regulations | Structure and Infrastructure | Natural Systems Protection | Education and Awareness |
| Substance Use Disorder | X | | | X |
| Pandemic and Infectious Disease | X | | | X |
| Utility Interruption | X | X | | X |
| Flooding | X | X | | X |
| Winter Storm | X | | | X |
| Hazardous Materials | X | | | X |
| Wind Storm, Tornado | X | | | X |
| Cyber Terrorism | X | | | |
| Wildfire | X | | X | X |
| Transportation Accidents | X | X | | |
| Hailstorm | X | X | | X |
| Hurricane, Tropical Storm, Nor'easter | X | | | X |
| Source Water Contamination | X | | X | X |
| Dam Failure | X | X | | X |
| Drought | X | | X | X |
| Invasive Species | X | | X | X |
| Civil Disturbance | X | | | |
| Terrorism | X | | | X |
| Extreme Temperature | X | | | X |
| Thunderstorm, Lightning Strike | X | | | X |
| Earthquake | X | | | X |
| Land Subsidence | X | X | | |
| Radon Exposure | X | | | X |

# Next Steps and Action Items



# Submit Information.

## There's still time!

- Capability Assessment
- NFIP Worksheet
- Action Review
- New Actions



New Mitigation Action Form

| | |
|---|---|
| Municipality/Organization: | |
| Name and Title: | |

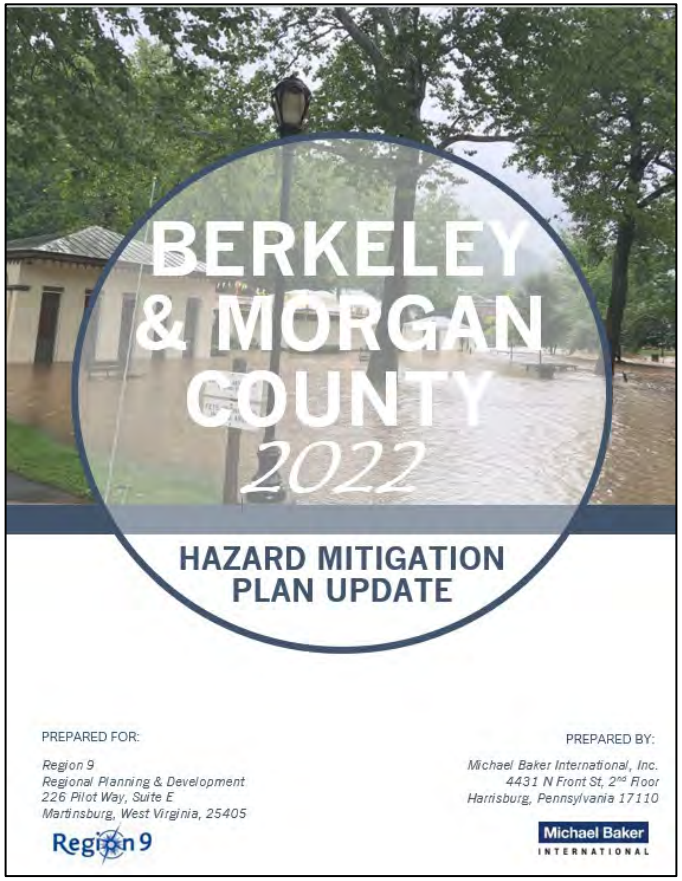
Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from hazards. This resource is located in the resource section of the project website: www.pennsylvaniahmp.com/luzerne-county-hmp

| | |
|---|---|
| Action Title | |
| Assessing the Risk | |
| | |
| | |
| | |
| | |
| Cost estimate | |
| Priority | |



https://region9wv.com/hazard-mitigation

# Review the Draft MJHMP




**August 24, 2021– September 24, 2021**

- Review the Draft MJHMP
  - Focus areas:
    - Capability Assessment
    - Goals, Objectives, Actions
- Submit Comments
- Disseminate information to residents

https://region9wv.com/hazard-mitigation

| Task | Dates |
|---|---|
| Kick-Off Meeting | May 4 |
| Risk Assessment and Vulnerability Analysis | April – June |
| Risk Assessment and Mitigation Solutions Workshop | June 15 |
| Mitigation Strategy Development | June – September |
| Plan Review Public Meeting | August 24 |
| Deliver to WVEM/FEMA for Review | October/November |
| Distribute to Municipalities for Adoption | February 2022 |

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# Draft Plan Review Public Meeting

In-Person: Berkeley County Council Chambers, Berkeley County, WV

Virtual: Zoom

August 24, 2021

1:30pm – 3:30pm

## Agenda

1. Welcome and Introductions
2. Hazard Mitigation Plan & Project Overview
3. Planning Process
4. Risk Assessment Overview
5. Capability Assessment Overview
6. Mitigation Strategy Overview
7. Next Steps and Action Items

## Attendees:

See the attached Sign-In Sheets for the meeting attendees.

## Welcome and Introductions

Troy Truax, a hazard mitigation planning consultant with Michael Baker International, welcomed all members of the Berkeley County Multi-Jurisdictional Hazard Mitigation Planning Team (HMPT) and other public participants. This meeting, which was publicly advertised, was held in-person at the Berkeley County Council Chambers in Berkeley County, WV, as well as virtually through Zoom due to the current COVID-19 Pandemic. Berkeley County and Michael Baker International recognize that high-risk groups or those uncomfortable with in-person meetings may prefer virtual engagement.

Troy asked participants to introduce themselves as attendance was taken and requested that everyone indicate which community or organization they represented.

## Hazard Mitigation Plan and Project Overview

Troy discussed the Disaster Mitigation Act of 2000, which requires state, local, or tribal governments to develop and submit a hazard mitigation plan every 5 years. Troy emphasized that a goal of the hazard mitigation process is to make sure that every municipality participates. Up until today's Draft Plan Review Meeting, participation has been high, however the region would like to achieve additional participation in the form of capability assessments and new mitigation action worksheets.

Troy defined hazard mitigation and described the purpose of the MJHMP Update, including:

- Identifying projects that will reduce risk, both day to day and in a disaster situation

- Identifying potential funding sources for mitigation projects
- Maintaining eligibility for certain mitigation funding through the Federal Emergency Management Agency (FEMA)

Troy mentioned that the plan may still be updated or edited moving forward if new events or projects arise. Troy stressed that this update was led by Region 9 but is multi-jurisdictional in nature. In order to achieve full participation, each municipality is asked to attend at least one meeting, complete at least one worksheet, and provide at least one mitigation action for the 2022 MJHMP. Without active participation, a municipality may be limited in adoption of the plan and therefore may be limited in obtaining certain hazard mitigation assistance funding available over the next five years.

Troy explained that the Pennsylvania Hazard Mitigation Standard Operating Guide (SOG) was consulted in the formatting of the plan. The PA SOG was used because a similar resource does not exist in West Virginia, and permission was granted for its use. Troy went over the different MJHMP components which include:

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

## Planning Process

Troy discussed the components of the Community Profile which includes county information such as demographics and current land use, with information that was sourced from County Mapping Departments and the WV GIS Technical Center. Troy highlighted that a success from the last plan was that Morgan County made huge strides since the last HMP update in advancing their Geospatial Information Systems (GIS) data.

The HMPT has been actively working with Michael Baker International to develop this Plan. Troy stated that 2 of 6 municipalities have not submitted a new project for the Plan, however, each municipality has participated in at least one meeting during the hazard mitigation planning process. Troy emphasized the importance of submitting a Capability Assessment Worksheet and a New Mitigation Action Form for the Plan.

Troy discussed the different forms and surveys that have been completed by county and municipal officials, as well as all prior meetings that were held for the 2022 MJHMP. These meetings consisted of the May 4th Kick-Off Meeting and the June 15th Risk Assessment and Mitigation Solutions Workshops. Troy also discussed the use of risk and vulnerability analyses in the Plan utilizing GIS and Hazus.

## Risk Assessment Overview

Troy reviewed the hazards that were profiled in the 2022 Draft MJHMP. Civil Disobedience, Cyber Terrorism, and Substance Use Disorder were added during the 2022 Update.

### High Ranked Hazards

- Source Water Contamination
- Transportation Accidents
- Winter Storm
- Windstorm, Tornado
- Hazardous Materials
- Flooding
- Utility Interruption
- Pandemic and Infectious Disease
- Terrorism
- Hurricane, Tropical Storm, Nor'easter
- Substance Use Disorder
- Drought
- Cyber Terrorism

### Moderate Ranked Hazards

- Thunderstorm, Lightning Strike
- Radon Exposure
- Extreme Temperatures

### Low Ranked Hazards

- Civil Disturbance
- Wildfire
- Hailstorm
- Invasive Species
- Earthquake
- Landslide/Land Subsidence
- Dam Failure

Troy discussed the different components of the hazard profiles which include *Location and Extent*, *Range of Magnitude*, *Past Occurrence*, *Future Occurrence*, and *Vulnerability Assessment*.

Not every hazard profiled in the Plan can be ranked as a high priority, therefore, the Risk Ranking Methodology is used as a prioritization tool. Troy discussed the risk analysis process to determine how impactful or prevalent a hazard may be within a community. Risk analysis utilizes a Risk Factor Value, which is calculated by quantitatively inputting subjective feedback from municipal representatives and additional stakeholders, as well as considering past occurrence data for each profiled hazard. The Risk Factor Value considers probability of occurrence, impact, spatial extent, warning time, and duration for each hazard.

Troy briefly reviewed the Flooding hazard profile by discussing the risks and resources that should be addressed for flooding within the region. Historical data for flooding was discussed, which included 640 claims for flood damage since 1978 within the region, with damage exceeding $9.5 million in NFIP payments. Morgan County has a higher percentage of structures in the Special Flood Hazard Area than Berkeley County.

Troy also briefly reviewed the hazard profiles for Transportation Accidents and Substance Use Disorder (SUD), showing GIS maps and graphs to meeting attendees. Jennifer Schetrompf mentioned that Berkeley

County also has a Harm Reduction Program, and this should be incorporated in the Plan. Troy noted the construction of the US 522 Bypass is a completed action from the 2017 Plan Update, but this action may have effects in other areas such as stormwater runoff.

Troy then reviewed the public survey, which received almost 900 responses. The participants' top rated hazard concerns were: cyber terrorism, substance use disorder, pandemic, thunderstorms, transportation accidents, and utility interruption. Many also suggested actions such as: implementing paid fire positions, more timely communication of hazards, and improvement and monitoring of accident-prone corridors such as I-81. Troy recommended the meeting participants consider these suggested actions for incorporation of new mitigation actions in the plan.

Troy discussed the use of ham radios during power outages, and Randy Lilly confirmed the county does have a program for their use. Troy and the meeting participants also discussed ways to improve transportation monitoring and accident response, citing the PA Turnpike's Traffic Incident Management (TIM) programs and Strategic Highway Research Program 2 (SHRP-2) training. Berkeley County does have TIM programs and has completed SHRP-2 training.

## Hazus Presentation and Overview

Kurt Donaldson and Maneesh Sharma from the WV GIS Technical Center provided an overview of the WV Flood Tood and Flood Hazus analysis and results in Berkeley County. Kurt confirmed that flood studies are ongoing and will be effective in 2-3 years. FEMA will be hosting Discovery Meetings soon. He also mentioned that the Potomac River Watershed may not be updated as quickly, as it is very large and crosses multiple states. Kurt also discussed the Lake Holiday Dam in Frederick County, VA and recommended that Berkeley County review the dam's emergency action plan.

Kurt noted that the Hazus provides essential and critical facilities, as well as historic resources. Dam and landslide Hazus are still being updated. Kurt also noted that property owners can apply to be removed from the flood zone, to avoid paying for insurance or to get a preferred rate. He also mentioned that Berkeley County is slated to get new elevation data through the U.S. Geological Survey, which will help make the Hazus analysis more accurate. Kurt explained that when the flood maps are updated by FEMA, the municipalities must update their floodplain ordinances. He suggested that the communities consider placing emphasis on protection of recreational vehicles and mobile homes in future updates.

At the conclusion of the call, Matt McCullough, FEMA, suggested that the communities take a deeper dive into their community assets, to prioritize funding and resources to protect those most valuable and vulnerable. Troy responded that this will be a recommended action, to be completed before the next Plan Update.

## Capability Assessment Overview

Troy discussed the various planning and regulatory capabilities of the county. This section of the Plan also serves to determine some of the shortcomings within communities. Planning and regulatory capabilities within the County include a regional comprehensive plan, and several municipalities that have their own zoning and subdivision ordinances.

Troy also discussed Administrative and Technical Capabilities of the county which include County Development Authority, county/city or contracted engineers, etc. Troy noted that administrative and technical capability varies between the municipalities due mainly to population size and resources.

Lastly, Troy discussed the importance of plan integration, a two-way exchange of information between the hazard mitigation plan and other community plans. This allows for consistency between the goals and objectives within different plans, as well as building relationships for various communities that are working together.

## Mitigation Strategy Overview

Troy discussed the Mitigation Action Progress Report Form, which determines if existing actions are still applicable and if they need to be included in the 2022 Update. Municipalities were asked to note if an action has been completed, cancelled, deferred, or is still ongoing. This keeps track of what is going on within the county and municipalities moving forward and maintaining status during the plan period.

Troy explained goals, objectives, and actions and introduced the Mitigation Action Plan, which is a crucial step within the update process. The Mitigation Action Plan identifies specific activities a community will take to reduce or eliminate risk from the identified hazard. Troy mentioned two new suggested mitigations for all municipalities, based on the Hazus discussion. These actions involve (1) conducting a comprehensive review and evaluation of the Flood Hazus analysis information and communicating any deficiencies/inaccuracies to the West Virginia GIS Technical Center, and (2) conducting a thorough review of all community assets in order to assess status, vulnerabilities, and prioritization of mitigation funding. These actions are meant to satisfy Matt McCullough's recommendation stated above. Troy also reviewed the 12 goals in the 2022 Draft MJHMP.

Troy discussed the four types of mitigation techniques (Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, and Education and Awareness Programs) and described how to develop new actions. He also showed which mitigation techniques were used for each hazard.

There is still time for the remaining municipalities to submit information. Troy strongly encouraged municipalities to submit information by September 7th, however the review period will be open until September 24th. Troy explained to the participants that the project website will have the uploaded Draft Plan and asked them to review the Plan and provide comments. The comment period will end on August 24th, 2021.

## Next Steps and Action Items

Troy reviewed the current project timeline, which is shown below. Past events are designated in grey:

| Task | Dates |
|---|---|
| Kick-Off Meeting | May 4, 2021 |
| Risk Assessment and Vulnerability Analysis | May – June |
| Risk Assessment and Mitigation Solutions Workshops | June 15, 2021 |
| Mitigation Strategy Development | May - July |
| Draft Plan Review Public Meeting | August 24, 2021 |
| Public Comment Period | August 24 – September 24 |

| Task | Dates |
|---|---|
| Deliver to WVEM for Review | October 2021 |
| Deliver to FEMA for Review | November 2021 |
| Distribute to Municipalities for Adoption | January - February 2022 |

Troy reiterated to attendees to visit the project website to review the 2022 Draft MJHMP, view meeting materials, helpful resources, and obtain copies of forms if needed. The project website can be found at: https://region9wv.com/hazard-mitigation

Troy noted that the county and municipalities will need to adopt the MJHMP as soon as FEMA issues Approval Pending Adoption (APA) to each municipality. A copy of each municipality's executed plan adoption resolution must be provided to WVEM and FEMA.

The hazard mitigation consultant will draft a meeting summary and will post all meeting materials to the project website. The hazard mitigation consultant will also follow up with each meeting participant with action items following the end of this meeting, as well as municipal contacts who were unable to attend this meeting.

Troy will be available to answer any questions or to provide assistance to municipalities as they continue to develop new mitigation actions. He is available by email at troy.truax@mbakerintl.com and by phone at (717) 213-6241.

Troy reiterated that all new mitigation action forms be emailed to Kelly Asselin at kelly.asselin@mbakerintl.com.

**The meeting concluded at 3:00 pm.**

## Appendix C-7 Morgan County Public Draft Plan Review Meeting (August 24, 2021)

## Welt, Angela

**From:** Rachel Snavely <rsnavely@region9wv.com>
**Sent:** Thursday, July 29, 2021 9:53 AM
**To:** bssadmin2@berkeleyseniorservices.org; jesse.hott@redcross.org; willgrow725@gmail.com; ebartoldson@gmail.com; cjackson@svms.net; donald.grubb@wvumedicine.org; thomas.thompson6@va.gov; kshannon@valleyhealthlink.com; Monica.A.Whyte@wv.gov; kenneth.l.clohan@wv.gov; james.f.linsenmeyer@wv.gov; lcade@firstenergycorp.com; paul_comes@cable.comcast.com; cindy.littleton@ftr.com; ebobo@k12.wv.us; sfarthing@cityofmartinsburg.org; shamilton@developmentauthority.com; tina@berkeleycounty.org; chull@blueridgectc.edu; dvanmetre@k12.wv.us; jklein@shepherd.edu; lhower@argos-us.com; obrien.sf@pg.com; todd.marino@qg.com; susan.huber@macys.com; scullen@rustoleum.com; rbrown@orgill.com; allan.schreiner@knaufinsulation.com; Randall.Rude@ecolab.com; margaret.butts@clorox.com; nic@flymrb.com; joe_taylor@csx.com; dlong@winchesterwesternrr.com; Hartman, Alana C; Bisom, Kristen; Frank Rodgers; Jennifer Wishmyer; adavis@berkeleywv.org; bill.g.kearns@wv.gov; Mark S. Baldwin; James Barnhart; ceg511@yahoo.com; Randy Lilly; hjohnson@cityofmartinsburg.org; jennifer.r.schetrompf@wv.gov; 'Jim Ouellet'; Curtis Keller; Zach Walburn; Doug Copenhaver; Heather Williams; bross@berkeleywv.org; bcostello@berkeleywv.org; cwinebrenner@bceaa.com; jswisher@berkeleywv.org; Mark Schiavone; gsrhoe@comcast.net; kpetrucci@cityofmartinsburg.org; Jared Tomlin; jdhummingbird@martinsburgfire.org; ablake@cityofmartinsburg.org; g_swartwood@martinsburgpd.org; jkelly@cityofmartinsburg.org; Jeff Wilkerson; jwhitacre@berkeleywv.org; Steven DeRidder; nharmon@berkeleywv.org; eddiegochenour@berkeleywv.org; Kurt.Donaldson@mail.wvu.edu; Matthew Umstead; dkeith@cityofmartinsburg.org; Breeanna Sims; kdavis@berkeleywv.org; Timothy Czaja; jesse.hott@redcross.org; acdraper@frontier.com; jennifer.blood@us.af.mil; bclark@morgancountywv.gov; apadilla@morgancountywv.gov; Jennifer Wishmyer; R Davis; 'Joel Tuttle'; Dick Myers ; Schetrompf, Jennifer R; Stefanie Allemong; willgrow725@gmail.com; aschumaker@morgancountywv.gov; amoore@morgancountywv.gov; Scott Crunkleton; amorris@starting-points.org; tammy_kees@yahoo.com; Truax, Troy D; Welt, Angela; Asselin, Kelly; David Deamer; Hartman, Alana C; Whyte, Monica A; Kate Lehman; marshbc@aol.com; Tanner Haid; timothyareese@gmail.com; Frank Rodgers; Zach Norris; rm; ktuttle@k12.wv.us; lgoodwin@morgancountyeda.com; sales@ussilica.com; chamber@berkeleysprings.com; rrogers2@valleyhealthlink.com; Jeromy Duelley
**Cc:** Truax, Troy D; Asselin, Kelly; Welt, Angela; Jennifer Wishmyer
**Subject:** EXTERNAL: SAVE THE DATE Berkeley-Morgan County Hazard Mitigation Plan Public Meeting

Good morning all,

The next meetings of the Berkeley and Morgan County Hazard Mitigation Plan Update is scheduled for the following:

MORGAN COUNTY
August 24, 2021 9AM-11AM
Blue Ridge Community and Technical College
The Pines Opportunity Center
109 War Memorial Drive
Berkeley Springs, WV 25411

BERKELEY COUNTY
August 24, 2011 1:30PM-3:30PM

Berkeley County Council Chambers
400 W. Stephen Street, 2nd Floor
Martinsburg, WV 25401

Please note that the Berkeley County meeting will not be at the Sheriff's Department this time.
We will be discussing the draft plan, key changes, and receiving your final input, as well as going over the results of the public survey which garnered nearly 900 responses.
This meeting is open to the public.

If you have any outstanding worksheets or would like to add any mitigation strategies to ones previously submitted, please send them to me asap for inclusion.

I will send out a Zoom/calendar invite shortly. We look forward to seeing you.

Thank you,

Rachel Snavely
Executive Director
Eastern Panhandle Regional
Planning & Development Council
400 W. Stephen Street, Ste. 301
Martinsburg, WV 25401
304-263-1743
304-702-0408 (c)

| | |
|---|---|
| **From:** | Rachel Snavely |
| **To:** | bssadmin2@berkeleyseniorservices.org; jesse.hott@redcross.org; willgrow725@gmail.com; ebartoldson@gmail.com; cjackson@svms.net; donald.grubb@wvumedicine.org; thomas.thompson6@va.gov; kshannon@valleyhealthlink.com; Monica.A.Whyte@wv.gov; kenneth.l.clohan@wv.gov; james.f.linsenmeyer@wv.gov; lcade@firstenergycorp.com; paul_comes@cable.comcast.com; cindy.littleton@ftr.com; ebobo@k12.wv.us; sfarthing@cityofmartinsburg.org; shamilton@developmentauthority.com; tina@berkeleycounty.org; chull@blueridgectc.edu; dvanmetre@k12.wv.us; jklein@shepherd.edu; lhower@argos-us.com; obrien.sf@pg.com; todd.marino@qg.com; susan.huber@macys.com; scullen@rustoleum.com; rbrown@orgill.com; allan.schreiner@knaufinsulation.com; Randall.Rude@ecolab.com; margaret.butts@clorox.com; nic@flymrb.com; joe_taylor@csx.com; dlong@winchesterwesternrr.com; Hartman, Alana C; Bisom, Kristen; Frank Rodgers; Jennifer Wishmyer; adavis@berkeleywv.org; bill.g.kearns@wv.gov; Mark S. Baldwin; James Barnhart; ceg511@yahoo.com; Randy Lilly; hjohnson@cityofmartinsburg.org; jennifer.r.schetrompf@wv.gov; "Jim Ouellet"; Curtis Keller; Zach Walburn; Doug Copenhaver; Kate Lehman; Heather Williams; bross@berkeleywv.org; bcostello@berkeleywv.org; cwinebrenner@bceaa.com; jswisher@berkeleywv.org; Mark Schiavone; gsrhoe@comcast.net; kpetrucci@cityofmartinsburg.org; Jared Tomlin; jdhummingbird@martinsburgfire.org; ablake@cityofmartinsburg.org; g_swartwood@martinsburgpd.org; jkelly@cityofmartinsburg.org; Jeff Wilkerson; jwhitacre@berkeleywv.org; Steven DeRidder; nharmon@berkeleywv.org; eddiegochenour@berkeleywv.org; Kurt.Donaldson@mail.wvu.edu; Matthew Umstead; dkeith@cityofmartinsburg.org; Breeanna Sims; kdavis@berkeleywv.org; Timothy Czaja; jesse.hott@redcross.org; acdraper@frontier.com; jennifer.blood@us.af.mil; bclark@morgancountywv.gov; apadilla@morgancountywv.gov; Jennifer Wishmyer; R Davis; "Joel Tuttle"; Dick Myers; Schetrompf, Jennifer R; Stefanie Allemong; willgrow725@gmail.com; aschumaker@morgancountywv.gov; amoore@morgancountywv.gov; Scott Crunkleton; amorris@starting-points.org; tammy_kees@yahoo.com; Truax, Troy D; Welt, Angela; Asselin, Kelly; David Deamer; Hartman, Alana C; Whyte, Monica A; Kate Lehman; marshbc@aol.com; Tanner Haid; timothyareese@gmail.com; Frank Rodgers; Zach Norris; rm; ktuttle@k12.wv.us; lgoodwin@morgancountyeda.com; sales@ussilica.com; chamber@berkeleysprings.com; rrogers2@valleyhealthlink.com; Jeromy Duelley; planningdepartment@jeffersoncountywv.org; planning@hampshirewv.com; jsquires@allegany.org; Baker, Jill; cperkins@fcva.us; bstidham@clarkecounty.gov; info@sleepycreekwatershed.org; epdc@wvca.us; jennifer@cacapon.org; jsbauserman@frontier.com; info@thedownstreamproject.org; office@goblueflame.com |
| **Cc:** | Jennifer Wishmyer; David Deamer; Truax, Troy D; Welt, Angela; Asselin, Kelly |
| **Subject:** | EXTERNAL: Multi-Jurisdictional Hazard Mitigation Plan Update: Save the Date |
| **Date:** | Wednesday, August 4, 2021 9:31:43 AM |
| **Attachments:** | Berkeley Co MJHMP Draft Plan Review Mtg Agenda Aug.pdf<br>Morgan Co MJHMP Draft Plan Review Mtg Agenda Aug.pdf |

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Good morning all,

As a reminder, the next meetings of the Berkeley and Morgan County Hazard Mitigation Plan Update is scheduled for the following:

MORGAN COUNTY
August 24, 2021 9AM-11AM
Blue Ridge Community and Technical College
The Pines Opportunity Center
109 War Memorial Drive
Berkeley Springs, WV 25411

BERKELEY COUNTY
August 24, 2011 1:30PM-3:30PM
Berkeley County Council Chambers
400 W. Stephen Street, 2nd Floor
Martinsburg, WV 25401

Regional representatives/bordering county representatives: Please feel free to join in to either the Berkeley or Morgan County meetings.

You should have received a calendar invite for both of these meetings from Troy yesterday. Please note that the Berkeley County meeting will not be at the Sheriff's Department this time. We will be discussing the draft plan, key changes, and receiving your final input, as well as

going over the results of the public survey which garnered nearly 900 responses.
This meeting is open to the public. Please feel free to share the meeting information on your respective social media pages.

We look forward to seeing you,

Rachel Snavely
Executive Director
Eastern Panhandle Regional
Planning & Development Council
226 Pilot Way, Ste. E
Martinsburg, WV 25405
304-263-1743
304-702-0408 (c)

| | |
|---|---|
| **From:** | Rachel Snavely |
| **To:** | bssadmin2@berkeleyseniorservices.org; jesse.hott@redcross.org; willgrow725@gmail.com; ebartoldson@gmail.com; cjackson@svms.net; donald.grubb@wvumedicine.org; thomas.thompson6@va.gov; kshannon@valleyhealthlink.com; Monica.A.Whyte@wv.gov; kenneth.l.clohan@wv.gov; james.f.linsenmeyer@wv.gov; lcade@firstenergycorp.com; paul_comes@cable.comcast.com; cindy.littleton@ftr.com; ebobo@k12.wv.us; sfarthing@cityofmartinsburg.org; shamilton@developmentauthority.com; tina@berkeleycounty.org; chull@blueridgectc.edu; dvanmetre@k12.wv.us; jklein@shepherd.edu; lhower@argos-us.com; obrien.sf@pg.com; todd.marino@qg.com; susan.huber@macys.com; scullen@rustoleum.com; rbrown@orgill.com; allan.schreiner@knaufinsulation.com; Randall.Rude@ecolab.com; margaret.butts@clorox.com; nic@flymrb.com; joe_taylor@csx.com; dlong@winchesterwesternrr.com; Hartman, Alana C; Bisom, Kristen; Frank Rodgers; Jennifer Wishmyer; adavis@berkeleywv.org; bill.g.kearns@wv.gov; Mark S. Baldwin; James Barnhart; ceg511@yahoo.com; Randy Lilly; hjohnson@cityofmartinsburg.org; jennifer.r.schetrompf@wv.gov; "Jim Ouellet"; Curtis Keller; Zach Walburn; Doug Copenhaver; Kate Lehman; Heather Williams; bross@berkeleywv.org; bcostello@berkeleywv.org; cwinebrenner@bceaa.com; jswisher@berkeleywv.org; Mark Schiavone; gsrhoe@comcast.net; kpetrucci@cityofmartinsburg.org; Jared Tomlin; jdhummingbird@martinsburgfire.org; ablake@cityofmartinsburg.org; g_swartwood@martinsburgpd.org; jkelly@cityofmartinsburg.org; Jeff Wilkerson; jwhitacre@berkeleywv.org; Steven DeRidder; nharmon@berkeleywv.org; eddiegochenour@berkeleywv.org; Kurt.Donaldson@mail.wvu.edu; Matthew Umstead; dkeith@cityofmartinsburg.org; Breeanna Sims; kdavis@berkeleywv.org; Timothy Czaja; jesse.hott@redcross.org; acdraper@frontier.com; jennifer.blood@us.af.mil; bclark@morgancountywv.gov; apadilla@morgancountywv.gov; Jennifer Wishmyer; R Davis; "Joel Tuttle"; Dick Myers; Schetrompf, Jennifer R; Stefanie Allemong; willgrow725@gmail.com; aschumaker@morgancountywv.gov; amoore@morgancountywv.gov; Scott Crunkleton; amorris@starting-points.org; tammy_kees@yahoo.com; Truax, Troy D; Welt, Angela; Asselin, Kelly; David Deamer; Hartman, Alana C; Whyte, Monica A; Kate Lehman; marshbc@aol.com; Tanner Haid; timothyareese@gmail.com; Frank Rodgers; Zach Norris; rm; ktuttle@k12.wv.us; lgoodwin@morgancountyeda.com; sales@ussilica.com; chamber@berkeleysprings.com; rrogers2@valleyhealthlink.com; Jeromy Duelley; planningdepartment@jeffersoncountywv.org; planning@hampshirewv.com; jsquires@allegany.org; Baker, Jill; cperkins@fcva.us; bstidham@clarkecounty.gov; info@sleepycreekwatershed.org; epdc@wvca.us; jennifer@cacapon.org; jsbauserman@frontier.com; info@thedownstreamproject.org; office@goblueflame.com |
| **Cc:** | Jennifer Wishmyer; David Deamer; Truax, Troy D; Welt, Angela; Asselin, Kelly; casey.garnett@fema.dhs.gov; McCullough, Matthew (Matthew.McCullough@fema.dhs.gov); Keaton, Tim W |
| **Subject:** | EXTERNAL: REMINDER: Multi-Jurisdictional Hazard Mitigation Plan Update Meeting |
| **Date:** | Wednesday, August 18, 2021 8:21:35 AM |

---

Good morning all,

As a reminder, the next meetings of the Berkeley and Morgan County Hazard Mitigation Plan Update is scheduled for the following:

MORGAN COUNTY
August 24, 2021 9AM-11AM
Blue Ridge Community and Technical College
The Pines Opportunity Center
109 War Memorial Drive
Berkeley Springs, WV 25411

BERKELEY COUNTY
August 24, 2011 1:30PM-3:30PM
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Martinsburg, WV 25401

Regional representatives/bordering county representatives: Please feel free to join in to either the Berkeley or Morgan County meetings.

Please note that the Berkeley County meeting will not be at the Sheriff's Department this time. We will be discussing the draft plan, key changes, and receiving your final input, as well as going over the results of the public survey which garnered nearly 900 responses.
This meeting is open to the public.

Please feel free to share the meeting information on your respective social media pages.

We look forward to seeing you,

Rachel Snavely
Executive Director
Eastern Panhandle Regional
Planning & Development Council
226 Pilot Way, Ste. E
Martinsburg, WV 25405
304-263-1743
304-702-0408 (c)

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

## Draft Plan Review Meeting – Morgan County

August 24, 2021 | 9:00am – 11:00am

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Abe, Darlene | Town of Paw Paw | Mayor | | |
| Allemong, Stefanie | Morgan County | County Administrator | sallemong@morgancountywv.gov | Stefanie Allemong |
| Barrett, Chris | US Silica | | sales@ussilica.com | |
| Bisom, Kriston | WV Conservation Agency | | | |
| Blount, Jeff | Cacapon Institute, Warm Springs Watershed, Sleepy Creek Watershed | | jblount@cacaponinstitute.org | |
| Cade, Lucas | Potomac Edison | | lcade@firstenergycorp.com | |
| Clark, Bill | Morgan County | County Commissioner | bclark@morgancountywv.gov | Bill Clark |
| Clohan, Ken | WV DOH | | kenneth.l.clohan@wv.gov | |
| Comes, Paul | Comcast | | paul_comes@cable.comcast.com | |

## Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Hott, Jesse | Red Cross | | jesse.hott@redcross.org | |
| Jackson, Christina | Shenandoah Medical System | | ebartoldson@gmail.com | |
| Jainniney, Ron | Berkeley Springs Water Works | Department Manager | water.town@hotmail.com | |
| Johnson, Timothy | Bath | Police Chief | | |
| Kees, Tammy | Senior Life Services of Morgan County | Executive Director | | |
| Linsenmeyer, Jim | WVDO | | james.f.linsenmeyer@wv.gov | |
| Littleton, Cindy | Frontier | | | |
| Long, Douglas | Winchester & Western | | dlong@winchesterwesternrr.com | |
| Merki, Scott | Town of Bath | Mayor | asst5@aol.com | |
| Moore, Alex | Morgan County | Planning/GIS Director and Floodplain Manager | amoore@morgancountywv.gov | |
| Morris, Audrey | Morgan County Starting Points | Director | amorris@starting-points.org | |

August 24, 2021

9:00-11:00am

# Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Crunkleton, Scott | Morgan County | | wspsd@ntelos.net | |
| Davis, Ron | Paw Paw | Town Administrator | rdavis@townofpawpaw.com | |
| Donaldson, Kurt | WVU GIS Tech Center | Senior Project Manager | kurt.donaldson@mail.wvu.edu | Zoom |
| Duncan, Sherry | WV Conservation Agency | | | |
| Elliot, Barbie | WV Conservation Agency | | | |
| Francis, Brenna | The Journal | | | |
| Garnett, Casey | FEMA Region 3 | Hazard Mitigation Community Planner | casey.garnett@fema.dhs.gov | Zoom |
| Grow, William | Morgan County Homeless Coalition | President | willgrow725@gmail.com | |
| Grubb, Donnie | WVU Medicine | | donald.grubb@wvumedicine.org | |
| Hansroth, Lori | Morgan County Chamber of Commerce | | chamber@berkeleysprings.com | |
| Hartman, Alana | WV DEP | Potomac. Basin Coordinator (PBC) | alana.c.hartman@wv.gov | |

August 24, 2021

9:00-11:00am

## Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Myers, Dick | Morgan County Office of Emergency Management and Homeland Security | Director | dmyers@morgancountywv.gov | present in person |
| Pennington, Matthew | Eastern Panhandle Regional Planning & Development Council | Environmental Program Coordinator | mpennington@region9wv.com | |
| Schetrompf, Jennifer | Berkeley-Morgan County Board of Health | Threat Preparedness/Health Promotion Coordinator | jennifer.r.schetrompf@wv.gov | |
| Shannon, Kristi | Valley Health | | kshannon@valleyhealthlink.com | |
| Shumaker, Amy | Morgan County | Planning Director | aschumaker@morgancountywv.gov | |
| Snavely, Rachel | Eastern Panhandle Regional Planning & Development Council | Executive Director | rsnavely@region9wv.com | |
| Taylor, Joe | CSX | | joe_taylor@csx.com | |
| Thompson, Tom | VA Medical Center | | thomas.thompson6@va.gov | |
| Tuttle, Kristen | Morgan County Board of Ed. | | | |
| Wishmyer, Jennifer | Eastern Panhandle Regional Planning & Development Council | Assistant Director | jwishmyer@region9wv.com | |

August 24, 2021

9:00-11:00am

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| Whyte, Monica | WV BPH | | Monica.A.Whyte@wv.gov | Zoom |
| Zahnow III, Milo | Berkeley Springs Volunteer Fire Company | President | | |
| Truax, Troy | Michael Baker Intl. | Planning Director | Troy.Truax@mbakerintl.com | |
| Welt. Angela | Michael Baker Intl. | Project Manager – Environmental | awelt@mbakerint.com | Zoom |
| Asselin, Kelly | Michael Baker Intl. | Environmental Associate | Kelly.asselin@mbakerintl.com | Zoom |
| ROBERT DUGAN | FLOOD DAM MONT. | | BBLdugan@gmail.com | |
| CHARLES MARSH | ~~SOS~~ A SLEEPY CREEK WATERSHED | | MARSHBC@AOL.COM | |
| Frank Rodgers | Cacapon Inst. | Ex. Dir. | frodgers@cacaponinstitute.org | |
| Tim Keaton | DHSEM | | | |
| Casey Garnett | FEMA | | | |
| Bob Dugan | Dam Owner | | | |
| ~~Chuck~~ ~~Hayes~~ ~~Sleepy Creek~~ | | | | |

August 24, 2021

9:00-11:00am

Matt McCullough FEMA

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| Name | Organization | Title | Email | Signature |
|---|---|---|---|---|
| David Deamer | Region 9 | Implementation Coordinator | ddeamer@region9wv.com | Zoom |
| Earl Myers | Pan Pan | Councilman | | Zoom |
| | | | | |
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August 24, 2021

9:00-11:00am

# MEETING AGENDA

# Morgan County

| | |
|---|---|
| Date: | August 24, 2021 |
| Time: | 9:00 AM – 11:00 AM |
| Location: | Blue Ridge Community and Technical College<br>The Pines Opportunity Center<br>109 War Memorial Drive<br>Berkeley Springs, WV 25411<br><br>Zoom:<br>https://us02web.zoom.us/j/87929088623<br>Meeting ID: 879 2908 8623<br>(301) 715-8592 |
| Meeting Name: | 2022 Multi-Jurisdictional Hazard Mitigation Plan Update Draft Plan Review Meeting |

| Topic: | Time: |
|---|---|
| 1. Welcome and Introductions<br>o Facilitator: Troy Truax, AICP, Michael Baker International<br>o Eastern Panhandle Regional Planning and Development Council (Region 9)<br>o Morgan County Steering Committee and Stakeholders | 9:00 AM |
| 2. Hazard Mitigation Plan and Project Overview | 9:10 AM |
| 3. Planning Process Overview | 9:20 AM |
| 4. Risk Assessment Summary<br>o HAZUS Analysis Presentation | 9:30 AM |
| 5. Capability Assessment Overview | 10:05 AM |
| 6. Mitigation Strategy Summary | 10:20 AM |
| 7. Next Steps and Action Items | 10:55 AM |

Visit the project website at https://region9wv.com/hazard-mitigation

*Questions? Comments? Contact:*

*Troy Truax:* Troy.Truax@mbakerintl.com*, (717) 213-6241*



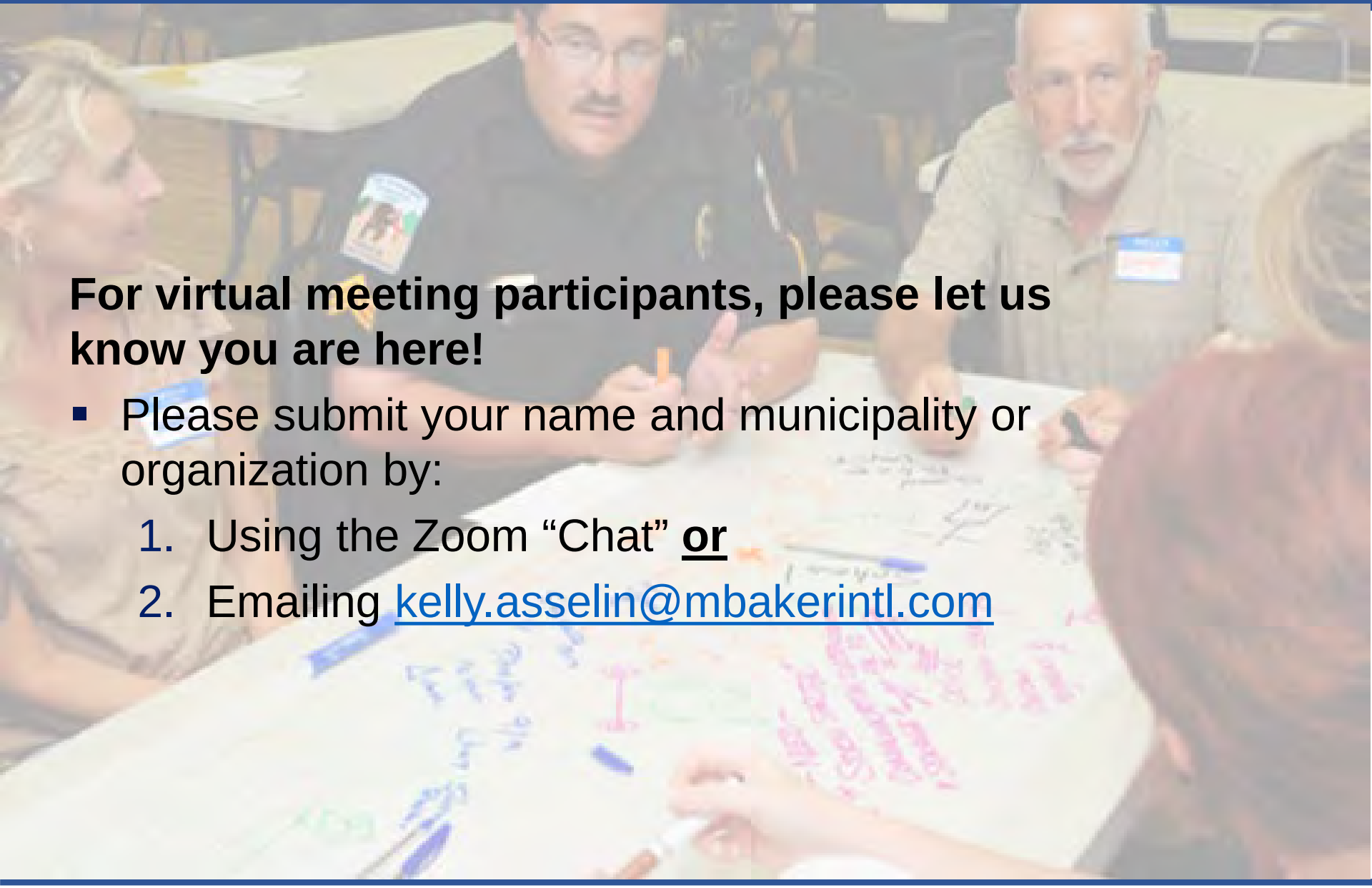
# Berkeley and Morgan County
# 2022 Multi-Jurisdictional Hazard Mitigation Plan Update

Michael Baker INTERNATIONAL

Region 9

**Draft Plan Review Meeting**
**August 24, 2021**

# Welcome and Introductions



**For virtual meeting participants, please let us know you are here!**

- Please submit your name and municipality or organization by:
  1. Using the Zoom “Chat” **or**
  2. Emailing kelly.asselin@mbakerintl.com

# Agenda

- Welcome and Introductions
- Hazard Mitigation Plan and Project Overview
  - Planning Process Overview
  - Risk Assessment Summary
  - Capability Assessment Overview
  - Mitigation Strategy Summary
- Next Steps and Action Items

- The Disaster Mitigation Act of 2000 (Public Law 106-390) requires State, local, or tribal governments to develop and submit for approval a mitigation plan that outlines processes for identifying the natural hazards, risks, and vulnerabilities of the area under the jurisdiction of the government.
- Plans must be updated every 5 years.
- **The current Region 9 Multi-jurisdictional HMP expires in February 2022**.

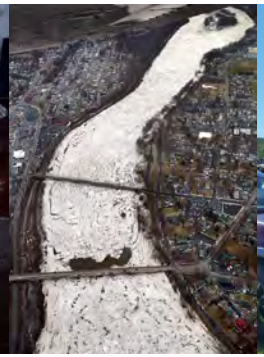
- Region 9 has been working to **update its Multi-Jurisdictional Hazard Mitigation Plan (MJHMP)** since April 2021.
- Municipal and County officials and other stakeholders participated in **meetings in May and June.**
- Today, the goal is to learn more about **the Draft Plan** and **next steps.**

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.



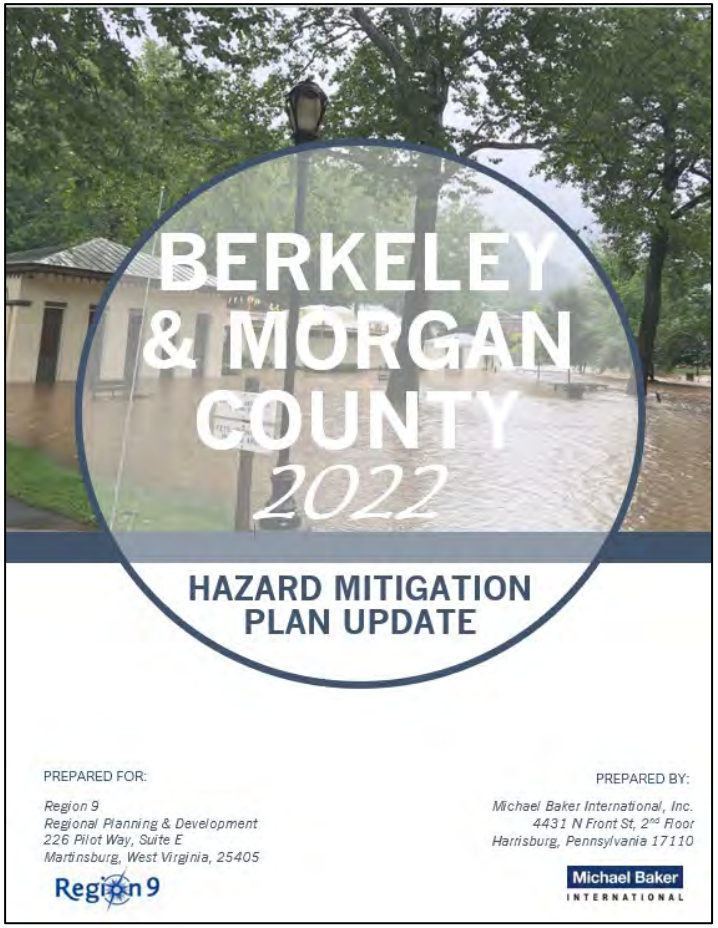
# What is a Hazard Mitigation Plan?

- A Hazard Mitigation Plan (HMP) is **a community-driven, living document** that communities use to reduce their vulnerability to hazards.
- Counties **must have a plan to maintain access to certain mitigation grants**.

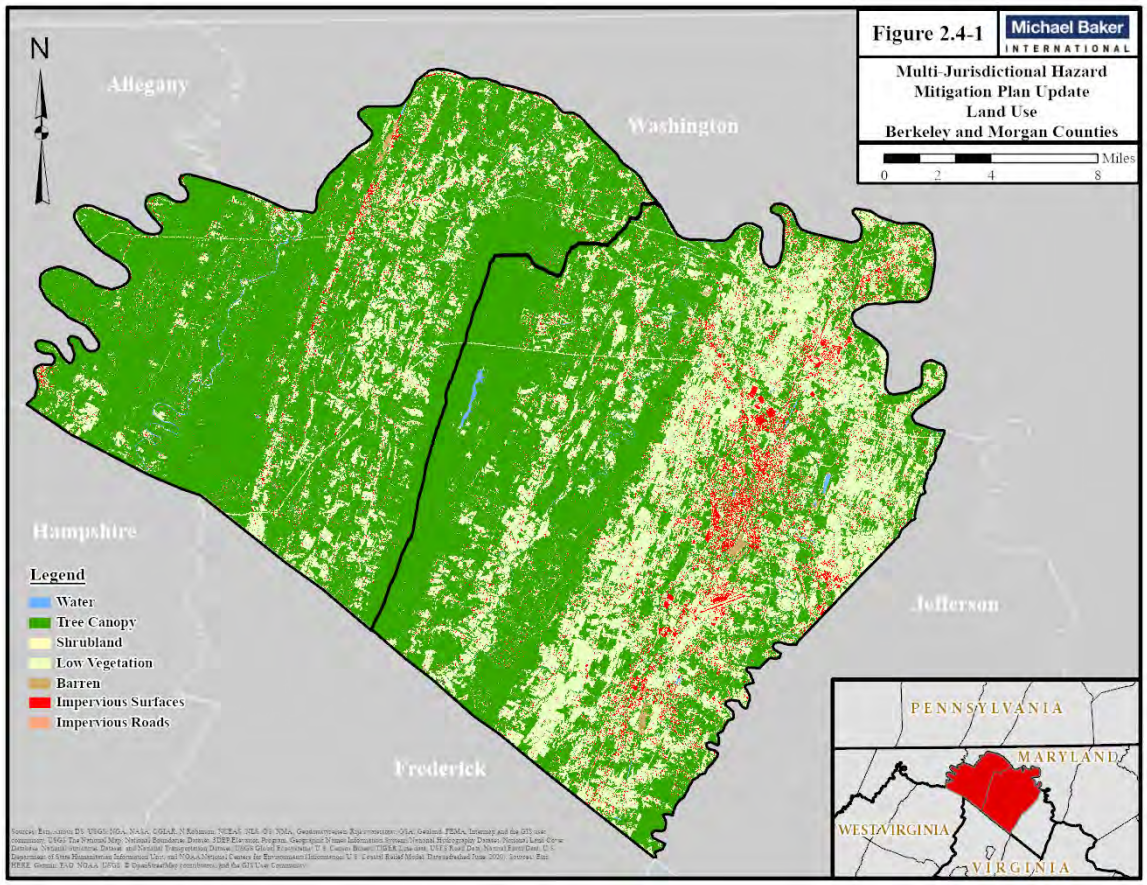







1. Introduction
2. Community Profile
3. Planning Process
4. Risk Assessment
5. Capability Assessment
6. Mitigation Strategy
7. Plan Maintenance
8. Adoption

- Community Profile:
  - Geography in the Eastern Panhandle and its environment
  - Community facts and key statistics
  - Population and demographic patterns and historical changes
  - Land use and development patterns




- Region 9:
  - Approximately 322 square miles
  - Two Hydraulic Unit Code (HUC)8 watersheds: Cacapon River Watershed, Potomac River District Drains Watershed
  - Approximately 137,015 people (2019 ACS)
  - Educational services, health care, and social assistance are the major employers

- Hazard Mitigation Planning Team
- Municipal Participation
  - If you have not completed a Community Capability Assessment, NFIP Worksheet, Action Review Worksheet, or New Mitigation Action Form, please do!

**County and Municipal Participation in 2022 HMP Planning Process**

| Participation Summary | | Berkeley County | | | Morgan County | | |
|---|---|---|---|---|---|---|---|
| | | Berkeley County | City of Martinsburg | Town of Hedgesville | Morgan County | Town of Bath | Town of Paw Paw |
| Worksheets | Identified Hazards and Risk | ✓ | ✓ | - | ✓ | - | ✓ |
| | Community Capability Assessment | ✓ | ✓ | - | ✓ | - | ✓ |
| | Checking in on the NFIP | ✓ | ✓ | N/A[2] | ✓ | - | - |
| | Mitigation Action Review | ✓ | - | ✓ | ✓ | ✓ | ✓ |
| | New Mitigation Action | ✓ | ✓ | - | ✓ | ✓ | - |

- Planning Team Assessment and Participation:
  - Kick-Off Meeting (May)
    - Hazard Risk Review
    - Capability Assessment
    - National Flood Insurance Program Survey
    - Risk Ranking Evaluation
  - Risk Assessment-Mitigation Solutions Workshop (June)
    - Mitigation Action Progress Report
    - New Mitigation Action Identification
- Risk and Vulnerability Analysis
  - Data Collection and Analysis
  - GIS Assessment
  - Hazus (Potential Loss Estimation)

# Risk Assessment Overview



## Natural Hazards

- Drought
- Earthquake
- Extreme Temperatures
- Flooding
- Hailstorm
- Hurricane, Tropical Storm, Nor'easter
- Invasive Species
- Landslide/Land Subsidence
- Pandemic and Infectious Disease
- Radon Exposure
- Tornado & Windstorm
- Wildfire
- Winter Storm

## Human-Made Hazards

- Civil Disturbance
- Cyber Terrorism
- Dam Failure
- Hazardous Materials Release
- Substance Use Disorder
- Source Water Contamination
- Terrorism
- Transportation Accidents
- Utility Interruption

*Blue denotes newly added hazard*

# Risk Assessment Overview: Hazard Profiles

- 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?

# Risk Assessment Overview: 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

***Risk Factor Value =***
***[(Probability x .30) + (Impact x .30) +***
***(Spatial Extent x .20) +***
***(Warning Time x .10) + (Duration x .10)]***

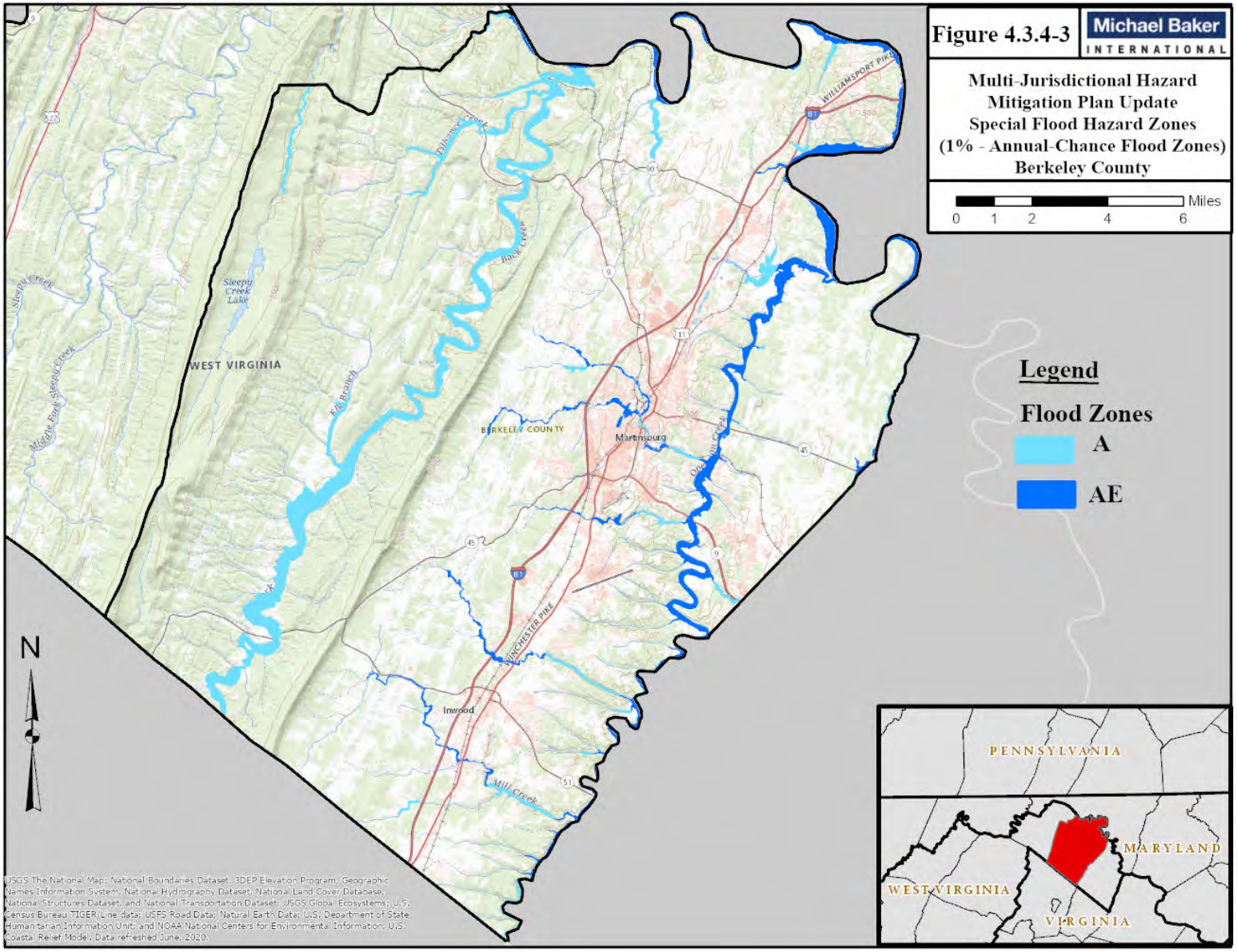
# Risk Assessment Overview: Berkeley County Ranking Results

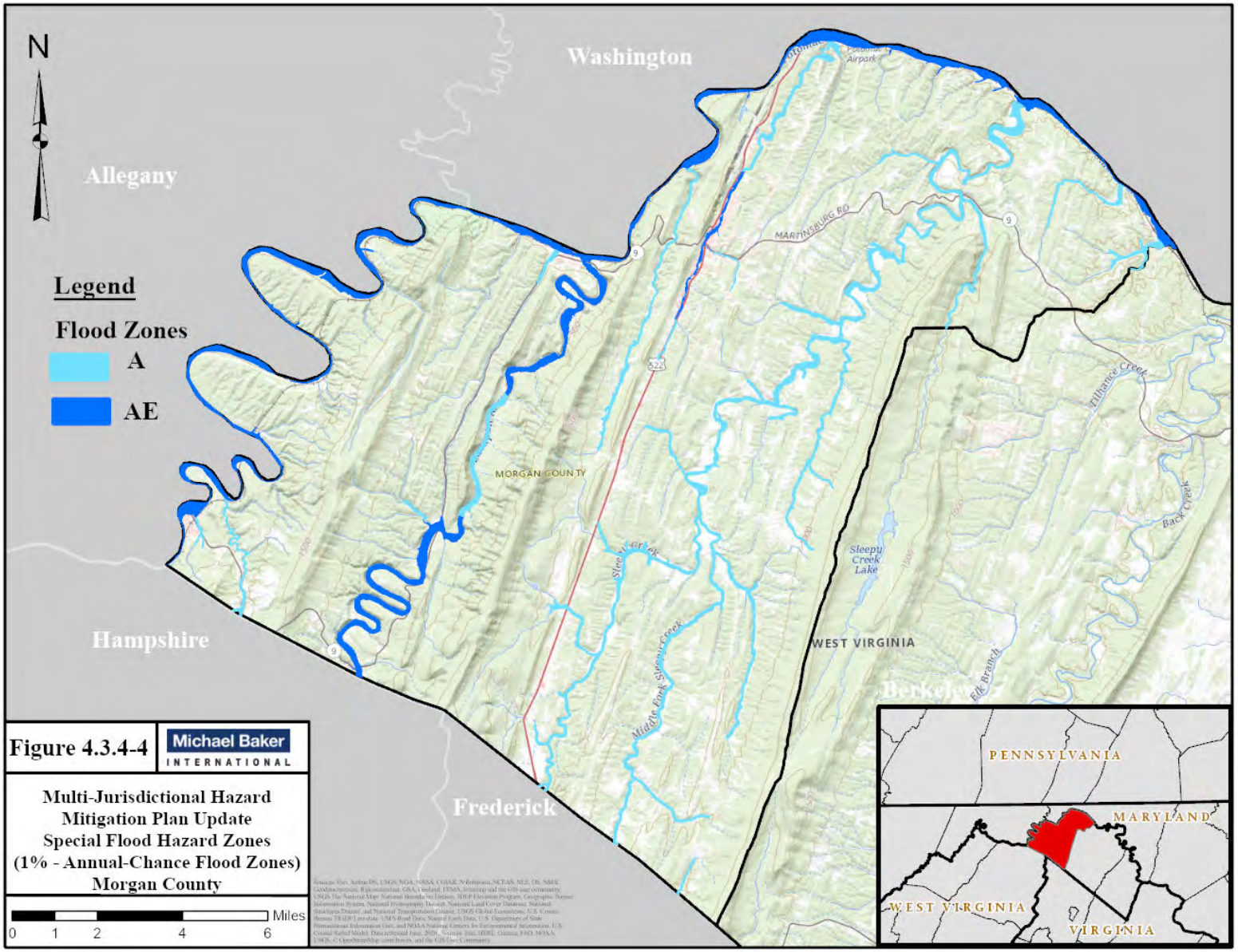
| Risk Class | Hazard | Risk Assessment Category (1 = least severe, 4 = most severe) | | | | | Calculated Risk Factor |
|---|---|---|---|---|---|---|---|
| | | Probability (1-4) | Severity (1-4) | Spatial Extent (1-4) | Warning Time (1-4) | Duration (1-4) | |
| High | Source Water Contamination | 3 | 4 | 4 | 4 | 4 | 3.7 |
| | Transportation Accidents | 4 | 4 | 3 | 4 | 2 | 3.6 |
| | Winter Storm | 4 | 4 | 4 | 1 | 2 | 3.5 |
| | Windstorm, Tornado | 4 | 4 | 4 | 2 | 1 | 3.5 |
| | Hazardous Materials | 4 | 2 | 4 | 4 | 4 | 3.4 |
| | Flooding | 4 | 3 | 3 | 2 | 2 | 3.1 |
| | Utility Interruption | 4 | 3 | 2 | 3 | 2 | 3.0 |
| | Pandemic and Infectious Disease | 3 | 3 | 3 | 2 | 4 | 3.0 |
| | Terrorism | 2 | 3 | 4 | 4 | 2 | 2.9 |
| | Hurricane, Tropical Storm, Nor'easter | 3 | 3 | 4 | 1 | 2 | 2.9 |
| | Substance Use Disorder | 3 | 3 | 2 | 2 | 3 | 2.7 |
| | Drought | 3 | 1 | 4 | 3 | 3 | 2.6 |
| | Cyber Terrorism | 3 | 3 | 2 | 3 | 1 | 2.6 |
| Mod. | Thunderstorm, Lightning Strike | 3 | 2 | 3 | 2 | 1 | 2.4 |
| | Radon Exposure | 2 | 3 | 2 | 3 | 1 | 2.3 |
| | Extreme Temperature | 2 | 2 | 3 | 3 | 1 | 2.2 |
| Low | Civil Disturbance | 2 | 2 | 1 | 3 | 2 | 1.9 |
| | Wildfire | 1 | 1 | 1 | 3 | 1 | 1.2 |
| | Hailstorm | 1 | 1 | 2 | 1 | 1 | 1.2 |
| | Invasive Species | 1 | 1 | 2 | 1 | 1 | 1.2 |
| | Earthquake | 1 | 1 | 1 | 1 | 1 | 1.0 |
| | Land Subsidence | 1 | 1 | 1 | 1 | 1 | 1.0 |
| | Dam Failure | 1 | 1 | 1 | 1 | 1 | 1.0 |

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# Risk Assessment Overview: Morgan County Ranking Results

| 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 | Substance Use Disorder | 4 | 3 | 3 | 2 | 3 | 3.2 |
| | Pandemic and Infectious Disease | 3 | 3 | 3 | 1 | 4 | 2.9 |
| | Utility Interruption | 3 | 2 | 3 | 4 | 2 | 2.7 |
| | Flooding | 3 | 2 | 3 | 3 | 2 | 2.6 |
| Moderate | Winter Storm | 4 | 2 | 2 | 1 | 1 | 2.4 |
| | Hazardous Materials | 3 | 2 | 2 | 3 | 2 | 2.4 |
| | Wind Storm, Tornado | 3 | 2 | 2 | 3 | 2 | 2.4 |
| | Cyber Terrorism | 2 | 2 | 2 | 3 | 4 | 2.3 |
| | Wildfire | 3 | 2 | 1 | 4 | 2 | 2.3 |
| | Transportation Accidents | 4 | 1 | 1 | 4 | 1 | 2.2 |
| | Hailstorm | 2 | 2 | 2 | 4 | 2 | 2.2 |
| | Hurricane, Tropical Storm, Nor'easter | 2 | 2 | 3 | 1 | 3 | 2.2 |
| | Source Water Contamination | 2 | 2 | 2 | 2 | 3 | 2.1 |
| | Dam Failure | 2 | 2 | 2 | 3 | 2 | 2.1 |
| Low | Drought | 1 | 1 | 4 | 1 | 4 | 1.9 |
| | Invasive Species | 2 | 1 | 2 | 2 | 2 | 1.7 |
| | Civil Disturbance | 2 | 2 | 1 | 1 | 1 | 1.6 |
| | Terrorism | 1 | 1 | 1 | 4 | 2 | 1.4 |
| | Extreme Temperature | 1 | 2 | 1 | 1 | 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 |


Figure 4.3.4-3
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Multi-Jurisdictional Hazard Mitigation Plan Update
Special Flood Hazard Zones
(1% - Annual-Chance Flood Zones)
Berkeley County
Miles
0 1 2 4 6
Legend
Flood Zones
A
AE
WEST VIRGINIA
BERKELEY COUNTY
Martinsburg
Inwood
Sleepy Creek Lake
Back Creek
Tuscarora Creek
Opequon Creek
Mill Creek
WINCHESTER PIKE
WILLIAMSPORT PIKE
N
PENNSYLVANIA
MARYLAND
WEST VIRGINIA
VIRGINIA
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed June, 2020.


N
Washington
Allegany
Legend
Flood Zones
A
AE
MORGAN COUNTY
Hampshire
Frederick
WEST VIRGINIA
Sleepy Creek Lake
Tuthance Creek
Back Creek
Elk Branch
Middle Fork Sleepy Creek
Sleepy Creek
MARTINSBURG RD
PENNSYLVANIA
MARYLAND
WEST VIRGINIA
VIRGINIA
Figure 4.3.4-4
Michael Baker INTERNATIONAL
Multi-Jurisdictional Hazard Mitigation Plan Update
Special Flood Hazard Zones
(1% - Annual-Chance Flood Zones)
Morgan County
Miles
0 1 2 4 6

# Risk Assessment Overview: Flood

- The various tributary streams and creeks generally flow towards the northern region of Berkeley and Morgan Counties, towards the Potomac River.
  - Large tributaries in the Region include Opequon Creek, Back Creek, Sleepy Creek, and Cacapon River
- In the winter and early spring, major flooding has occurred as a result of heavy rainfall on dense snowpack throughout contributing watersheds.
- Summer floods have occurred from intense rainfall on previously saturated soils.
- Every two to three years, serious flooding occurs along one or more of the area's major rivers or streams and it is not unusual for such events to happen several years in succession

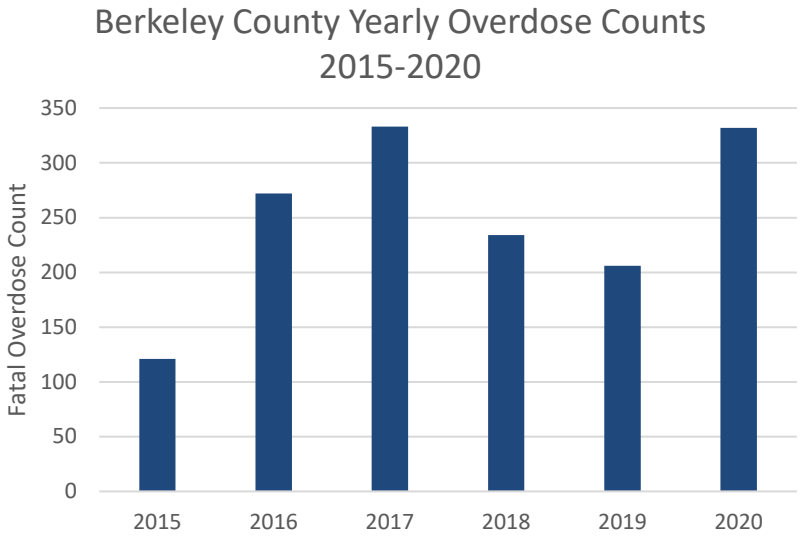
# Risk Assessment Overview: Flood

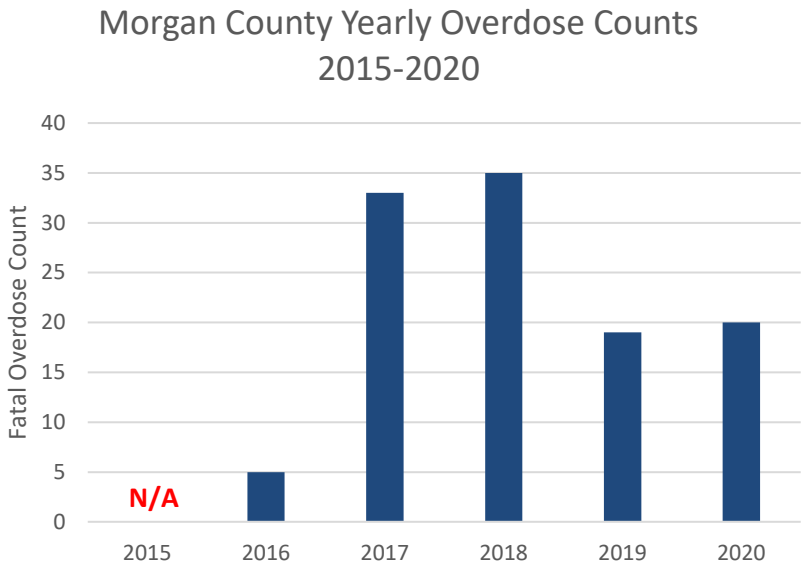
- 168 flooding events reported since 1993
- 640 claims for flood damage have been made since 1978, exceeding $9.5 million in NFIP payments
- 1,836 (2.57%) of Berkeley County Structures in SFHA
- 547 (4.77%) of Morgan County structures in SFHA



# Hazard Review: Substance Use Disorder – New Hazard

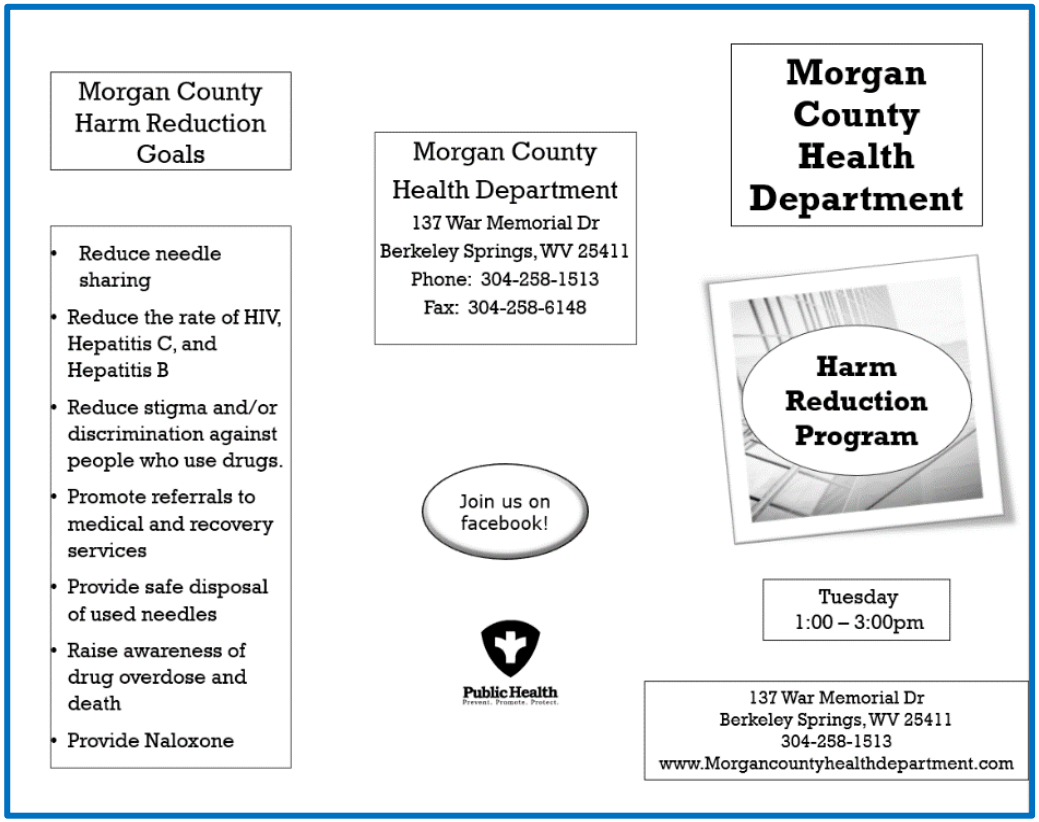
- Substance Use Disorder (SUD) is a complex condition in which there is uncontrolled use of a substance despite harmful consequences.



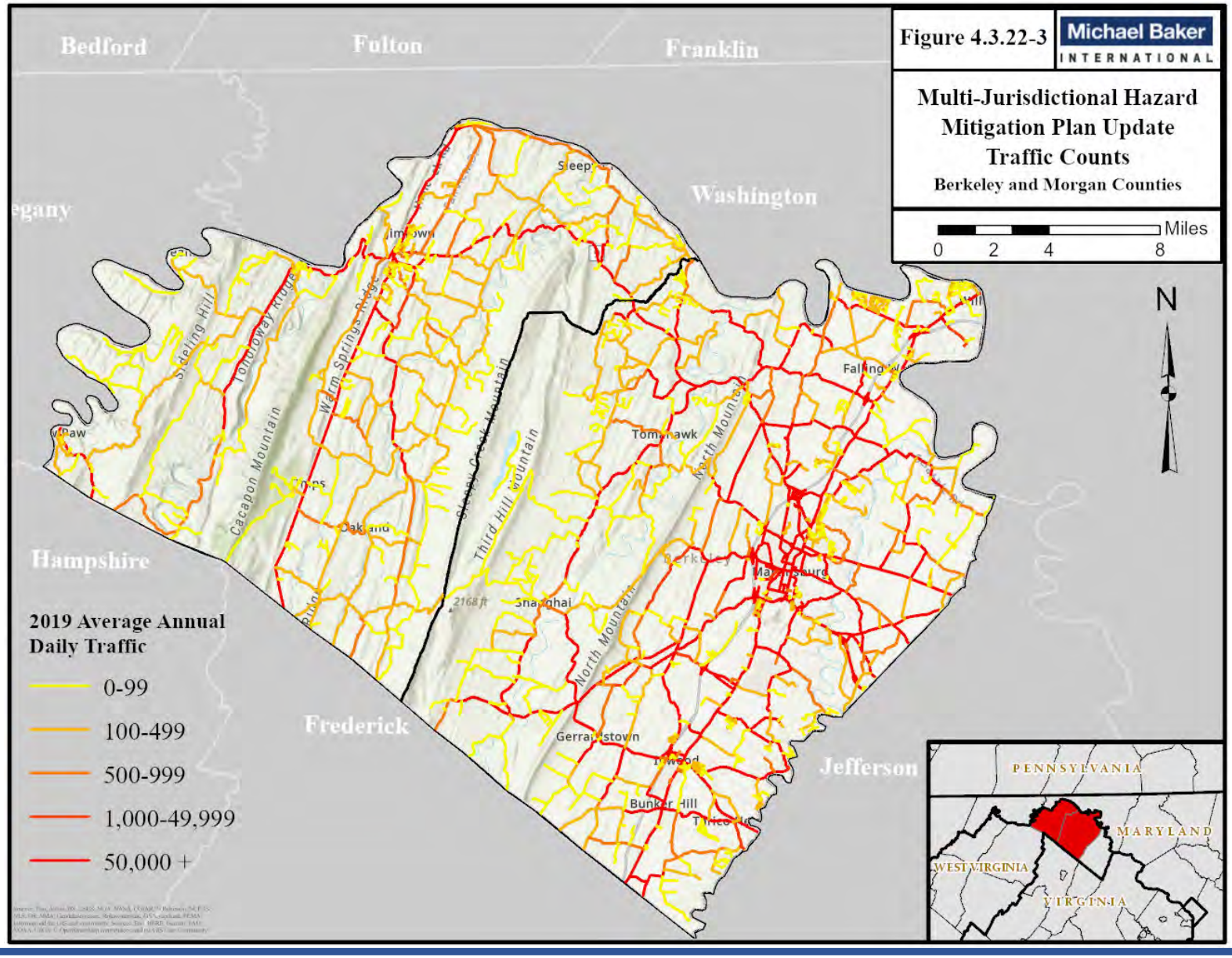




- Drugs most abused throughout the Region include opioids, fentanyl, heroin, cocaine, and methamphetamines.

- Jurisdictional losses from the SUD crisis stem from lost wages, productivity, and resources rather than losses to buildings or land.
- The American Enterprise Institute (AEI), using national data from the CDC and White House Council of Economic Advisors, calculated a total cost per capita ($4,739), of the opioid epidemic for West Virginia, the highest in the Country.
- Programs and organizations within the Region focused on SUD include Berkeley County Day Report Center, Morgan County Harm Reduction Steering Committee, Life or Drugs, Tri-State Support, and Team Hope.



# Hazard Review: Transportation Accidents



# Risk Assessment Overview: Transportation Accidents

- The Region's most serious road transportation concerns involve U.S. 522, I-81, and WV 9.
  - I-81 continues to be an issue for Berkeley County - highest accident rate of the Region.
  - WV Route 9 is of concern for both Counties. Often backed up during peak traffic times and sees a fair number of accidents. Area is predicted to see increased development as well.
- Possibility for freight transportation accidents
  - WV State Freight Plan estimates domestic freight flow increase of 23M tons by 2045.
- Mitigation Action completed from 2017: Construct new U.S. 522 bypass.



# Survey Results

- Survey garnered nearly 900 responses!
- Top rated hazard concerns: cyber terrorism, substance use disorder, pandemic, thunderstorms, transportation accidents, and utility interruption.
- Lowest rated hazard concerns: earthquakes, landslides, and Dam/Levee Failure
- Most of the participants feel the community's ability to handle a hazard event is "average" to "good".



- Community members are most concerned with:
  - Not having electrical power for an extended period
  - Not having access to clean water during a hazard event,
  - Not having police or fire protection, and
  - Not being able to get warning messages or other information regarding the hazard.
- Residents prefer to be notified about hazard events via cellphone, email, or social media.
  - These are also the suggested best methods for receiving information about preventative measures relating to hazard mitigation.



- Suggested Actions:
  - Implement more paid fire service positions
  - Provide broadband for everyone
  - Ensure preparedness and comprehensive planning for hazard events, particularly health hazards such as the COVID-19 pandemic
  - Provide clear and timely communication about the location of existing hazards and early warning systems
  - Improve and monitor major transportation corridors such as I-81 and Route 9
  - Construct shelters



- West Virginia GIS Technical Center provided a HAZUS analysis for the 2022 Plan Update.
- They will provide a brief (15 minute) presentation on the HAZUS results and how to view/interpret them.
- More on the suggested Mitigation Actions from the HAZUS analysis later.

# Capability Assessment Overview



# Capability Assessment Overview: Planning & Regulatory Capabilities

- Berkeley County Comprehensive Plan (2016), Morgan County Comprehensive Plan (2017), Martinsburg Comprehensive Plan (2018)
- Zoning Ordinances and Subdivision Regulations – Berkeley County and City of Martinsburg have both, Morgan County has a subdivision ordinance
- Berkeley County EOP and Morgan County EOP
- HEPMPO Long Range Transportation Plan 2045 – Berkeley County

- **NFIP**: 5 out of 6 jurisdictions participate.
- **Community Rating System (CRS):** 10 CRS classes that provide varied reduction in insurance premiums for property owners in both the SFHA and non-SFHA. Floodplain management programs go beyond the NFIP requirements
- The City of Martinsburg participates in the CRS

NATIONAL FLOOD INSURANCE PROGRAM

# Capability Assessment Overview: Administrative & Technical Capabilities

- Berkeley County Development Authority and Morgan County Development Authority
- Some County or City Engineers, while other jurisdictions contract engineering resources from consulting firms.
  - Address hazardous impacts through adopted building code/ordinance, storm water ordinance, and MS4 compliance, etc.
- Administrative and technical capability varies between the municipalities due mainly to population size and resources.

# Capability Assessment Overview: Plan Integration

- A **two-way exchange of information** between a hazard mitigation plan and other community plans
  - Incorporation of risk reduction concepts in community plans
  - Consistent information and goals between all plans
- An **understanding** between agencies and organizations with a stake in the built environment of their role in hazard mitigation



# Mitigation Strategy Overview: Components

- Progress Report on 2022 Mitigation Strategy
- Goals and Objectives
- Mitigation Techniques
- Mitigation Action Plan and Projects






# Mitigation Strategy Overview: 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



# Mitigation Strategy Overview: Region 9

| GOALS |
| --- |
| **Goal 1:** Support communities in lessening flood risk by encouraging them to maintain compliance with the National Flood Insurance Program (NFIP) and undertaking buyout projects when funding is available; Perform annual checks regarding NFIP compliance.<br>. |
| **Goal 2:** Support counties in performing annual HMP strategies review. |

# Mitigation Strategy Overview: Berkeley and Morgan County

## GOALS – Berkeley County

**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.

## GOALS – Morgan County

**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.

# Mitigation Strategy Overview: 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 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 Strategy Overview: 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 attainable

| Mitigation Technique | Example of BC or MC Action |
|---|---|
| Structure and Infrastructure Projects | Work towards a complete network that allows convenient pedestrian and/or bicycle travel to all areas of the City by increased road and sidewalk maintenance and increased access to Downtown and West End redevelopment zones. |
| Education and Awareness Programs | Educate water system operators and workers about the importance of safe available water and SWPPs, update the SWPP as necessary. |
| Local Plans and Regulations | Review all comprehensive plans to ensure that designated growth areas are not in hazard areas. |
| Natural Systems Protection | Assess areas vulnerable to wildfires and publicize outdoor burning regulations and wildfire risks using pamphlets, news articles, and the Firewise Program. |

# Suggested New Mitigation Actions for all jurisdictions based on HAZUS Analysis:

| Action Number | Action | Jurisdiction | Category | Hazard(s) Addressed | Lead Agency/ Department | Implementation Schedule | Funding Source | Priority |
|---|---|---|---|---|---|---|---|---|
| **All Jurisdictions** | | | | | | | | |
| 1 | Conduct a comprehensive review and evaluation of the Flood Hazus analysis information and communicate any deficiencies/inaccuracies to the West Virginia GIS Technical Center. This includes obtaining and providing flood elevation certificates to the Technical Center for incorporation into the WV Flood Tool. | All | Structure and Infrastructure | Flooding | Local Floodplain Coordinators, WV GIS Tech. Center | Year 1 | | High |
| 2 | Conduct a thorough review of all community assets in order to assess status, vulnerabilities, and prioritization of mitigation funding. This includes compiling a list or database to be referenced in future updates to the Plan. | All | Structure and Infrastructure | Flooding | Local Floodplain Coordinators | Years 2 – 5 | | High |

- Region 9: 3 Actions
- Berkeley County: 21 Actions
- City of Martinsburg: 28 Actions (Up from 1 in 2017!)
- Town of Hedgesville: 4 Actions
- Morgan County: 47 Actions
- Town of Bath: 9 Actions
- Town of Paw Paw: 6 Actions

# 2022 Berkeley County Mitigation Actions Summary

## Mitigation Techniques Used for All Hazards in Berkeley County

| Hazard *(In Order of Risk Factor Ranking)* | Mitigation Technique | | | |
|---|---|---|---|---|
| | Plans and Regulations | Structure and Infrastructure | Natural Systems Protection | Education and Awareness |
| Source Water Contamination | X | X | X | X |
| Transportation Accidents | X | X | | |
| Winter Storm | | X | | |
| Windstorm, Tornado | X | X | | |
| Hazardous Materials | X | | | |
| Flooding | X | X | X | |
| Utility Interruption | | X | | |
| Pandemic and Infectious Disease | | X | | X |
| Terrorism | | X | | X |
| Hurricane, Tropical Storm, Nor'easter | X | X | | |
| Substance Use Disorder | X | | | X |
| Drought | X | X | | X |
| Cyber Terrorism | | X | | |
| Thunderstorm, Lightning Strike | | X | | |
| Radon Exposure | | | | X |
| Extreme Temperature | | X | X | |
| Civil Disturbance | X | | | X |
| Wildfire | X | | | |
| Hailstorm | | | | |
| Invasive Species | | | | X |
| Earthquake | X | X | | X |
| Land Subsidence | X | X | X | |
| Dam Failure | | | | X |

# 2022 Morgan County Mitigation Actions Summary

| Mitigation Techniques Used for All Hazards in Morgan County | | | | |
|---|---|---|---|---|
| Hazard *(In Order of Risk Factor Ranking)* | Mitigation Technique | | | |
| | Plans and Regulations | Structure and Infrastructure | Natural Systems Protection | Education and Awareness |
| Substance Use Disorder | X | | | X |
| Pandemic and Infectious Disease | X | | | X |
| Utility Interruption | X | X | | X |
| Flooding | X | X | | X |
| Winter Storm | X | | | X |
| Hazardous Materials | X | | | X |
| Wind Storm, Tornado | X | | | X |
| Cyber Terrorism | X | | | |
| Wildfire | X | | X | X |
| Transportation Accidents | X | X | | |
| Hailstorm | X | X | | X |
| Hurricane, Tropical Storm, Nor'easter | X | | | X |
| Source Water Contamination | X | | X | X |
| Dam Failure | X | X | | X |
| Drought | X | | X | X |
| Invasive Species | X | | X | X |
| Civil Disturbance | X | | | |
| Terrorism | X | | | X |
| Extreme Temperature | X | | | X |
| Thunderstorm, Lightning Strike | X | | | X |
| Earthquake | X | | | X |
| Land Subsidence | X | X | | |
| Radon Exposure | X | | | X |

# Next Steps and Action Items



# Submit Information.

## There's still time!

- Capability Assessment
- NFIP Worksheet
- Action Review
- New Actions



New Mitigation Action Form

| | |
|---|---|
| Municipality/Organization: | |
| Name and Title: | |

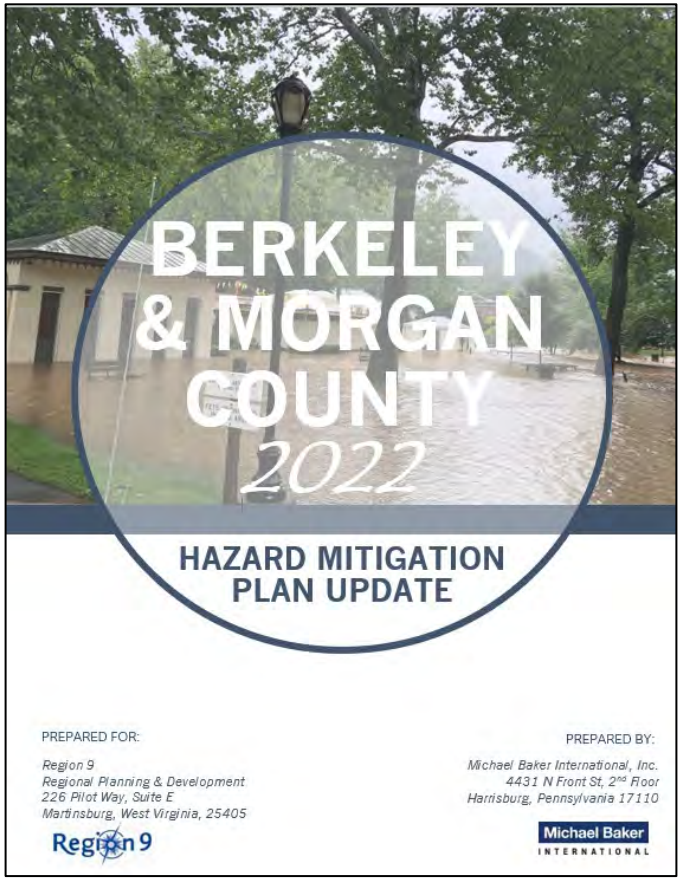
Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from hazards. This resource is located in the resource section of the project website: www.pennsylvaniahmp.com/luzerne-county-hmp

| | |
|---|---|
| Action Title | |
| Assessing the Risk | |
| | |
| | |
| | |
| | |
| Cost estimate | |
| Priority | |



https://region9wv.com/hazard-mitigation

# Review the Draft MJHMP




**August 24, 2021– September 24, 2021**

- Review the Draft MJHMP
  - Focus areas:
    - Capability Assessment
    - Goals, Objectives, Actions
- Submit Comments
- Disseminate information to residents

https://region9wv.com/hazard-mitigation

| Task | Dates |
|---|---|
| Kick-Off Meeting | May 4 |
| Risk Assessment and Vulnerability Analysis | April – June |
| Risk Assessment and Mitigation Solutions Workshop | June 15 |
| Mitigation Strategy Development | June – September |
| Plan Review Public Meeting | August 24 |
| Deliver to WVEM/FEMA for Review | October/November |
| Distribute to Municipalities for Adoption | February 2022 |

Rachel Snavely

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Project Manager, Michael Baker International

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# Draft Plan Review Public Meeting

In-Person: Blue Ridge Community and Technical College, Morgan County, WV

Virtual: Zoom

August 24, 2021

9:00am – 11:00am

## Agenda

1. Welcome and Introductions
2. Hazard Mitigation Plan & Project Overview
3. Planning Process
4. Risk Assessment Overview
5. Capability Assessment Overview
6. Mitigation Strategy Overview
7. Next Steps and Action Items

## Attendees:

See the attached Sign In Sheets for the meeting attendees.

## Welcome and Introductions

Troy Truax, a hazard mitigation planning consultant with Michael Baker International, welcomed all members of the Morgan County Multi-Jurisdictional Hazard Mitigation Planning Team (HMPT) and other public participants. This meeting, which was publicly advertised, was held in-person at the Blue Ridge Community and Technical College in Morgan County, WV, as well as virtually through Zoom due to the current COVID-19 Pandemic. Morgan County and Michael Baker International recognize that high-risk groups or those uncomfortable with in-person meetings may prefer virtual engagement.

Troy asked participants to introduce themselves as attendance was taken and requested that everyone indicate which community or organization they represented.

## Hazard Mitigation Plan and Project Overview

Troy discussed the Disaster Mitigation Act of 2000, which requires state, local, or tribal governments to develop and submit a hazard mitigation plan every 5 years. Troy emphasized that a goal of the hazard mitigation process is to make sure that every municipality participates. Up until today's Draft Plan Review Meeting, participation has been high, however the region would like to achieve additional participation in the form of capability assessments and new mitigation action worksheets.

Troy defined hazard mitigation and described the purpose of the MJHMP Update, including:

- Identifying projects that will reduce risk, both day to day and in a disaster situation
- Identifying potential funding sources for mitigation projects

- Maintaining eligibility for certain mitigation funding through the Federal Emergency Management Agency (FEMA)

Troy mentioned that the plan may still be updated or edited moving forward if new events or projects arise. Troy stressed that this update was led by Region 9 but is multi-jurisdictional in nature. In order to achieve full participation, each municipality is asked to attend at least one meeting, complete at least one worksheet, and provide at least one mitigation action for the 2022 MJHMP. Without active participation, a municipality may be limited in adoption of the plan and therefore may be limited in obtaining certain hazard mitigation assistance funding available over the next five years.

Troy explained that the Pennsylvania Hazard Mitigation Standard Operating Guide (SOG) was consulted in the formatting of the plan. The PA SOG was used because a similar resource does not exist in West Virginia, and permission was granted for its use. Troy went over the different MJHMP components which include:

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

## Planning Process

Troy discussed the components of the Community Profile which includes county information such as demographics and current land use, with information that was sourced from County Mapping Departments and the WV GIS Technical Center. Troy noted that Morgan County made huge strides since the last HMP update in advancing their Geospatial Information Systems (GIS) data.

The HMPT has been actively working with Michael Baker International to develop this Plan. Troy stated that 2 of 6 municipalities have not submitted a new project for the Plan, however, each municipality has participated in at least one meeting during the hazard mitigation planning process. Troy emphasized the importance of submitting a Capability Assessment Worksheet and a New Mitigation Action Form for the Plan.

Troy discussed the different forms and surveys that have been completed by county and municipal officials, as well as all prior meetings that were held for the 2022 MJHMP. These meetings consisted of the May 4th Kick-Off Meeting and the June 15th Risk Assessment and Mitigation Solutions Workshops. Troy also discussed the use of risk and vulnerability analyses in the Plan utilizing GIS and Hazus.

## Risk Assessment Overview

Troy reviewed the hazards that were profiled in the 2022 Draft MJHMP. Civil Disobedience, Cyber Terrorism, and Substance Use Disorder were added during the 2022 Update.

### High Ranked Hazards

- Substance Use Disorder
- Pandemic and Infectious Disease
- Utility Interruption
- Flooding

### Moderate Ranked Hazards

- Winter Storm
- Hazardous Materials
- Windstorm, Tornado
- Cyber Terrorism
- Wildfire
- Transportation Accidents
- Hailstorm
- Hurricane, Tropical Storm, Nor'easter
- Source Water Contamination
- Dam Failure

### Low Ranked Hazards

- Drought
- Invasive Species
- Civil Disturbance
- Terrorism
- Extreme Temperatures
- Thunderstorm, Lightning Strike
- Earthquake
- Landslide/Land Subsidence
- Radon Exposure

Troy discussed the different components of the hazard profiles which include *Location and Extent*, *Range of Magnitude*, *Past Occurrence*, *Future Occurrence*, and *Vulnerability Assessment*.

Not every hazard profiled in the Plan can be ranked as a high priority, therefore, the Risk Ranking Methodology is used as a prioritization tool. Troy discussed the risk analysis process to determine how impactful or prevalent a hazard may be within a community. Risk analysis utilizes a Risk Factor Value, which is calculated by quantitatively inputting subjective feedback from municipal representatives and additional stakeholders, as well as considering past occurrence data for each profiled hazard. The Risk Factor Value considers probability of occurrence, impact, spatial extent, warning time, and duration for each hazard.

Troy briefly reviewed the Flooding hazard profile by discussing the risks and resources that should be addressed for flooding within the region. Historical data for flooding was discussed, which included 640 claims for flood damage since 1978 within the region, with damage exceeding $9.5 million in NFIP payments. Morgan County has a higher percentage of structures in the Special Flood Hazard Area than Berkeley County.

Troy also briefly reviewed the hazard profiles for Transportation Accidents and Substance Use Disorder (SUD), showing GIS maps and graphs to meeting attendees. Stephanie Allemong noted that the Morgan

County Day Report Center should be included in the SUD hazard profile. Troy noted the construction of the US 522 Bypass is a completed action from the 2017 Plan Update, and one participant stated they were surprised that the average daily traffic on WV Route 9 was 50,000+. Participants also confirmed the new bypass will have a connector with Route 9.

Troy then reviewed the public survey, which received almost 900 responses. The participants' top rated hazard concerns were: cyber terrorism, substance use disorder, pandemic, thunderstorms, transportation accidents, and utility interruption. Many also suggested actions such as: implementing paid fire positions, more timely communication of hazards, and improvement and monitoring of accident-prone corridors such as I-81. Troy recommended the meeting participants consider these suggested actions for incorporation of new mitigation actions in the plan.

Dick Myers discussed the use of ham radios during power outages, and Troy suggested the use of solar or battery powered radios. Dick Myers also commented that warming and cooling shelters are already in place. Troy confirmed he will send the county a copy of a volunteer services study for Berkeley County that analyzed potential opportunities to pay certain staff, regarding the suggested action of implementing more paid fire service. Troy and the meeting participants also discussed ways to improve transportation monitoring and accident response, citing the PA Turnpike's Traffic Incident Management programs and Strategic Highway Research Program 2 (SHRP-2) training.

## Hazus Presentation and Overview

Kurt Donaldson and Maneesh Sharma from the WV GIS Technical Center provided an overview of the WV Flood Tool and Flood Hazus analysis and results in Morgan County. Kurt confirmed that flood studies are ongoing and will be effective in 2-3 years. FEMA will be hosting Discovery Meetings soon. He also mentioned that the Potomac River Watershed may not be updated as quickly, as it is very large and crosses multiple states. Kurt also discussed the Jennings Randolph Dam and recommended that Paw Paw have a mitigation action in place.

Kurt noted that the Hazus provides essential and critical facilities, as well as historic resources. Dam and landslide Hazus are still being updated. Kurt also noted that property owners can apply to be removed from the flood zone, to avoid paying for insurance or to get a preferred rate. He then mentioned that when the flood maps are updated by FEMA, the municipalities must update their floodplain ordinances. He suggested that the communities consider placing emphasis on protection of recreational vehicles and mobile homes in future updates.

A participant asked if FEMA checks with the community if a structure was built per local requirements, before they pay out flood loss claims, which Maneesh responded that it could be cross-checked at the local level.

At the conclusion of the call, Matt McCullough, FEMA, suggested that the communities take a deeper dive into their community assets, to prioritize funding and resources to protect those most valuable and vulnerable. Troy responded that this will be a recommended action, to be completed before the next Plan Update.

## Capability Assessment Overview

Troy discussed the various planning and regulatory capabilities of the county. This section of the Plan also serves to determine some of the shortcomings within communities. Planning and regulatory capabilities within the County include a regional comprehensive plan, and several municipalities that have their own zoning and subdivision ordinances.

Troy also discussed Administrative and Technical Capabilities of the county which include County Development Authority, county/city or contracted engineers, etc. Troy noted that administrative and technical capability varies between the municipalities due mainly to population size and resources.

Lastly, Troy discussed the importance of plan integration, a two-way exchange of information between the hazard mitigation plan and other community plans. This allows for consistency between the goals and objectives within different plans, as well as building relationships for various communities that are working together.

## Mitigation Strategy Overview

Troy discussed the Mitigation Action Progress Report Form, which determines if existing actions are still applicable and if they need to be included in the 2022 Update. Municipalities were asked to note if an action has been completed, cancelled, deferred, or is still ongoing. This keeps track of what is going on within the county and municipalities moving forward and maintaining status during the plan period.

Troy explained goals, objectives, and actions and introduced the Mitigation Action Plan, which is a crucial step within the update process. The Mitigation Action Plan identifies specific activities a community will take to reduce or eliminate risk from the identified hazard. Troy mentioned two new suggested mitigations for all municipalities, based on the Hazus discussion. These actions involve (1) conducting a comprehensive review and evaluation of the Flood Hazus analysis information and communicating any deficiencies/inaccuracies to the West Virginia GIS Technical Center, and (2) conducting a thorough review of all community assets in order to assess status, vulnerabilities, and prioritization of mitigation funding. These actions are meant to satisfy Matt McCullough's recommendation stated above. Troy also reviewed the 12 goals in the 2022 Draft MJHMP.

Troy discussed the four types of mitigation techniques (Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, and Education and Awareness Programs) and described how to develop new actions. He also showed which mitigation techniques were used for each hazard.

There is still time for the remaining municipalities to submit information. Troy strongly encouraged municipalities to submit information by September 7th, however the review period will be open until September 24th. Troy explained to the participants that the project website will have the uploaded Draft Plan and asked them to review the Plan and provide comments. The comment period will end on August 24th, 2021.

## Next Steps and Action Items

Troy reviewed the current project timeline, which is shown below. Past events are designated in grey:

| Task | Dates |
|---|---|
| Kick-Off Meeting | May 4, 2021 |
| Risk Assessment and Vulnerability Analysis | May – June |
| Risk Assessment and Mitigation Solutions Workshops | June 15, 2021 |

| Task | Dates |
|---|---|
| Mitigation Strategy Development | May - July |
| Draft Plan Review Public Meeting | August 24, 2021 |
| Public Comment Period | August 24 – September 24 |
| Deliver to WVEM for Review | October 2021 |
| Deliver to FEMA for Review | November 2021 |
| Distribute to Municipalities for Adoption | January - February 2022 |

Troy reiterated to attendees to visit the project website to review the 2022 Draft MJHMP, view meeting materials, helpful resources, and obtain copies of forms if needed. The project website can be found at: https://region9wv.com/hazard-mitigation

Troy noted that the county and municipalities will need to adopt the MJHMP as soon as FEMA issues Approval Pending Adoption (APA) to each municipality. A copy of each municipality's executed plan adoption resolution must be provided to WVEM and FEMA.

The hazard mitigation consultant will draft a meeting summary and will post all meeting materials to the project website. The hazard mitigation consultant will also follow up with each meeting participant with action items following the end of this meeting, as well as municipal contacts who were unable to attend this meeting.

Troy will be available to answer any questions or to provide assistance to municipalities as they continue to develop new mitigation actions. He is available by email at troy.truax@mbakerintl.com and by phone at (717) 213-6241.

Troy reiterated that all new mitigation action forms be emailed to Kelly Asselin at kelly.asselin@mbakerintl.com.

**The meeting concluded at 10:55 am.**

## Appendix C-8 Berkeley County Hazard and Risk Identification Worksheets

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| Community/Organization: | Morgan County |
| Name and Title: | Stefanie Allemong-County Administrator |

This worksheet summarizes **Morgan Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY (1 — 4) | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| 2 Flooding (N) | 3 | 2 | 3 | 3 | 2 | 2.6 | NC | 2018 Flood (Flash) - |
| Utility Interruption (H) | 3 | 2 | 2 | 3 | 2 | 2.4 | NC | |
| 1 * Epidemic/Pandemic (N) | 2 | 3 | 2 | 1 | 4 | 2.4 | I | COVID 19 +4 |
| Winter Storm (N) | 3 | 2 | 2 | 2 | 2 | 2.3 | NC | |
| Hazardous Materials Incident (H) | 2 | 2 | 2 | 4 | 3 | 2.3 | NC | |
| Windstorm, Tornado (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | NC | |
| Hailstorm (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | NC | |
| Transportation Accidents (H) | 4 | 1 | 1 | 4 | 1 | 2.2 | I | By-pass +1 |
| Hurricane, Tropical Storm, Nor'easter (N) | 2 | 2 | 3 | 1 | 3 | 2.2 | NC | |
| Source Water Contamination (H) | 2 | 2 | 2 | 2 | 2 | 2.0 | NC | Oil spills -2 Zimmerman Berkeley Club |
| Wildfire (N) | 2 | 2 | 1 | 4 | 2 | 2.0 | NC | |
| Drought (N) | 1 | 1 | 4 | 1 | 4 | 1.9 | NC | |
| Dam and Levee Failure (H) | 1 | 2 | 2 | 4 | 2 | 1.9 I | Possible | - Bypass +1 |

Bypass / Flooding / Dam Concerns / Transportation - May Increase - Scheduled for Completion 2022

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | |
| **Name and Title:** | |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | **NC**=No Change **I**=Increase **D**=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | | |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | | |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | | |
| Flooding (N) | 4 | 2 | 1 | 1 | 1 | 2.2 | | |
| Epidemic/Pandemic (N) | 1 | 2 | 2 | 3 | 3 | 1.9 | | |

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 1 | 1 | 3 | 3 | 3 | 1.8 | | |
| Utility Interruption (H) | 1 | 2 | 1 | 3 | 1 | 1.5 | | |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Infestation/Invasive Species (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Civil Disturbance (H)* | | | | | | | | |
| Cyber Terrorism (H)* | | | | | | | | |
| Opioid Addiction& Response (H)* | | | | | | | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | **1** | **30%** |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | **2** | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | **3** | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | **4** | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | **1** | **30%** |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | **2** | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | **3** | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | **4** | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | **1** | **20%** |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | **2** | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | **3** | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | **4** | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | **1** | **10%** |
| | **12 TO 24 HRS** | SELF-DEFINED | | **2** | |
| | **6 TO 12 HRS** | SELF-DEFINED | | **3** | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | **4** | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | **1** | **10%** |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | **2** | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | **3** | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | **4** | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

☐ Expansive Soils

### *Human-made*

☐ Building and Structure Collapse

☐ Civil Disturbance

☐ Cyber Terrorism

☐ Disorientation

☐ Drowning

☐ Mass Food/Animal Feed Contamination

☐ Nuclear Incident

☐ Opioid Addiction & Response

☐ Urban Fire and Explosion

☐ War and Criminal Activity

☐ Envtl. Hazard – Coal Mining

☐ Envtl. Hazard – Gas and Liquid Pipelines

☐ Envtl. Hazard – Conventional Oil & Gas Wells

☐ Envtl. Hazard – Unconventional Oil & Gas Wells

**Other Comments:**

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| Community/Organization: | Martinsburg Fire Dept. |
| Name and Title: | J.D. Hummingbird, Fire Chief |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | NC | |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | NC | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | NC | |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | NC | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | NC | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | NC | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | NC | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | NC | |
| Flooding (N) | 4 | 2 | (1) | 1 | 1 | 2.2 | I | depends on length of wx event |
| Epidemic/Pandemic (N) | (1) | (2) | 2 | 3 | (3) | 1.9 | I | 2020! |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 1 | 1 | 3 | 3 | 3 | 1.8 | NC | |
| Utility Interruption (H) | 1 | 2 | 1 | 3 | 1 | 1.5 | NC | |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | NC | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | NC | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Infestation/Invasive Species (N) | (1) | 1 | (1) | 1 | (1) | 1.0 | I | cicada infestation expected 2021 |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Civil Disturbance (H)* | 2 | 1 | 2 | 2 | 2 | | | |
| Cyber Terrorism (H)* | 2 | 2 | 3 | 4 | 3 | | | |
| Opioid Addiction& Response (H)* | 1 | 1 | 1 | 4 | 4 | | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | 30% |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | 30% |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | 20% |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

- ☐ Expansive Soils

### *Human-made*

- ☑ Building and Structure Collapse
- ☑ Civil Disturbance
- ☑ Cyber Terrorism
- ☐ Disorientation
- ☐ Drowning
- ☐ Mass Food/Animal Feed Contamination
- ☐ Nuclear Incident
- ☑ Opioid Addiction & Response
- ☑ Urban Fire and Explosion
- ☐ War and Criminal Activity
- ☐ Envtl. Hazard – Coal Mining
- ☐ Envtl. Hazard – Gas and Liquid Pipelines
- ☐ Envtl. Hazard – Conventional Oil & Gas Wells
- ☐ Envtl. Hazard – Unconventional Oil & Gas Wells

**Other Comments:**

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | Region 9 PDC |
| **Name and Title:** | Rachel Snavely, Director |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | NC | |
| Winter Storm (N) | ~~4~~ 3 | ~~4~~ 3 | ~~4~~ 3 | 1 | 3 | 3.6 | ↓ | risk/severity not as significant as previously identified |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | NC | |
| Windstorm, Tornado (N) | ~~4~~ 3 | ~~4~~ 3 | ~~4~~ 3 | 2 | 1 | 3.5 | ↓ | |
| Thunderstorm, Lightning Strike (N) | 4 | ~~4~~ 3 | 4 | 2 | 1 | 3.5 | | |
| Hazardous Materials Incident (H) | 4 | ~~3~~ 2 | 4 | 4 | 4 | 3.4 | ↑ | ↑ due to development/railways see comm flow studies |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | NC | |
| Hurricane, Tropical Storm, Nor'easter (N) | ~~2~~ 3 | 3 | 4 | 1 | 2 | 2.9 | ↓ | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | NC | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | NC | |
| Flooding (N) | 4 | ~~3~~ 2 | 1 | 1 | ~~2~~ 1 | 2.2 | ↑ | impact can be substantial ex. Mt. II flooding |
| Epidemic/Pandemic (N) | ~~3~~ 1 | ~~3~~ 2 | ~~4~~ 2 | ~~2~~ 3 | ~~4~~ 3 | 1.9 | ↑ | ongoing pandemic revealed significant gaps |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 1 | 1 | 3 | 3 | 3 | 1.8 | NC | |
| Utility Interruption (H) | 1 | 3/2 | 1 | 3 | 1 | 1.5 | ↑ | |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | NC | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | NC | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Infestation/Invasive Species (N) | 2 1 | 2 1 | 1 | 1 | 2 1 | 1.0 | ↑ | ↑ in invasive species ex: lanternfly |
| Dam and Levee Failure (H) | 1 | 2 1 | 1 | 3 1 | 1 | 1.0 | ↑ | high risk dam identified in VA |
| Civil Disturbance (H)* | 2 | 2 | 1 | 3 | 2 | | | |
| Cyber Terrorism (H)* | 2 | 2 | 3 | 4 | 4 | | | see note |
| Opioid Addiction& Response (H)* | 3 | 4 | 4 | 1 | 4 | ↑ | | ongoing community crisis |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

this is dependent on type of target of attack

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | 30% |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | 30% |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | 20% |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

***Natural***

- [x] Expansive Soils

***Human-made***

- [ ] Building and Structure Collapse
- [x] Civil Disturbance
- [x] Cyber Terrorism
- [ ] Disorientation
- [x] Drowning
- [ ] Mass Food/Animal Feed Contamination
- [ ] Nuclear Incident
- [x] Opioid Addiction & Response
- [ ] Urban Fire and Explosion
- [ ] War and Criminal Activity
- [ ] Envtl. Hazard – Coal Mining
- [x] Envtl. Hazard – Gas and Liquid Pipelines
- [ ] Envtl. Hazard – Conventional Oil & Gas Wells
- [ ] Envtl. Hazard – Unconventional Oil & Gas Wells

**Other Comments:**

natural gas pipeline construction through Morgan, Berkeley

 Representative of Berkeley County

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | 911 / Emergency Communications |
| **Name and Title:** | Jennifer Swisher, Director |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | | |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | | |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | D | This seems high, but was not here last time? |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | | |
| Flooding (N) | 4 | 2 | 1 | 1 | 1 | 2.2 | | |
| Epidemic/Pandemic (N) | 1/4 | 2/4 | 2/4 | 3/4 | 3/4 | 1.9 | I | covid |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 1 | 1 | 3 | 3 | 3 | 1.8 | | |
| Utility Interruption (H) | 1 | 2 | 1 | 3 | 1 | 1.5 | | |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Infestation/Invasive Species (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Civil Disturbance (H)* | 2 | 3 | 2 | 3 | 2 | | | |
| Cyber Terrorism (H)* | 2 | 3 | 2 | 4 | 2 | | | |
| Opioid Addiction& Response (H)* | 3 | 3 | 1 | 3 | 4 | | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

| Risk Factor Methodology | | | | | |
|---|---|---|---|---|---|
| **RISK ASSESSMENT CATEGORY** | **DEGREE OF RISK** | | | | **WEIGHT VALUE** |
| | **LEVEL** | **CRITERIA** | | **INDEX** | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | **30%** |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | **30%** |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | **20%** |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

☐ Expansive Soils

### *Human-made*

☐ Building and Structure Collapse

☐ Civil Disturbance

☐ Cyber Terrorism

☐ Disorientation

☐ Drowning

☐ Mass Food/Animal Feed Contamination

☐ Nuclear Incident

☐ Opioid Addiction & Response

☐ Urban Fire and Explosion

☐ War and Criminal Activity

☐ Envtl. Hazard – Coal Mining

☐ Envtl. Hazard – Gas and Liquid Pipelines

☐ Envtl. Hazard – Conventional Oil & Gas Wells

☐ Envtl. Hazard – Unconventional Oil & Gas Wells

**Other Comments:**

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | Berkeley County Office of Emergency Management |
| **Name and Title:** | Breeanna Sims, Administrative |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | | |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | I | I-81 construction accidents |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | I | due to transportation accidents |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | D | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | | |
| Flooding (N) | 4 | 2 | 1 | 1 | 1 | 2.2 | | |
| Epidemic/Pandemic (N) | 1 | 2 | 2 | 3 | 3 | 1.9 | I | Covid-19 pandemic |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 1 | 1 | 3 | 3 | 3 | 1.8 | | |
| Utility Interruption (H) | 1 | 2 | 1 | 3 | 1 | 1.5 | | |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | I | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Infestation/Invasive Species (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | I | |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Civil Disturbance (H)* | 3 | 2 | 2 | 4 | 1 | | | |
| Cyber Terrorism (H)* | 3 | 1 | 2 | 4 | 1 | | | |
| Opioid Addiction& Response (H)* | 3 | 4 | 3 | 4 | 1 | | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | **30%** |
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| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | **30%** |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
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| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | **20%** |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

- ☐ Expansive Soils

### *Human-made*

- ☐ Building and Structure Collapse
- ☐ Civil Disturbance
- ☐ Cyber Terrorism
- ☐ Disorientation
- ☐ Drowning
- ☐ Mass Food/Animal Feed Contamination
- ☐ Nuclear Incident
- ☒ Opioid Addiction & Response
- ☐ Urban Fire and Explosion
- ☐ War and Criminal Activity
- ☐ Envtl. Hazard – Coal Mining
- ☐ Envtl. Hazard – Gas and Liquid Pipelines
- ☐ Envtl. Hazard – Conventional Oil & Gas Wells
- ☐ Envtl. Hazard – Unconventional Oil & Gas Wells

**Other Comments:**

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | BC Office of Emergency Management |
| **Name and Title:** | Randy Lilly - Director |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | | |
| Winter Storm (N) | ~~4~~ 3 | 4 | 4 | 1 | 3 | 3.6 | | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | I | Interstate 81 (construction) |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | I | More Hazardous Materials on our roadways & rail I81 |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | D | No reported incidents |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | | |
| Flooding (N) | 4 | 2 | 1 | 1 | 1 | 2.2 | I | Incidents over the past 5 years |
| Epidemic/Pandemic (N) | 1 | 2 | 2 | 3 | 3 | 1.9 | I | COVID-19 |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 1 | 1 | 3 | 3 | 3 | 1.8 | | |
| Utility Interruption (H) | 1 | 2 | 1 | 3 | 1 | 1.5 | | |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | I | Not as many volunteers for firefighting |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Infestation/Invasive Species (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | They are coming!! Cicadas |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Civil Disturbance (H)* | 3 | 2 | 1 | 2 | 2 | 2 | | |
| Cyber Terrorism (H)* | 3 | 3 | 1 | 4 | 4 | 3 | | |
| Opioid Addiction& Response (H)* | 3 | 2 | 1 | 1 | 4 | 2.1 | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | 30% |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | 30% |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | 20% |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

☐ Expansive Soils

### *Human-made*

☐ Building and Structure Collapse

☐ Civil Disturbance

☐ Cyber Terrorism

☐ Disorientation

☐ Drowning

☐ Mass Food/Animal Feed Contamination

☐ Nuclear Incident

☐ Opioid Addiction & Response

☐ Urban Fire and Explosion

☐ War and Criminal Activity

☐ Envtl. Hazard – Coal Mining

☐ Envtl. Hazard – Gas and Liquid Pipelines

☐ Envtl. Hazard – Conventional Oil & Gas Wells

☐ Envtl. Hazard – Unconventional Oil & Gas Wells

**Other Comments:**

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | City of Martinsburg |
| **Name and Title:** | Andy Blake, Asst. City Manager |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | NC | |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | NC | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | NC | |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | NC | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | NC | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | NC | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | NC | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | NC | |
| Flooding (N) | 4 | 2 | 1 | 1 | 1 | 2.2 | NC | |
| Epidemic/Pandemic (N) | 1 | 2 | 2 | 3 | 3 | 1.9 | NC | |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 2 ~~1~~ | ~~1~~ 2 | 3 | 3 | 3 | 1.8 | I | City & Berkeley County relies upon ground water for potable water supply. Growing population spreading source water thinner. |
| Utility Interruption (H) | 2 ~~1~~ | 2 | 1 | 3 | 1 | 1.5 | I | Natural gas supply is limited with increased demand |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | NC | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | NC | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Infestation/Invasive Species (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Civil Disturbance (H)* | 2 | 2 | 2 | 4 | 1 | | | |
| Cyber Terrorism (H)* | 2 | 2 | 2 | 4 | 2 | | | |
| Opioid Addiction& Response (H)* | 3 | 2 | 2 | 1 | 4 | | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | **30%** |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | **30%** |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | **20%** |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

☐ Expansive Soils

### *Human-made*

☐ Building and Structure Collapse

☐ Civil Disturbance

☐ Cyber Terrorism

☐ Disorientation

☐ Drowning

☐ Mass Food/Animal Feed Contamination

☐ Nuclear Incident

☐ Opioid Addiction & Response

☐ Urban Fire and Explosion

☐ War and Criminal Activity

☐ Envtl. Hazard – Coal Mining

☐ Envtl. Hazard – Gas and Liquid Pipelines

☐ Envtl. Hazard – Conventional Oil & Gas Wells

☐ Envtl. Hazard – Unconventional Oil & Gas Wells

**Other Comments:**

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | City of Martinsburg, WV |
| **Name and Title:** | Jeff Williamson - Public Works Dir. |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | NC | |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | NC | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | NC | |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | NC | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | NC | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | NC | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | NC | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | NC | |
| Flooding (N) | 4 | 2 | 1 | 1 | 1 | 2.2 | I | Flooding should be moved higher with the events of 2018. Record rainfall |
| Epidemic/Pandemic (N) | 1 | 2 | 2 | 3 | 3 | 1.9 | I | EP/Pan should be moved higher on list since we are going through a pandemic at this time. Plan for future possibilities. |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 1 | 1 | 3 | 3 | 3 | 1.8 | NC | |
| Utility Interruption (H) | 1 | 2 | 1 | 3 | 1 | 1.5 | NC | |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | NC | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | NC | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Infestation/Invasive Species (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Civil Disturbance (H)* | | | | | | | | |
| Cyber Terrorism (H)* | | | | | | | | |
| Opioid Addiction& Response (H)* | | | | | | | | |

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**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | **30%** |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | **30%** |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | **20%** |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

☐ Expansive Soils

### *Human-made*

☐ Building and Structure Collapse

☐ Civil Disturbance

☐ Cyber Terrorism

☐ Disorientation

☐ Drowning

☐ Mass Food/Animal Feed Contamination

☐ Nuclear Incident

☐ Opioid Addiction & Response

☐ Urban Fire and Explosion

☐ War and Criminal Activity

☐ Envtl. Hazard – Coal Mining

☐ Envtl. Hazard – Gas and Liquid Pipelines

☐ Envtl. Hazard – Conventional Oil & Gas Wells

☐ Envtl. Hazard – Unconventional Oil & Gas Wells

**Other Comments:**

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | City of Martinsburg |
| **Name and Title:** | Jim Kelly |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | NC | |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | NC | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | NC | |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | I | Warning time needs to increase index |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | I | Impact needs to increase |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | NC | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | NC | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | NC | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | NC | |
| Flooding (N) | 4 | 2 | 1 | 1 | 1 | 2.2 | I | Increase of impervise areas |
| Epidemic/Pandemic (N) | 1 | 2 | 2 | 3 | 3 | 1.9 | ~~NC~~ I | |

City of Martinsburg
Jim Kelly

## Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 1 | 1 | 3 | 3 | 3 | 1.8 | NC | |
| Utility Interruption (H) | 1 | 2 | 1 | 3 | 1 | 1.5 | NC | |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | NC | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | NC | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Infestation/Invasive Species (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | I | Lantern fly |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Civil Disturbance (H)* | | | | | | | | |
| Cyber Terrorism (H)* | | | | | | | | |
| Opioid Addiction& Response (H)* | | | | | | | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | MARTINSBORG CITY POLICE |
| **Name and Title:** | George B Swartwood Chief of Police |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | I | chlorine leak spill |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | I | Large winter storm lengthy |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | D | |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | I | Chlorine leak spill |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | NC | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | NC | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | NC | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | NC | |
| Flooding (N) | 4 | 2 | 1 | 1 | 1 | 2.2 | I | Flooding Rock Street Bridge |
| Epidemic/Pandemic (N) | 1 | 2 | 2 | 3 | 3 | 1.9 | I | COVID-19 |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 1 | 1 | 3 | 3 | 3 | 1.8 | NC | |
| Utility Interruption (H) | 1 | 2 | 1 | 3 | 1 | 1.5 | I | Freezing caused Interruption |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | NC | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | NC | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Infestation/Invasive Species (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Civil Disturbance (H)* | | | | | | | | |
| Cyber Terrorism (H)* | | | | | | | | |
| Opioid Addiction& Response (H)* | | | | | | | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | 30% |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | 30% |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | 20% |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

- ☐ Expansive Soils

### *Human-made*

- ☐ Building and Structure Collapse
- ☐ Civil Disturbance
- ☐ Cyber Terrorism
- ☐ Disorientation
- ☐ Drowning
- ☐ Mass Food/Animal Feed Contamination
- ☐ Nuclear Incident
- ☑ Opioid Addiction & Response
- ☐ Urban Fire and Explosion
- ☐ War and Criminal Activity
- ☐ Envtl. Hazard – Coal Mining
- ☐ Envtl. Hazard – Gas and Liquid Pipelines
- ☐ Envtl. Hazard – Conventional Oil & Gas Wells
- ☐ Envtl. Hazard – Unconventional Oil & Gas Wells

**Other Comments:**

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| Community/Organization: | Martinsburg City Police Dept. |
| Name and Title: | Chief Eric Gibbons |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

e_gibbons@martinsburgpd.org

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | ~~DE~~ I | Chlorine leak City Plant |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | NC | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | N | |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | I | ~~Tornado~~ tornado yesterday |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | I | Chlorine leak |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | NC | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | NC | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | NC | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | NC | |
| Flooding (N) | 4 | 2 | 1 | 1 | 1 | 2.2 | I | 2018 Rain Season |
| Epidemic/Pandemic (N) | 1 | 2 | 2 | 3 | 3 | 1.9 | I | Covid-19 |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 1 | 1 | 3 | 3 | 3 | 1.8 | D | |
| Utility Interruption (H) | 1 | 2 | 1 | 3 | 1 | 1.5 | I | Flooding Freeze - Feb 2021 |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | D | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | NC | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Infestation/Invasive Species (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Civil Disturbance (H)* | | | | | | | | |
| Cyber Terrorism (H)* | | | | | | | | |
| Opioid Addiction& Response (H)* | | | | | | | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | 30% |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | 30% |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | 20% |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

- [ ] Expansive Soils

### *Human-made*

- [ ] Building and Structure Collapse
- [x] Civil Disturbance
- [ ] Cyber Terrorism
- [ ] Disorientation
- [ ] Drowning
- [ ] Mass Food/Animal Feed Contamination
- [ ] Nuclear Incident
- [x] Opioid Addiction & Response
- [ ] Urban Fire and Explosion
- [ ] War and Criminal Activity
- [ ] Envtl. Hazard – Coal Mining
- [ ] Envtl. Hazard – Gas and Liquid Pipelines
- [ ] Envtl. Hazard – Conventional Oil & Gas Wells
- [ ] Envtl. Hazard – Unconventional Oil & Gas Wells

**Other Comments:**

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | BBerkeley Co |
| **Name and Title:** | Matthew Pennington |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | D | EARLY Warning Monitoring @ Martinsburg Berkeley County Participating in ICPRB |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | NC | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | I | Increased Traffic along I-81 |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | I | Martinsburg Chlorine issue. Increased Industry |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | NC | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | NC | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | NC | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | I | Hotter Days |
| Flooding (N) | ~~3~~ 4 | ~~2~~ 3 | ~~1~~ 2 | ~~2~~ 1 | ~~1~~ 2 | 2.2 | I | 2018 Flooding |
| Epidemic/Pandemic (N) | ~~1~~ 2 | ~~2~~ 3 | ~~2~~ 3 | 3 | ~~3~~ 4 | 1.9 | I | COVID 19 ; Opiod |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 1 | 1 | 3 | 3 | 3 | 1.8 | NC | |
| Utility Interruption (H) | ~~1~~ 2 | ~~1~~ 2 | 1 | ~~3~~ 4 | 1 | 1.5 | I | Lost Power at County offices in winter 2021 |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | NC | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | NC | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | I | Heavy Erosion During 2018 Floods |
| Infestation/Invasive Species (N) | ~~1~~ 2 | ~~1~~ 2 | ~~1~~ 2 | 1 | ~~1~~ 2 | 1.0 | I | Emerald Ash Borers / Spotted Lantern Fly |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Civil Disturbance (H)* | 2 | 1 | 1 | 4 | 1 | | | Rallies & Protest occurances increased in 2020 |
| Cyber Terrorism (H)* | 2 | 2 | 2 | 4 | 2 | | | More activity online Due to COVID |
| Opioid Addiction& Response (H)* | 3 | 2 | 3 | 1 | 3 | | | Made significant Progess b/w 2017-2020 |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | 30% |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | 30% |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | 20% |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

☐ Expansive Soils

### *Human-made*

☐ Building and Structure Collapse

☐ Civil Disturbance

☐ Cyber Terrorism

☐ Disorientation

☐ Drowning

☐ Mass Food/Animal Feed Contamination

☐ Nuclear Incident

☐ Opioid Addiction & Response

☐ Urban Fire and Explosion

☐ War and Criminal Activity

☐ Envtl. Hazard – Coal Mining

☐ Envtl. Hazard – Gas and Liquid Pipelines

☐ Envtl. Hazard – Conventional Oil & Gas Wells

☐ Envtl. Hazard – Unconventional Oil & Gas Wells

**Other Comments:**

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| Community/Organization: | Sheriff Dept. |
| Name and Title: | Nate Harmon - Sheriff |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | | |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | I | Due primarily ~~Due~~ to Construction Projects on I-81 Poorly constructed |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | | |
| Flooding (N) | 4 | 2 | 1 | 1 | 1 | 2.2 | | |
| Epidemic/Pandemic (N) | 1 | 2 | 2 | 3 | 3 | 1.9 | | |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 1 | 1 | 3 | 3 | 3 | 1.8 | | |
| Utility Interruption (H) | 1 | 2 | 1 | 3 | 1 | 1.5 | | |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Infestation/Invasive Species (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Civil Disturbance (H)* | 1 | 1 | 3 | 2 | 1 | | | Civil unrest is more prominent depending on atmosphere & Confidence of Gov. help. |
| Cyber Terrorism (H)* | 2 | 4 | 4 | 4 | 4 | | | Prominent increase given Commercial & Gov. Blogs. here |
| Opioid Addiction& Response (H)* | 4 | 4 | 4 | 3 | 3 | | | Geographically a problem due to Baltimore. |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

**Risk Factor Methodology**

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|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | **30%** |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | **30%** |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | **20%** |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

- ☐ Expansive Soils

### *Human-made*

- ☐ Building and Structure Collapse
- ☒ Civil Disturbance
- ☒ Cyber Terrorism
- ☐ Disorientation
- ☐ Drowning
- ☐ Mass Food/Animal Feed Contamination
- ☐ Nuclear Incident
- ☒ Opioid Addiction & Response
- ☐ Urban Fire and Explosion
- ☐ War and Criminal Activity
- ☐ Envtl. Hazard – Coal Mining
- ☐ Envtl. Hazard – Gas and Liquid Pipelines
- ☐ Envtl. Hazard – Conventional Oil & Gas Wells
- ☐ Envtl. Hazard – Unconventional Oil & Gas Wells

**Other Comments:**

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | Berkeley County PSWD |
| **Name and Title:** | Steve DeRidder |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | NC | |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | NC | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | NC | |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | NC | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | NC | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | NC | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | NC | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | NC | |
| Flooding (N) | 4 | 2 | 1 | 1 | 1 | 2.2 | NC | |
| Epidemic/Pandemic (N) | 1 | ~~2~~ 4 | ~~2~~ 4 | 3 | ~~3~~ 4 | 1.9 | | 2yr event |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | ~~2~~ 1 | 1 | 3 | ~~3~~ 2 | ~~3~~ 4 | 1.8 | I | Seasonal Drought, past 2yrs increasing intensity |
| Utility Interruption (H) | 1 | 2 | 1 | 3 | 1 | 1.5 | | |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Infestation/Invasive Species (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | | |
| Civil Disturbance (H)* | | | | | | | | |
| Cyber Terrorism (H)* | | | | | | | | |
| Opioid Addiction& Response (H)* | | | | | | | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | Berkeley County, Planning Commission |
| **Name and Title:** | Heather Williams, FPA & Planning Director |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | NC | |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | NC | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | NC | |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | NC | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | NC | |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | NC | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | NC | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | NC | |
| Flooding (N) | 4 | 2 | ~~1~~ 2 | 1 | 1 | 2.2 | I | more structures built outside of floodplain sum is critical in protecting values |
| Epidemic/Pandemic (N) | ~~4~~ 4 | 2 | 2 | 3 | 3 | 1.9 | I | COVID-19: long-term effects of other similar situations |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 1 | 1 | 3 | 3 | 3 | 1.8 | NC | |
| Utility Interruption (H) | 1 | 2 | 1 | 3 | 1 | 1.5 | NC | |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | NC | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | NC | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Infestation/Invasive Species (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | ??? | Lake dam in Virginia near Berkeley County line - Citizens expressed concerns |
| Civil Disturbance (H)* | 2 | 1 | 1 | 1 | 1 | 1.2 | | |
| Cyber Terrorism (H)* | 3 | 1 | 1 | 1 | 1 | 1.4 | | |
| Opioid Addiction& Response (H)* | 3 | 2 | 2 | 2 | 2 | 2.2 | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | Berkeley County Council |
| **Name and Title:** | Alex J. Davis - County Administrator |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | NC | |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | D | |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | I | Increased traffic on I-81 and lack of alternative traffic routes |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | I | Some to chart |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | I | General unrest across the Country |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | NC | |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | NC | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | NC | |
| Flooding (N) | 4 | 2 | 1 | 1 | 1 | 2.2 | NC | |
| Epidemic/Pandemic (N) | 1 | 2 | 2 | 3 | 3 | 1.9 | I | As illustrated by the COVID-19 Pandemic. |

## Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 1 | 1 | 3 | 3 | 3 | 1.8 | NC | |
| Utility Interruption (H) | 1 | 2 | 1 | 3 | 1 | 1.5 | NC | |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | NC | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | NC | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Infestation/Invasive Species (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Civil Disturbance (H)* | 1 | 3 | 3 | 1 | 1 | 1.6 | | |
| Cyber Terrorism (H)* | 3 | 4 | 4 | 4 | 4 | 3.8 | | |
| Opioid Addiction& Response (H)* | 4 | 3 | 3 | 3 | 4 | 3.4 | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

| Risk Factor Methodology | | | | | |
|---|---|---|---|---|---|
| **RISK ASSESSMENT CATEGORY** | **DEGREE OF RISK** | | | | **WEIGHT VALUE** |
| | **LEVEL** | **CRITERIA** | | **INDEX** | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | **30%** |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | **30%** |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | **20%** |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

- [ ] Expansive Soils

### *Human-made*

- [ ] Building and Structure Collapse
- [x] Civil Disturbance
- [x] Cyber Terrorism
- [ ] Disorientation
- [ ] Drowning
- [ ] Mass Food/Animal Feed Contamination
- [ ] Nuclear Incident
- [x] Opioid Addiction & Response
- [ ] Urban Fire and Explosion
- [ ] War and Criminal Activity
- [ ] Envtl. Hazard – Coal Mining
- [ ] Envtl. Hazard – Gas and Liquid Pipelines
- [ ] Envtl. Hazard – Conventional Oil & Gas Wells
- [ ] Envtl. Hazard – Unconventional Oil & Gas Wells

**Other Comments:**

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| Community/Organization: | Berkeley County Public Service Storm Water Dist. |
| Name and Title: | Zack Walburn MS4- Coordinator |

This worksheet summarizes **Berkeley Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Source Water Contamination (H) | 3 | 4 | 4 | 4 | 4 | 3.7 | NC | Karst Geology & New Development has potential |
| Winter Storm (N) | 4 | 4 | 4 | 1 | 3 | 3.6 | I | Climate Change |
| Transportation Accidents (H) | 4 | 4 | 3 | 4 | 2 | 3.6 | I | Population explosion w/ Lack of infrastructure |
| Windstorm, Tornado (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Thunderstorm, Lightning Strike (N) | 4 | 4 | 4 | 2 | 1 | 3.5 | NC | |
| Hazardous Materials Incident (H) | 4 | 2 | 4 | 4 | 4 | 3.4 | NC/I | New industries - P&G, Clorox, Railroad |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 2 | 3 | 4 | 4 | 2 | 2.9 | I | Rise in Political extremism / Nationalism |
| Hurricane, Tropical Storm, Nor'easter (N) | 3 | 3 | 4 | 1 | 2 | 2.9 | I | Climate Change |
| Radon Exposure (N) | 3 | 3 | 2 | 3 | 1 | 2.6 | NC | |
| Extreme Temperatures (N) | 2 | 2 | 3 | 3 | 1 | 2.2 | I | Climate Change |
| Flooding (N) | 4 | 2 | 1 | 1 | 1 | 2.2 | I | Consecutive Storm events in 2018 - Major Concern |
| Epidemic/Pandemic (N) | 1 | 2 | 2 | 3 | 3 | 1.9 | I | |

## Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Drought (N) | 1 | 1 | 3 | 3 | 3 | 1.8 | NC | |
| Utility Interruption (H) | 1 | 2 | 1 | 3 | 1 | 1.5 | NC | |
| Wildfire (N) | 1 | 1 | 1 | 3 | 1 | 1.2 | D | |
| Hailstorm (N) | 1 | 1 | 2 | 1 | 1 | 1.2 | NC | |
| Earthquake (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | D | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Infestation/Invasive Species (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Dam and Levee Failure (H) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | Dam Removal an option? Potomac River |
| Civil Disturbance (H)* | 2 | 1 | 1 | 1 | 2 | 1.4 | | |
| Cyber Terrorism (H)* | 2 | 2 | 4 | 4 | 2 | 2.8 | | |
| Opioid Addiction& Response (H)* | 3 | 3 | 4 | 1 | 4 | 3.0 | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

| Risk Factor Methodology | | | | | |
|---|---|---|---|---|---|
| **RISK ASSESSMENT CATEGORY** | **DEGREE OF RISK** | | | | **WEIGHT VALUE** |
| | **LEVEL** | **CRITERIA** | | **INDEX** | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | **30%** |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | **30%** |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | **20%** |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

***Natural***

- ☐ Expansive Soils
- ☑ Sinkhole Formation and Remediation

***Human-made***

- ☐ Building and Structure Collapse
- ☑ Civil Disturbance
- ☑ Cyber Terrorism
- ☐ Disorientation
- ☐ Drowning
- ☐ Mass Food/Animal Feed Contamination
- ☐ Nuclear Incident
- ☑ Opioid Addiction & Response
- ☐ Urban Fire and Explosion
- ☐ War and Criminal Activity
- ☐ Envtl. Hazard – Coal Mining
- ☐ Envtl. Hazard – Gas and Liquid Pipelines
- ☐ Envtl. Hazard – Conventional Oil & Gas Wells
- ☐ Envtl. Hazard – Unconventional Oil & Gas Wells

**Other Comments:**

Urban Flooding continues to be a major concern along with our river front communities. There has been Limited Mitigation implemented due to funding / Manpower constraints.

## Appendix C-9 Morgan County Hazard and Risk Identification Worksheets

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | Region 9 PDC |
| **Name and Title:** | Rachel Snavely, Director |

This worksheet summarizes **Morgan Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Flooding (N) | 3 | 2 | 3 | 3 | 2 | 2.6 | NC | |
| Utility Interruption (H) | 3 | 2 | 2 | 3 | 2 | 2.4 | NC | |
| Epidemic/Pandemic (N) | 2 | ~~3~~ 4 | ~~4~~ 2 | ~~2~~ 4 | 4 | 2.4 | I | ongoing pandemic increased sig. caps |
| Winter Storm (N) | 3 | 2 | 2 | 2 | 2 | 2.3 | NC | |
| Hazardous Materials Incident (H) | ~~3~~ 2 | 2 | 2 | 4 | 3 | 2.3 | I | ↑ in development |
| Windstorm, Tornado (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | NC | |
| Hailstorm (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | NC | |
| Transportation Accidents (H) | 4 | ~~2~~ 1 | 1 | 4 | 1 | 2.2 | ↑ | ↑ in development |
| Hurricane, Tropical Storm, Nor'easter (N) | 2 | 2 | 3 | 1 | 3 | 2.2 | ↓ | |
| Source Water Contamination (H) | 2 | ~~3~~ 2 | 2 | 2 | 2 | 2.0 | ↑ | ↑ in development |
| Wildfire (N) | 2 | 2 | 1 | 4 | 2 | 2.0 | NC | |
| Drought (N) | 1 | 1 | 4 | 1 | 4 | 1.9 | NC | |
| Dam and Levee Failure (H) | 1 | 2 | 2 | 4 | 2 | 1.9 | NC | |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 1 | 1 | 1 | 4 | 2 | 1.4 | NC | |
| Extreme Temperatures (N) | 1 | 2 | 1 | 1 | 2 | 1.4 | NC | |
| Infestation/Invasive Species (N) | 1 | 1 | 2 | 2 | 2 | 1.4 | NC | |
| Thunderstorm, Lightning Strike (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | NC | |
| Earthquake (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | NC | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | NC | |
| Radon Exposure (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Civil Disturbance (H)* | 2 | 2 | 1 | 1 | 1 | | | |
| Cyber Terrorism (H)* | 2 | 2 | 1 | 4 | 1 | | | - duration dependent on attack |
| Opioid Addiction& Response (H)* | 4 | 3 | 2 | 1 | 4 | | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | 30% |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | 30% |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | 20% |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

- ☐ Expansive Soils

### *Human-made*

- ☒ Building and Structure Collapse
- ☐ Civil Disturbance
- ☒ Cyber Terrorism
- ☐ Disorientation
- ☐ Drowning
- ☐ Mass Food/Animal Feed Contamination
- ☐ Nuclear Incident
- ☒ Opioid Addiction & Response
- ☐ Urban Fire and Explosion
- ☐ War and Criminal Activity
- ☐ Envtl. Hazard – Coal Mining
- ☒ Envtl. Hazard – Gas and Liquid Pipelines
- ☐ Envtl. Hazard – Conventional Oil & Gas Wells
- ☐ Envtl. Hazard – Unconventional Oil & Gas Wells

### Other Comments

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | MC Planning |
| **Name and Title:** | Alex Moore Planning Director |

This worksheet summarizes **Morgan Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY 1-4 | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Flooding (N) | 3 | 2 | 3 | 3 | 2 | 2.6 | ~~NC~~ increase | Possible with 522 Bypass |
| Utility Interruption (H) | 3 | 2 | 2 | 3 | 2 | 2.4 | NC | |
| Epidemic/Pandemic (N) | 2 | 3 | 2 | 1 | 4 | 2.4 | I | Covid-19 |
| Winter Storm (N) | 3 | 2 | 2 | 2 | 2 | 2.3 | NC | |
| Hazardous Materials Incident (H) | 2 | 2 | 2 | 4 | 3 | 2.3 | NC | |
| Windstorm, Tornado (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | NC | |
| Hailstorm (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | NC | |
| Transportation Accidents (H) | 4 | 1 | 1 | 4 | 1 | 2.2 | I | 522 By-Pass |
| Hurricane, Tropical Storm, Nor'easter (N) | 2 | 2 | 3 | 1 | 3 | 2.2 | NC | |
| Source Water Contamination (H) | 2 | 2 | 2 | 2 | 2 | 2.0 | NC | |
| Wildfire (N) | 2 | 2 | 1 | 4 | 2 | 2.0 | NC | |
| Drought (N) | 1 | 1 | 4 | 1 | 4 | 1.9 | NC | |
| Dam and Levee Failure (H) | 1 | 2 | 2 | 4 | 2 | 1.9 | Possible | |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 1 | 1 | 1 | 4 | 2 | 1.4 | NC | |
| Extreme Temperatures (N) | 1 | 2 | 1 | 1 | 2 | 1.4 | NC | |
| Infestation/Invasive Species (N) | 1 | 1 | 2 | 2 | 2 | 1.4 | NC | |
| Thunderstorm, Lightning Strike (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | NC | |
| Earthquake (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | NC | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | NC | |
| Radon Exposure (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Civil Disturbance (H)* | | | | | | | | |
| Cyber Terrorism (H)* | | | | | | | | |
| Opioid Addiction& Response (H)* | | | | | | | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

| Risk Factor Methodology | | | | | |
|---|---|---|---|---|---|
| **RISK ASSESSMENT CATEGORY** | **DEGREE OF RISK** | | | | **WEIGHT VALUE** |
| | **LEVEL** | **CRITERIA** | | **INDEX** | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | **30%** |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | **30%** |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | **20%** |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

- ☐ Expansive Soils

### *Human-made*

- ☐ Building and Structure Collapse
- ☐ Civil Disturbance
- ☐ Cyber Terrorism
- ☐ Disorientation
- ☐ Drowning
- ☐ Mass Food/Animal Feed Contamination
- ☐ Nuclear Incident
- ☐ Opioid Addiction & Response
- ☐ Urban Fire and Explosion
- ☐ War and Criminal Activity
- ☐ Envtl. Hazard – Coal Mining
- ☐ Envtl. Hazard – Gas and Liquid Pipelines
- ☐ Envtl. Hazard – Conventional Oil & Gas Wells
- ☐ Envtl. Hazard – Unconventional Oil & Gas Wells

### Other Comments

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | Berkley - Morgan County Health Departments |
| **Name and Title:** | Jennifer Schetrompf TP/ITP Coord.nator |

This worksheet summarizes **Morgan Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Flooding (N) | 3 | 2 | 3 | 3 | 2 | 2.6 | NC | |
| Utility Interruption (H) | 3 | 2 | 2 | 3 | 2 | 2.4 | I | COVID-19 Pandemic & it's variants |
| Epidemic/Pandemic (N) | 2 | 3 | 2 | 1 | 4 | 2.4 | NC | |
| Winter Storm (N) | 3 | 2 | 2 | 2 | 2 | 2.3 | NC | |
| Hazardous Materials Incident (H) | 2 | 2 | 2 | 4 | 3 | 2.3 | NC | |
| Windstorm, Tornado (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | NC | |
| Hailstorm (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | NC | |
| Transportation Accidents (H) | 4 | 1 | 1 | 4 | 1 | 2.2 | NC | |
| Hurricane, Tropical Storm, Nor'easter (N) | 2 | 2 | 3 | 1 | 3 | 2.2 | NC | |
| Source Water Contamination (H) | 2 | 2 | 2 | 2 | 2 | 2.0 | NC | |
| Wildfire (N) | 2 | 2 | 1 | 4 | 2 | 2.0 | I | Multiple fires reported recently/Seems to have increased. |
| Drought (N) | 1 | 1 | 4 | 1 | 4 | 1.9 | NC | |
| Dam and Levee Failure (H) | 1 | 2 | 2 | 4 | 2 | 1.9 | NC | |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 1 | 1 | 1 | 4 | 2 | 1.4 | NC | |
| Extreme Temperatures (N) | 1 | 2 | 1 | 1 | 2 | 1.4 | NC | |
| Infestation/Invasive Species (N) | 1 | 1 | 2 | 2 | 2 | 1.4 | I | Potential Impacts from Locusts |
| Thunderstorm, Lightning Strike (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | NC | |
| Earthquake (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | NC | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | NC | |
| Radon Exposure (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Civil Disturbance (H)* | 1 | 1 | 1 | 1 | 1 | 1 | | |
| Cyber Terrorism (H)* | 2 | 2 | 2 | 2 | 4 | 2.4 | | |
| Opioid Addiction& Response (H)* | 3 | 3 | 3 | 2 | 2 | 2.6 | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | **30%** |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | **30%** |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | **20%** |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | **10%** |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

- ☐ Expansive Soils

### *Human-made*

- ☐ Building and Structure Collapse
- ☐ Civil Disturbance
- ☑ Cyber Terrorism
- ☐ Disorientation
- ☐ Drowning
- ☐ Mass Food/Animal Feed Contamination
- ☐ Nuclear Incident
- ☑ Opioid Addiction & Response
- ☐ Urban Fire and Explosion
- ☐ War and Criminal Activity
- ☐ Envtl. Hazard – Coal Mining
- ☐ Envtl. Hazard – Gas and Liquid Pipelines
- ☐ Envtl. Hazard – Conventional Oil & Gas Wells
- ☐ Envtl. Hazard – Unconventional Oil & Gas Wells

### Other Comments

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | Morgan County |
| **Name and Title:** | Matthew Pennington / Region 9 |

This worksheet summarizes **Morgan Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Flooding (N) | 4 3 | 2 | 3 | 3 | 3 2 | 2.6 | I | 2018 Floods along Sleepy Creek Bottleson Warm Springs |
| Utility Interruption (H) | 3 | 2 | 2 | 3 | 2 | 2.4 | NC | |
| Epidemic/Pandemic (N) | 2 | 4 3 | 4 2 | 2 1 | 4 | 2.4 | I | CoviD-19 & Opiods |
| Winter Storm (N) | 3 | 2 | 2 | 2 | 2 | 2.3 | I | very cold weather Pipes Freezing |
| Hazardous Materials Incident (H) | 3 2 | 2 | 2 | 4 | 3 | 2.3 | I | Home Heating tank leaks / Fire at a local industry |
| Windstorm, Tornado (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | NC | |
| Hailstorm (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | NC | |
| Transportation Accidents (H) | 4 | 1 | 2 1 | 4 | 1 | 2.2 | I | New 522 Traffic Pattern |
| Hurricane, Tropical Storm, Nor'easter (N) | 2 | 2 | 3 | 1 | 3 | 2.2 | NC | |
| Source Water Contamination (H) | 3 2 | 2 | 3 2 | 2 | 2 | 2.0 | I | Flooding Along Warm Springs |
| Wildfire (N) | 2 | 3 2 | 2 1 | 4 | 2 | 2.0 | I | Recent down Power line along Cacapon Rd |
| Drought (N) | 1 | 1 | 4 | 1 | 4 | 1.9 | NC | |
| Dam and Levee Failure (H) | 2 1 | 3 2 3 | 2 | 4 | 2 | 1.9 | I | 522 By Pass Concerns |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 1 | 1 | 1 | 4 | 2 | 1.4 | NC ABP | |
| Extreme Temperatures (N) | ~~2~~ 1 | 2 | ~~3~~ 1 | ~~2~~ 1 | 2 | 1.4 | I | |
| Infestation/Invasive Species (N) | ~~2~~ 1 | ~~1~~ | ~~3~~ 2 | 2 | ~~3~~ 2 | 1.4 | I | Emerald Ash Borer, Cicada, |
| Thunderstorm, Lightning Strike (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | | |
| Earthquake (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | D | ~~Only the~~ 200 Nothing Since 2011 |
| Landslides and Land Subsidence (N) | ~~2~~ 1 | ~~2~~ 1 | 1 | 4 | ~~2~~ 1 | 1.3 | I | Wash-outs and erosion from 2018 |
| Radon Exposure (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Civil Disturbance (H)* | 3 | 1 | 1 | 2 | 1 | | | Rally's & Protests of 2020 |
| Cyber Terrorism (H)* | 3 | 2 | 3 | 4 | 2 | | | More increased online usage after Covid |
| Opioid Addiction& Response (H)* | 4 | 2 | 4 | 1 | 4 | | | Increased ~~During~~ Between 2017 - 2021 |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | 30% |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | 30% |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | 20% |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

☐ Expansive Soils

### *Human-made*

☐ Building and Structure Collapse

☐ Civil Disturbance

☐ Cyber Terrorism

☐ Disorientation

☐ Drowning

☐ Mass Food/Animal Feed Contamination

☐ Nuclear Incident

☐ Opioid Addiction & Response

☐ Urban Fire and Explosion

☐ War and Criminal Activity

☐ Envtl. Hazard – Coal Mining

☐ Envtl. Hazard – Gas and Liquid Pipelines

☐ Envtl. Hazard – Conventional Oil & Gas Wells

☐ Envtl. Hazard – Unconventional Oil & Gas Wells

### Other Comments

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | |
| **Name and Title:** | |

This worksheet summarizes **Morgan Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Flooding (N) | 3 | 2 | 3 | 4 3 | 2 | 2.6 | I | * New Bypass concern |
| Utility Interruption (H) | 3 4 | 2 | 2 | 3 | 2 | 2.4 | I | |
| Epidemic/Pandemic (N) | 2 3 | 3 3 | 2 | 1 | 4 | 2.4 | I | |
| Winter Storm (N) | 3 | 2 | 2 | 2 | 2 | 2.3 | NC | |
| Hazardous Materials Incident (H) | 2 | 2 | 2 | 4 | 3 | 2.3 | NC | but * New Road in next 5 years w/ potential More I |
| Windstorm, Tornado (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | NC | |
| Hailstorm (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | NC | |
| Transportation Accidents (H) | 4 | 1 | 1 | 4 | 1 | 2.2 | NC | |
| Hurricane, Tropical Storm, Nor'easter (N) | 2 | 2 | 3 | 1 | 3 | 2.2 | NC | |
| Source Water Contamination (H) | 2 | 2 | 2 | 2 | 2 | 2.0 | NC | |
| Wildfire (N) | 2 | 2 | 1 | 4 | 2 | 2.0 | NC | |
| Drought (N) | 1 | 1 | 4 | 1 | 4 | 1.9 | NC | |
| Dam and Levee Failure (H) | 1 | 2 | 2 | 4 | 2 | 1.9 | NC | New Bypass |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 1 | 1 | 1 | 4 | 2 | 1.4 | NC | |
| Extreme Temperatures (N) | 1 | 2 | 1 | 1 | 2 | 1.4 | NC | |
| Infestation/Invasive Species (N) | 1 | 1 | 2 | 2 | 2 | 1.4 | NC | |
| Thunderstorm, Lightning Strike (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | NC | |
| Earthquake (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | NC | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | NC | New Road |
| Radon Exposure (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Civil Disturbance (H)* | | | | | | | | |
| Cyber Terrorism (H)* | | | | | | | | |
| Opioid Addiction& Response (H)* | | | | | | | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

| Risk Factor Methodology | | | | | |
|---|---|---|---|---|---|
| **RISK ASSESSMENT CATEGORY** | **DEGREE OF RISK** | | | | **WEIGHT VALUE** |
| | **LEVEL** | **CRITERIA** | | **INDEX** | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | **1** | **30%** |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | **2** | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | **3** | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | **4** | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | **1** | **30%** |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | **2** | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | **3** | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | **4** | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | **1** | **20%** |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | **2** | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | **3** | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | **4** | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | **1** | **10%** |
| | **12 TO 24 HRS** | SELF-DEFINED | | **2** | |
| | **6 TO 12 HRS** | SELF-DEFINED | | **3** | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | **4** | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | **1** | **10%** |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | **2** | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | **3** | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | **4** | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

- ☐ Expansive Soils

### *Human-made*

- ☒ Building and Structure Collapse — old Structures
- ☒ Civil Disturbance — more concern in this area perception in this slight risk in our community
- ☐ Cyber Terrorism
- ☐ Disorientation
- ☐ Drowning
- ☐ Mass Food/Animal Feed Contamination
- ☐ Nuclear Incident
- ☒ Opioid Addiction & Response — Planned Rehab center
- ☐ Urban Fire and Explosion
- ☐ War and Criminal Activity
- ☐ Envtl. Hazard – Coal Mining
- ☒ Envtl. Hazard – Gas and Liquid Pipelines — Always – Leaks Now has a gas line
- ☐ Envtl. Hazard – Conventional Oil & Gas Wells
- ☐ Envtl. Hazard – Unconventional Oil & Gas Wells

### Other Comments

There is concern about the new bypass and runoff - The WV DOH has a bad history on this topic - Engineers promise Anti-flooding measures and Storm water Measures - Indications based on R.O.W. issues with citizens that have included more of this. (reputation)

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | Morgan County OHSEM |
| **Name and Title:** | Dick Myers, DIRECTOR |

This worksheet summarizes **Morgan Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Flooding (N) | 3 | ~~2~~ 3 | 3 | ~~3~~ 2 | 2 | 2.6 | NC | |
| Utility Interruption (H) | 3 | 2 | 2 | 3 | 2 | 2.4 | NC | |
| Epidemic/Pandemic (N) | 2 | 3 | ~~2~~ 3 | 1 | 4 | 2.4 | I | COVID |
| Winter Storm (N) | 3 | 2 | 2 | 2 | 2 | 2.3 | NC | |
| Hazardous Materials Incident (H) | 2 | 2 | 2 | 4 | 3 | 2.3 | NC | |
| Windstorm, Tornado (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | NC | |
| Hailstorm (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | NC | |
| Transportation Accidents (H) | 4 | 1 | 1 | 4 | 1 | 2.2 | NC | |
| Hurricane, Tropical Storm, Nor'easter (N) | 2 | 2 | 3 | 1 | 3 | 2.2 | NC | |
| Source Water Contamination (H) | 2 | 2 | 2 | 2 | 2 | 2.0 | NC | |
| Wildfire (N) | 2 | 2 | 1 | 4 | 2 | 2.0 | NC | |
| Drought (N) | 1 | 1 | 4 | 1 | 4 | 1.9 | NC | |
| Dam and Levee Failure (H) | ~~1~~ 2 | 2 | ~~2~~ 3 | 4 | 2 | 1.9 | I | ↑ age of Dams, Rt. 522 By Pass impacts (Unknown) |

Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | ~~1~~ 2 | ~~1~~ 2 | ~~1~~ 2 | 4 | 2 | 1.4 | I | BLM Rallies, Breach of County Emails, |
| Extreme Temperatures (N) | 1 | 2 | 1 | 1 | 2 | 1.4 | NC | |
| Infestation/Invasive Species (N) | 1 | 1 | 2 | 2 | 2 | 1.4 | NC | |
| Thunderstorm, Lightning Strike (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | NC | |
| Earthquake (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | NC | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | NC | |
| Radon Exposure (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | NC | |
| Civil Disturbance (H)* | 2 | 2 | 2 | 4 | 2 | 2.3 | | BLM Rallies, Defund Police |
| Cyber Terrorism (H)* | 2 | 2 | 2 | 4 | 2 | 2.3 | | Email Breach |
| Opioid Addiction& Response (H)* | 3 | 3 | 3 | 2 | 2 | 2.6 | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | 30% |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | 30% |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | 20% |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

- ☐ Expansive Soils

### *Human-made*

- ☐ Building and Structure Collapse
- ☑ Civil Disturbance
- ☑ Cyber Terrorism
- ☐ Disorientation
- ☐ Drowning
- ☐ Mass Food/Animal Feed Contamination
- ☐ Nuclear Incident
- ☑ Opioid Addiction & Response
- ☐ Urban Fire and Explosion
- ☐ War and Criminal Activity
- ☐ Envtl. Hazard – Coal Mining
- ☑ Envtl. Hazard – Gas and Liquid Pipelines
- ☐ Envtl. Hazard – Conventional Oil & Gas Wells
- ☐ Envtl. Hazard – Unconventional Oil & Gas Wells
- ☑ Food and Supply Shortages

### Other Comments

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | ~~JEFF PALMER / TOWN OF~~ PA. PAN PAN |
| **Name and Title:** | JEFF PALMER, RECORDER |

This worksheet summarizes **Morgan Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| [redacted] | 3 | 2 | 3 | 3 | 2 | [redacted] | | |
| Utility Interruption (H) | 3 | 2 | 2 | 3 | 2 | 2.4 | N/C | |
| Epidemic/Pandemic (N) | 2 | 3 | 2 | 1 | 4 | 2.4 | I | PANDEMIC HAS AFFECTED RESOURCES AND INCOMES. |
| Winter Storm (N) | 3 | 2 | 2 | 2 | 2 | 2.3 | N/C | |
| Hazardous Materials Incident (H) | 2 | 2 | 2 | 4 | 3 | 2.3 | N/C | |
| Windstorm, Tornado (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | N/C | |
| Hailstorm (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | N/C | |
| Transportation Accidents (H) | 4 | 1 | 1 | 4 | 1 | 2.2 | N/C | |
| Hurricane, Tropical Storm, Nor'easter (N) | 2 | 2 | 3 | 1 | 3 | 2.2 | N/C | |
| Source Water Contamination (H) | 2 | 2 | 2 | 2 | 2 | 2.0 | N/C | |
| Wildfire (N) | 2 | 2 | 1 | 4 | 2 | 2.0 | N/C | |
| Drought (N) | 1 | 1 | 4 | 1 | 4 | 1.9 | N/C | |
| Dam and Levee Failure (H) | 1 | 2 | 2 | 4 | 2 | 1.9 | N/C | |

## Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 1 | 1 | 1 | 4 | 2 | 1.4 | N/C | |
| Extreme Temperatures (N) | 1 | 2 | 1 | 1 | 2 | 1.4 | N/C | |
| Infestation/Invasive Species (N) | 1 | 1 | 2 | 2 | 2 | 1.4 | N/C | |
| Thunderstorm, Lightning Strike (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | N/C | |
| Earthquake (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | N/C | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | N/C | |
| Radon Exposure (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | N/C | |
| Civil Disturbance (H)* | | | | | | | | |
| Cyber Terrorism (H)* | | | | | | | | |
| Opioid Addiction& Response (H)* | | | | | | | | |

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## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

- ☐ Expansive Soils

### *Human-made*

- ☐ Building and Structure Collapse
- ☐ Civil Disturbance
- ☐ Cyber Terrorism
- ☐ Disorientation
- ☐ Drowning
- ☐ Mass Food/Animal Feed Contamination
- ☐ Nuclear Incident
- ☑ Opioid Addiction & Response
- ☐ Urban Fire and Explosion
- ☐ War and Criminal Activity
- ☐ Envtl. Hazard – Coal Mining
- ☐ Envtl. Hazard – Gas and Liquid Pipelines
- ☐ Envtl. Hazard – Conventional Oil & Gas Wells
- ☐ Envtl. Hazard – Unconventional Oil & Gas Wells

### Other Comments

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | 30% |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
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| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | 30% |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
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| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| Community/Organization: | Morgan County |
| Name and Title: | Stefanie Allemong-County Administrator |

This worksheet summarizes **Morgan Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY (1 — 4) | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| 2 Flooding (N) | 3 | 2 | 3 | 3 | 2 | 2.6 | NC | 2018 Flood (Flash) - |
| Utility Interruption (H) | 3 | 2 | 2 | 3 | 2 | 2.4 | NC | |
| 1 * Epidemic/Pandemic (N) | 2 | 3 | 2 | 1 | 4 | 2.4 | I | COVID 19 +4 |
| Winter Storm (N) | 3 | 2 | 2 | 2 | 2 | 2.3 | NC | |
| Hazardous Materials Incident (H) | 2 | 2 | 2 | 4 | 3 | 2.3 | NC | |
| Windstorm, Tornado (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | NC | |
| Hailstorm (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | NC | |
| Transportation Accidents (H) | 4 | 1 | 1 | 4 | 1 | 2.2 | I | By-pass +1 |
| Hurricane, Tropical Storm, Nor'easter (N) | 2 | 2 | 3 | 1 | 3 | 2.2 | NC | |
| Source Water Contamination (H) | 2 | 2 | 2 | 2 | 2 | 2.0 | NC | Oil spills -2 Zimmerman Berkeley Club |
| Wildfire (N) | 2 | 2 | 1 | 4 | 2 | 2.0 | NC | |
| Drought (N) | 1 | 1 | 4 | 1 | 4 | 1.9 | NC | |
| Dam and Levee Failure (H) | 1 | 2 | 2 | 4 | 2 | 1.9 I | Possible | - Bypass +1 |

Bypass / Flooding / Dam Concerns / Transportation - May Increase - Scheduled for Completion 2022

# Evaluation of Identified Hazards and Risk

## PART I: Identified Hazards

| | |
|---|---|
| **Community/Organization:** | ~~JEFF PALMER / TOWN OF~~ PA. PAN PAN |
| **Name and Title:** | JEFF PALMER, RECORDER |

This worksheet summarizes **Morgan Countywide** risk ratings for all hazards profiled in the 2017 Multi-Jurisdictional Hazard Mitigation Plan. How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? Please mark the column highlighted in blue to indicate how hazard risk has changed.

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| [redacted] | 3 | 2 | 3 | 3 | 2 | [redacted] | | |
| Utility Interruption (H) | 3 | 2 | 2 | 3 | 2 | 2.4 | N/C | |
| Epidemic/Pandemic (N) | 2 | 3 | 2 | 1 | 4 | 2.4 | I | PANDEMIC HAS AFFECTED RESOURCES AND INCOMES. |
| Winter Storm (N) | 3 | 2 | 2 | 2 | 2 | 2.3 | N/C | |
| Hazardous Materials Incident (H) | 2 | 2 | 2 | 4 | 3 | 2.3 | N/C | |
| Windstorm, Tornado (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | N/C | |
| Hailstorm (N) | 2 | 2 | 2 | 4 | 2 | 2.2 | N/C | |
| Transportation Accidents (H) | 4 | 1 | 1 | 4 | 1 | 2.2 | N/C | |
| Hurricane, Tropical Storm, Nor'easter (N) | 2 | 2 | 3 | 1 | 3 | 2.2 | N/C | |
| Source Water Contamination (H) | 2 | 2 | 2 | 2 | 2 | 2.0 | N/C | |
| Wildfire (N) | 2 | 2 | 1 | 4 | 2 | 2.0 | N/C | |
| Drought (N) | 1 | 1 | 4 | 1 | 4 | 1.9 | N/C | |
| Dam and Levee Failure (H) | 1 | 2 | 2 | 4 | 2 | 1.9 | N/C | |

## Region 9 MJHMP 2022 Update for Berkeley and Morgan Counties

| HAZARD | RISK ASSESSMENT CATEGORY | | | | | RISK FACTOR | NC=No Change I=Increase D=Decrease | Please provide an explanation for any hazards marked I or D |
|---|---|---|---|---|---|---|---|---|
| | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | | | |
| Terrorism (H) *Note that Civil Disturbance and Cyber Terrorism are listed separately below.* | 1 | 1 | 1 | 4 | 2 | 1.4 | N/C | |
| Extreme Temperatures (N) | 1 | 2 | 1 | 1 | 2 | 1.4 | N/C | |
| Infestation/Invasive Species (N) | 1 | 1 | 2 | 2 | 2 | 1.4 | N/C | |
| Thunderstorm, Lightning Strike (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | N/C | |
| Earthquake (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | N/C | |
| Landslides and Land Subsidence (N) | 1 | 1 | 1 | 4 | 1 | 1.3 | N/C | |
| Radon Exposure (N) | 1 | 1 | 1 | 1 | 1 | 1.0 | N/C | |
| Civil Disturbance (H)* | | | | | | | | |
| Cyber Terrorism (H)* | | | | | | | | |
| Opioid Addiction& Response (H)* | | | | | | | | |

*The Risk Factor Methodology used for this assessment is on the back side of this form for your reference. Please use the Risk Factor Methodology to complete the **Civil Disturbance, Cyber Terrorism,** and **Opioid Addiction & Response** rows.

## PART II: Other Hazards

Do any of these hazards, not profiled in the 2017 MJHMP, have the potential to affect your community significantly and require focused mitigation efforts? *(If so, check box)*

### *Natural*

- ☐ Expansive Soils

### *Human-made*

- ☐ Building and Structure Collapse
- ☐ Civil Disturbance
- ☐ Cyber Terrorism
- ☐ Disorientation
- ☐ Drowning
- ☐ Mass Food/Animal Feed Contamination
- ☐ Nuclear Incident
- ☑ Opioid Addiction & Response
- ☐ Urban Fire and Explosion
- ☐ War and Criminal Activity
- ☐ Envtl. Hazard – Coal Mining
- ☐ Envtl. Hazard – Gas and Liquid Pipelines
- ☐ Envtl. Hazard – Conventional Oil & Gas Wells
- ☐ Envtl. Hazard – Unconventional Oil & Gas Wells

### Other Comments

**Risk Factor Methodology**

| RISK ASSESSMENT CATEGORY | DEGREE OF RISK | | | | WEIGHT VALUE |
|---|---|---|---|---|---|
| | LEVEL | CRITERIA | | INDEX | |
| **PROBABILITY** *What is the likelihood of a hazard event occurring in a given year?* | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | | 1 | 30% |
| | **POSSIBLE** | BETWEEN 1 & 49.9% ANNUAL PROBABILITY | | 2 | |
| | **LIKELY** | BETWEEN 50 & 90% ANNUAL PROBABILITY | | 3 | |
| | **HIGHLY LIKELY** | GREATER THAN 90% ANNUAL PROBABILTY | | 4 | |
| **IMPACT** *In terms of injuries, damage, death, and economic impact, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?* | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | | 1 | 30% |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY. | | 2 | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK. | | 3 | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE. | | 4 | |
| **SPATIAL EXTENT** *How large of an area could be impacted by a hazard event? Are impacts localized or regional?* | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | | 1 | 20% |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | | 2 | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | | 3 | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | | 4 | |
| **WARNING TIME** *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?* | **MORE THAN 24 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **12 TO 24 HRS** | SELF-DEFINED | | 2 | |
| | **6 TO 12 HRS** | SELF-DEFINED | | 3 | |
| | **LESS THAN 6 HRS** | SELF-DEFINED | | 4 | |
| **DURATION** *How long does the hazard event usually last?* | **LESS THAN 6 HRS** | SELF-DEFINED | *(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)* | 1 | 10% |
| | **LESS THAN 24 HRS** | SELF-DEFINED | | 2 | |
| | **LESS THAN 1 WEEK** | SELF-DEFINED | | 3 | |
| | **MORE THAN 1 WEEK** | SELF-DEFINED | | 4 | |

## Appendix C-10 Berkeley County Capability Assessment Worksheets

This link will take you to the webpage with all of the referenced planning department plans and policies: Berkeley County Council (berkeleywv.org)

**Comprehensive/Master Land Use Plan:**

| | |
|---|---|
| Is this Plan/Policy in Place? | Yes |
| Title: | Berkeley County Comprehensive Plan Update 2016-2026 |
| Author/Owner: | Berkeley County Planning Commission |
| Effective Date: | October 20, 2016 |
| Next Scheduled Update: | 2026 |
| Relation to Hazard Mitigation: | Plan references HMP |

**Subdivision Development Review Ordinance:**

| | |
|---|---|
| Is this Plan/Policy in Place? | Yes |
| Title: | Berkeley County Subdivision Ordinance |
| Author/Owner: | BC Planning Commission & BC Council |
| Effective Date: | July 30, 2009 |
| Next Scheduled Update: | Currently in progress |
| Relation to Hazard Mitigation: | Ordinance includes requirements for protecting sensitive areas including streams, sinkholes, springs, floodplain, severe slopes, and significant karst features. |

**Zoning Ordinance 1:**

| | |
|---|---|
| Is this Plan/Policy in Place? | Yes |
| Title: | Airport Height, Sound, and Runway Protection Zoning Ordinance |
| Author/Owner: | BC Planning Commission & BC Council |
| Effective Date: | March 19, 2020 (replaces ordinance adopted in 2004) |
| Next Scheduled Update: | no updates scheduled |
| Relation to Hazard Mitigation: | Ordinance includes height requirements to maintain the safety of air navigation for pilots and community members.<br>Ordinance includes use restrictions and higher standards for construction in decibel areas to protect community members from noise levels created by aircraft.<br>Ordinance includes extremely limited uses in the runway protection zones to protect community members from injury and to protect property from damage. |

**Zoning Ordinance 2:**

| | |
|---|---|
| Is this Plan/Policy in Place? | Yes |
| Title: | Tuscarora Community Zoning Ordinance |
| Author/Owner: | BC Planning Commission & BC Council |
| Effective Date: | September 23, 1975 |
| Next Scheduled Update: | currently under discussion |
| Relation to Hazard Mitigation: | |

**Zoning Ordinance 3:**

| | |
|---|---|
| Is this Plan/Policy in Place? | Yes |
| Title: | Windewald Neighborhood Zoning Ordinance |
| Author/Owner: | BC Planning Commission & BC Council |

| | |
|---|---|
| Effective Date: | September 2, 1975 |
| Next Scheduled Update: | no updates scheduled |
| Relation to Hazard Mitigation: | |

**Streambank Buffer Protection Program:**

| | |
|---|---|
| Is this Plan/Policy in Place? | Yes |
| Title: | Back Creek Watershed Protection Plan |
| Link: | BackCreek_WPP.pdf (wv.gov) |
| Author/Owner: | WV Conservation Agency/WV DEP |
| Effective Date: | June 13, 2014 |
| Next Scheduled Update: | |
| Relation to Hazard Mitigation: | |

**Floodplain Management Ordinance/NFIP Compliance:**

| | |
|---|---|
| Is this Plan/Policy in Place? | Yes |
| Title: | Berkeley County Floodplain Ordinance |
| Author/Owner: | BC Planning Commission & BC Council |
| Effective Date: | July 1, 2009 |
| Next Scheduled Update: | 1 to 2 years, when new floodplain maps are generated by the state |
| Relation to Hazard Mitigation: | Includes 'higher standards' to meet requirements of CRS Class 7 Rating |

**National Flood Insurance Program (NFIP) Community Rating System (CRS):**

| | |
|---|---|
| Is this Plan/Policy in Place? | Yes |
| Title: | NFIP CRS Class 7 Community |
| Author/Owner: | CRS Coordinator, BC Planning Commission & BC Council |
| Effective Date: | Previous cycle verification visit occurred on October 19, 2016 |
| Next Scheduled Update: | 5-year cycle verification occurring in 2021 |
| Relation to Hazard Mitigation: | Points are earned in this program through compliance with multiple County ordinances and building codes containing 'higher standards'. Since the county has 55 repetitive loss properties, a Repetitive Loss Area Analysis or Floodplain Management Plan is required by this program and no rating points are earned for this activity. |

**Stormwater Management Plan:**

| | |
|---|---|
| Is this Plan/Policy in Place? | Yes |
| Title: | Berkeley County 2016 Stormwater Ordinance |
| Author/Owner: | Region 9 & BC Engineering & BC Public Service Stormwater District |
| Effective Date: | November 1, 2016 |
| Next Scheduled Update: | Currently in progress |
| Relation to Hazard Mitigation: | Includes 'higher standards' to meet requirements of CRS Class 7 Rating |

**BERKELEY COUNTY ENGINEERING AND BUILDING INSPECTIONS**

400 West Stephen Street - Suite 202, Martinsburg, WV 25401-3838
Telephone: 304-264-1966, Fax: 304-262-3128
Web Page: www.berkeleywv.org

Hazard Mitigation Plan

RE: Building Code

In relation to Hazard Mitigation, Building Code administers a major role in the structural compliance of any permanent structure placed in Berkeley County. Building Code focuses on snow loads, wind design criteria, soil types, and flood resistant construction to ensure the safety of the structure along with any occupants who should dwell there.

I have thirteen employees dedicated to the enforcement of our code/ordinance from permits to plan reviews to inspections.

All violations are dealt with on a case by case basis. This could involve re-inspection fees on permits up to violations being sent to Magistrate Court with fines attached to the violation if closure is not met on the violation at hand.

Any time a structure is proposed in a hazardous area, a review is completed by our CFM which normally entails added engineering practices and then reviewed against adopted code/ordinance. An example of this would be flood resistant construction. These reviews are an effective measure in reducing negative impacts on Berkeley County and ensuring public health and safety of all residents.

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Hazard Mitigation Plan

RE: Engineering Department

Berkeley County Engineering and Building Permits Department addresses hazardous impacts through adopted building code/ordinance, storm water ordinance, and MS4 compliance. MS4 inspectors are a separate entity of Berkeley County and work closely with The Engineering Department on a multitude of projects.

All inquiries or reviews use the above mentioned to form comments or conclusions that allow for compliance. The Engineering Department has two full time Professional Engineers on staff and one full time Assistant County Engineer. The department also has two employees certified as storm water inspectors.

The Engineering Department would work with Berkeley County Emergency Services to implement mitigation actions if called upon to reduce further risk in Berkeley County.

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Hazard Mitigation Plan

RE: Code Enforcement Department

Berkeley County Engineering and Building Permits Department has nine employees certified through ICC and The West Virginia State Fire Marshall's Office to perform inspections related to Code Enforcement.

The following codes are in effect:

--2015 International Building Code
--2015 International Plumbing Code
--2015 International Mechanical Code
--2015 International Fuel/Gas Code
--2015 International Property Maintenance Code
--2009 Energy Conservation Code
--2015 International Residential Code (All appendices except L)
--2017 National Electric Code. NFPA 70
--2015 International Swimming Pool and Spa Code
--2015 International Existing Building Code
--2009 ICC/ANSI ALIT .1 American National Standards for Accessibility and Usable Buildings and Facilities
--The ANSI/ASHRAE/IESNA Standard 90.1-2010 Edition for Commercial Buildings
--WV State Fire Code 2015

Electrical Inspections are done through third party electrical inspectors that are approved by The Berkeley County Council and a list is provided to all that require this inspection type. All other inspections are done by The Berkeley County Engineering and Building Permits Department.

**BERKELEY COUNTY ENGINEERING AND BUILDING INSPECTIONS**

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Telephone: 304-264-1966, Fax: 304-262-3128
Web Page: www.berkeleywv.org

Hazard Mitigation Plan

RE: Chief Building Officer

Berkeley County Engineering and Permit Department's Code Official has the authority to enforce all provisions of the adopted Berkeley County Building Code Ordinance. Duties and powers can be referenced through Section R104.1 in the code book.

The Code Official has 8 Deputies to enforce all aspects of The Building Code Ordinance. With a team of this size, we are able to reduce possible hazards that could be encountered in Berkeley County.

Code Enforcement has monthly in-house meetings along with continuing education throughout a calendar year to acquire C.E.U.'s in order to keep current certifications. Classroom education consists of approximately 25+ hours per year along with 1-2 hours monthly of in-house training.

# FEMA REGION III
# HAZARD MITIGATION PLAN GUIDANCE
## Community Capability Assessment Worksheet

FEMA

**JURISDICTION:** _____

## PLANNING AND REGULATORY

Planning and regulatory capabilities are plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

### PLANS AND POLICIES

Indicate if the jurisdiction has the following plans or policies in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider development of the plan/policy as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the plan/policy address hazard impacts? If so, how? For example, does the plan/policy include limitations to building in areas of risk, noted by the hazard mitigation plan? If so, what are those restrictions?
- Does the plan/policy identify projects that could be included in the mitigation strategy?
- Can the plan/policy be used to implement mitigation actions?
- How can the plan/policy be expanded and improved to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific plans or policies.

| **COMPREHENSIVE/MASTER LAND USE PLAN** | Overall policy guide for future community growth and development. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## PLANS AND POLICIES (CONTINUED)

| **CLIMATE CHANGE ADAPTATION PLAN** | An action plan and vulnerability assessment across a broad range of government services to anticipate, plan for, increase awareness of, and build momentum to address and adapt to a changing climate. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

| **EMERGENCY OPERATIONS PLAN** | Organizational procedures and processes to respond to and recover from an emergency. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## PLANS AND POLICIES (CONTINUED)

| **STREAMBANK BUFFER PROTECTION PROGRAM** | A combination of conservation easements, vegetation management, and landscape restoration of vegetative buffers for streams and waterways to attenuate stormwater runoff quantity and quality issues, decrease streambank erosion, and increase habitat value of the waterway. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

Other plans and policies that should be included in the capability assessment for each participating jurisdiction:

- Brownfields Redevelopment Program
- Coastal Zone Management Program
- National Flood Insurance Program (NFIP) Community Rating System
- Community Wildfire Protection Plan
- Continuity of Operations Plan
- Disaster Recovery Plan
- Economic Development Plan
- Flood Mitigation Plan
- Land acquisition for open space and public recreation uses
- Transportation Plan
- Stormwater Management Plan

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## CODES AND ORDINANCES

Indicate if the jurisdiction has the following codes or ordinances in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider enactment of the code/ordinance as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the code/ordinance address hazard impacts? If so, how?
- Is the code/ordinance adequately administered and enforced? For example, are there personnel dedicated to enforcement? Are the procedures for addressing violations clear?
- How many times has the code/ordinance been applied to enforce restrictions in hazard areas?
- Is the code/ordinance an effective measure for reducing hazard impacts?
- How can the code/ordinance be improved to reduce risk through the use of higher standards?

In addition, see Attachment A for additional questions or considerations for specific codes or ordinances.

| **BUILDING CODE** | Minimum requirements that must be met in the construction and maintenance of buildings to ensure public health and safety. |
|---|---|
| Is this Code or Ordinance in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | Berkeley County Building Code Ordinance |
| Responsible Agency: | Berkeley County Council. Enforced by Engineering & Permits Dept. |
| Effective Date: | July 30, 2020 |
| Next Scheduled Update (if known): | Not Known |
| Relation to Hazard Mitigation: | See Attachment |

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## CODES AND ORDINANCES (CONTINUED)

| **FLOODPLAIN MANAGEMENT ORDINANCE/NFIP COMPLIANCE** | The minimum floodplain management regulations for compliance with the NFIP that must be met by participating communities once FEMA provides flood hazard information. This is to ensure participating communities consider flood hazards, to the extent that they are known, in all official actions relating to land management and use. |
|---|---|
| Is this Code or Ordinance in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

Other codes and ordinances that should be included in the capability assessment for each participating jurisdiction:

- Fire department inspections
- International Property Maintenance Code
- Oher hazard-specific ordinances (stormwater, steep slope, and wildfire)
- Site plan development review ordinance
- Subdivision development review ordinance
- Zoning ordinance

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## ADMINISTRATIVE AND TECHNICAL

Administrative and technical capabilities include boards, commissions, departments, staff and consulting services, along with the related skills and tools, that can be used for mitigation planning and the implementation of specific mitigation actions.

*Note: For smaller jurisdictions without local resources, resources at the next level government may be able to provide administrative, technical, and/or financial assistance.*

### ADMINISTRATIVE

Indicate if the jurisdiction has the following boards, commissions, or departments in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider forming the board/commission/department as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the board / commission / department address hazard impacts? If so, how? For example, is the risk assessment of the approved Hazard Mitigation Plan (HMP) consulted when this board, commission or department considers projects or activities? If so, what is the process for review?
- Are staffing numbers and training adequate to carry out the mission of the board/commission/department?
- Does the board/commission/department identify projects that could be included in the mitigation strategy?
- Can the board/commission/department be engaged to implement mitigation actions?
- How can the board/commission/department be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **ENGINEERING DEPARTMENT** | An in-house department providing civil engineering capability. |
|---|---|
| Is this Board, Commission, or Department in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | Berkeley County Engineering and Building Permits Dept. |
| Point-of-Contact: | Brian Ross – Director |
| Meeting Schedule: | M-F 8-5pm |
| Relation to Hazard Mitigation: | Attachment |

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## ADMINISTRATIVE (CONTINUED)

| **CODE ENFORCEMENT DEPARTMENT** | An in-house department responsible for evaluating private properties and public grounds against local codes. |
|---|---|
| Is this Board, Commission, or Department in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | Berkeley County Engineering and Building Permits Dept |
| Point-of-Contact: | Brian Ross - Director |
| Meeting Schedule: | M-F 8-5 |
| Relation to Hazard Mitigation: | Attachment |

Other administrative boards, commissions, or departments that should be included in the capability assessment for each participating jurisdiction:

- Board of Education
- Emergency Management
- Maintenance Department
- Mitigation Implementation Team
- Mutual aid agreements
- Planning Commission/Zoning Board
- Public Utility Board(s)
- Public Works Department
- Purchasing Department

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## TECHNICAL

Indicate if the jurisdiction has the following staff positions in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider adding the position as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the staff position description include addressing hazard impacts and/or mitigation? If so, how and is staff trained on relevant issues related to hazard impacts and/or mitigation?
- What training and/or certification is required of the staff position?
- What additional training and/or certification does the current staff need?
- How can the staff be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **CHIEF BUILDING OFFICER** | The in-house or contracted code enforcement staff responsible for evaluating private properties and public grounds against local codes, answering citizen questions about the codes, and issuing citations for code violations. |
|---|---|
| Is this Staff Position in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☒ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | Code OfficaL |
| Current Position Holder: | John Dick |
| Length of Employment in this Position: | 5 years |
| Relation to Hazard Mitigation: | Attachment |

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## TECHNICAL (CONTINUED)

| **CIVIL ENGINEER - CONSTRUCTION PROJECT MANAGEMENT** | The in-house or contracted engineering staff responsible for managing construction projects and meeting budget and schedule constraints. |
|---|---|
| Is this Staff Position in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☒ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | County Engineer |
| Current Position Holder: | Doug Smith / Jim Golden |
| Length of Employment in this Position: | 6 months / 4 years |
| Relation to Hazard Mitigation: | County Engineer reviews/approves projects. Does not manage/schedule or handle budgets. |

| **GRANT ADMINISTRATOR** | The in-house or contracted staff familiar with and capable of successfully handling FEMA Hazard Mitigation Assistance (HMA) grant program requirements consistent with the Code of Federal Regulations, as well as non-FEMA funding sources. |
|---|---|
| Is this Staff Position in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☐ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | |
| Current Position Holder: | |
| Length of Employment in this Position: | |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## TECHNICAL (CONTINUED)

| **GRANT WRITER** | The in-house or contracted staff familiar with and capable of successfully applying for FEMA HMA grants, as well as non-FEMA funding sources. |
|---|---|
| Is this Staff Position in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☐ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | |
| Current Position Holder: | |
| Length of Employment in this Position: | |
| Relation to Hazard Mitigation: | |

Other technical staff positions that should be included in the capability assessment for each participating jurisdiction:

- Business Administrator
- Chief Financial Officer
- Civil Engineer – Design
- Civil Engineer – Inspections
- Clerk
- Community Planner
- Emergency Manager
- Floodplain Administrator
- GIS Coordinator (hazard and community asset data and information management, Hazus)

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## FINANCIAL

Financial capabilities include access to or eligibility to use funding resources for hazard mitigation.

Indicate if the jurisdiction has access and/or eligibility for the following funding resources.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider pursuing the funding resource as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the funding resource been used in the past for hazard mitigation? If so, for what type of activities?
- Could the resource be used to fund future mitigation actions?
- How can the funding resource be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **CAPITAL IMPROVEMENTS PROGRAM** | A short-range plan, usually 4 to 10 years, which identifies capital projects and equipment purchases, provides a planning schedule and identifies options for financing the plan. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## FINANCIAL (CONTINUED)

| **FUNDING PROGRAMS – FEDERAL (NON-FEMA)** | Grant programs administered by Federal agencies other than FEMA with potential to fund mitigation actions. For example, the U.S. Department of Housing and Urban Development Community Development Block Grants, U.S. Department of Energy, and the U.S. Department of Transportation, etc. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

| **UTILITY FEES FOR STORMWATER, WATER, SEWER, GAS, OR ELECTRIC SERVICES** | Fee levied by the jurisdiction, in addition to cost of service provided, for use in funding related capital programs, such as non-Federal shares for mitigation actions. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

Other funding resources that should be included in the capability assessment for each participating jurisdiction:

- Community Development Block Grant
- FEMA – Hazard Mitigation Assistance
- FEMA – Public Assistance 406 Mitigation
- Funding programs – State
- Funding programs – Philanthropic
- General obligation bonds and/or special tax bonds
- Impact fees for new development
- Tax levies for specific purposes

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## EDUCATION AND OUTREACH

Education and outreach capabilities include programs and methods already in place that could be used to support implementation of mitigation actions and communicate hazard-related information.

Indicate if the jurisdiction has the following programs or methods in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider developing the program or method as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the program/method been used in the past for hazard mitigation? If so, for what type of activities?
- Could the program/method be used to support future mitigation actions?
- How can the program/method be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **STORMREADY CERTIFICATION** | National Weather Service program that helps arm America's communities with communication and safety skills needed to save lives and property, before, during and after an event. |
|---|---|
| Is this Program/Method in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

**JURISDICTION:** _____

## EDUCATION AND OUTREACH (CONTINUED)

| **SEASONAL EMERGENCY MANAGEMENT AND MITIGATION OUTREACH** | Seasonal outreach. For example, in advance of hurricane season or in anticipation of winter weather, including information regarding preparedness and mitigation measures that individuals can undertake for their own risk reduction. |
|---|---|
| Is this Program/Method in Place? | ☐ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

Other programs or methods that should be included in the capability assessment for each participating jurisdiction:

- Firewise USA certification
- Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.
- Natural disaster or safety related school programs
- Ongoing public education or information program (e.g., Environmental Education, Fire Safety, Household Preparedness, Responsible Water Use, etc.)
- Public-private partnership initiatives addressing disaster-related issues

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## ATTACHMENT A

Attachment A includes the following additional guidance for assessment of specific capabilities:

- Potential agencies and organizations to contact for information
- Additional questions or considerations

### PLANNING AND REGULATORY

#### PLANS AND POLICIES

| PLAN/POLICY | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Comprehensive/ Master Land Use Plan | Planning or Zoning Departments | ▫ Does the plan integrate hazard profile information from the current approved HMP into development suitability analysis?<br>▫ Is the plan effectively reducing or eliminating development in known hazard areas, i.e., is the rate of development in the Special Flood Hazard Area lower, the same, or higher?<br>▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP? |
| Climate Change Adaptation Plan | Planning Department | ▫ Does the plan include future hazard vulnerability projections? If so, are these projections included in the current approved HMP risk assessment?<br>▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP? |
| Emergency Operations Plan (EOP) | Emergency Management Department | ▫ Does the EOP address all hazards identified in the current approved HMP?<br>▫ Does the EOP address any hazards that are not included in the current approved HMP? If so, are these hazards for which mitigation actions might be appropriate to consider?<br>▫ Does the EOP identify obstacles or problems for response and recovery operations that could be alleviated entirely or in part through mitigation, e.g., limited access to floodprone areas due to transportation infrastructure limitations? |
| Streambank Buffer Protection Program | Local or regional natural resources conservation non-profit organizations | ▫ Does the program reference problem areas identified in the current approved HMP?<br>▫ Does the program identify problem areas that should be referenced in the HMP?<br>▫ Is acreage in the program increasing year to year? |

#### CODES AND ORDINANCES

| CODE/ORDINANCE | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Building Code | Code Enforcement or Engineering Departments | ▫ What is the community's Building Code Effectiveness Grading Schedule Score? |
| Floodplain Ordinance/NFIP Compliance | Code Enforcement or Engineering Departments | ▫ What is the community's current status in the NFIP?<br>▫ Does the ordinance include higher standards than minimum requirements of the NFIP, e.g., additional freeboard above the Base Flood Elevation? |

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## ADMINISTRATIVE AND TECHNICAL

### ADMINISTRATIVE

| BOARD/COMMISSION/ DEPARTMENT | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Engineering Department | Engineering or Public Works Departments | ▫ Does the department have ability and availability for design, engineering, project scoping (per HMA or other grant program requirements) and construction project management for mitigation actions included in the current approved HMP and/or proposed for plan update? |
| Code Enforcement Department | Code Enforcement or Engineering Departments | ▫ Are all ordinances and codes related to hazard mitigation (e.g., building code, floodplain management ordinance, zoning), enforced by the same department? If not, what are the departments and their respective responsibilities and are compliance reviews and enforcement activities coordinated between departments?<br>▫ Does the department have ability and availability to enforce all ordinances and codes related to hazard mitigation? |

### TECHNICAL

| STAFF POSITION | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Chief Building Officer | Code Enforcement or Engineering Departments | ▫ How does the Chief Building Officer position interact with other code and ordinance enforcement officials with hazard mitigation-related responsibilities, e.g., Floodplain Administrator? |
| Civil Engineer - Construction Project Management | Engineering Department | ▫ Have previous construction projects been completed, meeting budget and schedule constraints? |
| Grant Administrator | Finance or Emergency Management Departments | ▫ Does the Grant Administrator have experience with FEMA HMA grants administration? If so, have previous HMA grant administration experiences been completed successfully?<br>▫ Does the Grant Administrator have experience with other Federal non-FEMA grants administration used for mitigation purposes? If so, what are the grants and was the administration of the grants completed successfully? |
| Grant Writer | Finance or Emergency Management Departments | ▫ Does the grant writer have experience with FEMA HMA grants applications? Have previous HMA grant applications been awarded? Is so, what kinds of projects were funded?<br>▫ Does the grant writer have experience with other Federal non-FEMA grants applications used for mitigation purposes? Have previous non-FEMA grant applications been awarded? If so, what were the grants and what kinds of projects were funded? |

# Community Capability Assessment Worksheet

**JURISDICTION:** _____

## FINANCIAL

| FUNDING RESOURCE | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Capital Improvement Program | Administration or Financial Departments | ▫ What is the process and timeframe for adding projects to the Critical Infrastructure Protection? |
| Funding programs – Federal (non-FEMA) | Finance or Emergency Management Departments | ▫ What were the grants, and what kinds of projects were funded? |
| Utility fees for stormwater, water, sewer, gas, or electric services | Finance or Public Works Departments | ▫ How much money is available annually to support implementation of hazard mitigation actions? Is that level of funding expected to decrease, stay the same, or increase in the next five years?<br>▫ What kinds of projects have been funded in this manner? |

## EDUCATION AND OUTREACH

| PROGRAM/METHOD | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| StormReady Certification | Emergency Management or Public Information Departments | ▫ How long has the community been certified?<br>▫ Have surveys been conducted to determine the effectiveness of the program? If so, what were the results? |
| Seasonal Emergency Management and Mitigation Outreach | Emergency Management or Public Information Departments | ▫ Is awareness of potential hazard impacts increasing year to year?<br>▫ Are individuals and businesses taking necessary precautions in advance of events? |

# FEMA REGION III
# HAZARD MITIGATION PLAN GUIDANCE
## Community Capability Assessment Worksheet

**JURISDICTION:** City of Martinsburg, WV

# PLANNING AND REGULATORY

Planning and regulatory capabilities are plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

## PLANS AND POLICIES

Indicate if the jurisdiction has the following plans or policies in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider development of the plan/policy as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the plan/policy address hazard impacts? If so, how? For example, does the plan/policy include limitations to building in areas of risk, noted by the hazard mitigation plan? If so, what are those restrictions?
- Does the plan/policy identify projects that could be included in the mitigation strategy?
- Can the plan/policy be used to implement mitigation actions?
- How can the plan/policy be expanded and improved to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific plans or policies.

| **COMPREHENSIVE/MASTER LAND USE PLAN** | Overall policy guide for future community growth and development. |
|---|---|
| Is this Plan/Policy in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | Martinsburg, West Virginia Comprehensive Plan - 2018 |
| Author/Owner: | City of Martinsburg |
| Effective Date: | December, 2018 |
| Next Scheduled Update (if known): | 2028 - Update required every 10 years. |
| Relation to Hazard Mitigation: | Sets vision and goals for land use and development; transportation; economic development; public facilities and infrastructure; natural resource protection; natural resource protection; historic properties and cultural resources and public safety. |

**JURISDICTION:** City of Martinsburg, WV

## PLANS AND POLICIES (CONTINUED)

| CLIMATE CHANGE ADAPTATION PLAN | An action plan and vulnerability assessment across a broad range of government services to anticipate, plan for, increase awareness of, and build momentum to address and adapt to a changing climate. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☒ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

| EMERGENCY OPERATIONS PLAN | Organizational procedures and processes to respond to and recover from an emergency. |
|---|---|
| Is this Plan/Policy in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | 2019 Berkeley County Emergency Operations Plan |
| Author/Owner: | Berkeley County |
| Effective Date: | August 29, 2019 |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | Coordinates and integrates local and regional emergency management including, prevention, mitigation, preparedness, response and recovery. |

**JURISDICTION:** City of Martinsburg, WV

## PLANS AND POLICIES (CONTINUED)

| **STREAMBANK BUFFER PROTECTION PROGRAM** | A combination of conservation easements, vegetation management, and landscape restoration of vegetative buffers for streams and waterways to attenuate stormwater runoff quantity and quality issues, decrease streambank erosion, and increase habitat value of the waterway. |
|---|---|
| Is this Plan/Policy in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | City of Martinsburg Stormwater Management Ordinance |
| Author/Owner: | City of Martinsburg |
| Effective Date: | 2013 |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | Protects, maintains, and enhances the environment of Martinsburg and the public health, safety, and general welfare by controlling non-stormwater discharges into storm drain systems; reduce pollutants in stormwater discharges; control stormwater runoff and maintaining and improving stormwater collection systems. |

Other plans and policies that should be included in the capability assessment for each participating jurisdiction:

- Brownfields Redevelopment Program
- Coastal Zone Management Program
- National Flood Insurance Program (NFIP) Community Rating System
- Community Wildfire Protection Plan
- Continuity of Operations Plan
- Disaster Recovery Plan
- Economic Development Plan
- Flood Mitigation Plan
- Land acquisition for open space and public recreation uses
- Transportation Plan
- Stormwater Management Plan

# Community Capability Assessment Worksheet

**JURISDICTION:** City of Martinsburg, WV

## CODES AND ORDINANCES

Indicate if the jurisdiction has the following codes or ordinances in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider enactment of the code/ordinance as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the code/ordinance address hazard impacts? If so, how?
- Is the code/ordinance adequately administered and enforced? For example, are there personnel dedicated to enforcement? Are the procedures for addressing violations clear?
- How many times has the code/ordinance been applied to enforce restrictions in hazard areas?
- Is the code/ordinance an effective measure for reducing hazard impacts?
- How can the code/ordinance be improved to reduce risk through the use of higher standards?

In addition, see Attachment A for additional questions or considerations for specific codes or ordinances.

| **BUILDING CODE** | Minimum requirements that must be met in the construction and maintenance of buildings to ensure public health and safety. |
|---|---|
| Is this Code or Ordinance in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | West Virginia State Building Code (as adopted by the City) |
| Responsible Agency: | City of Martinsburg |
| Effective Date: | Latest edition adopted 8/25/2020 |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | Protects the public health and safety and the safety, protection, and sanitation of new and existing buildings and structures; Protecting financial investments and property values; If construction does not comply with current recommended codes the structure may be at greater risk for damage and loss; Property insurers may not cover work performed without proper permits and inspections; Ensuring that buildings and structures have the physical integrity to endure hazard conditions. |

**JURISDICTION:** City of Martinsburg, WV

## CODES AND ORDINANCES (CONTINUED)

| FLOODPLAIN MANAGEMENT ORDINANCE/NFIP COMPLIANCE | The minimum floodplain management regulations for compliance with the NFIP that must be met by participating communities once FEMA provides flood hazard information. This is to ensure participating communities consider flood hazards, to the extent that they are known, in all official actions relating to land management and use. |
|---|---|
| Is this Code or Ordinance in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | City of Martinsburg Floodplain Ordinance |
| Responsible Agency: | City of Martinsburg |
| Effective Date: | 2009 |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | Promote the general health, welfare, and safety of the community; Encourage the utilization of appropriate construction practices in order to prevent or minimize flood damage in the future; Minimize danger to public health and safety by protecting water supply and sanitary sewage disposal and to protect natural drainage; Reduce financial burdens imposed on the community, its governmental units, and its residents, by preventing the unwise design and construction of development in areas subject to flooding |

Other codes and ordinances that should be included in the capability assessment for each participating jurisdiction:

- Fire department inspections
- International Property Maintenance Code
- Oher hazard-specific ordinances (stormwater, steep slope, and wildfire)
- Site plan development review ordinance
- Subdivision development review ordinance
- Zoning ordinance

**JURISDICTION:** City of Martinsburg, WV

# ADMINISTRATIVE AND TECHNICAL

Administrative and technical capabilities include boards, commissions, departments, staff and consulting services, along with the related skills and tools, that can be used for mitigation planning and the implementation of specific mitigation actions.

*Note: For smaller jurisdictions without local resources, resources at the next level government may be able to provide administrative, technical, and/or financial assistance.*

## ADMINISTRATIVE

Indicate if the jurisdiction has the following boards, commissions, or departments in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider forming the board/commission/department as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the board / commission / department address hazard impacts? If so, how? For example, is the risk assessment of the approved Hazard Mitigation Plan (HMP) consulted when this board, commission or department considers projects or activities? If so, what is the process for review?
- Are staffing numbers and training adequate to carry out the mission of the board/commission/department?
- Does the board/commission/department identify projects that could be included in the mitigation strategy?
- Can the board/commission/department be engaged to implement mitigation actions?
- How can the board/commission/department be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **ENGINEERING DEPARTMENT** | An in-house department providing civil engineering capability. |
|---|---|
| Is this Board, Commission, or Department in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | City of Martinsburg Planning and Zoning Department |
| Point-of-Contact: | Kim Petrucci |
| Meeting Schedule: | |
| Relation to Hazard Mitigation: | Responsible for administering Comprehensive Plan; Flood Plain Ordinance; Building Codes; Zoning, Subdivision Ordinance and Stormwater Ordinance. |

**JURISDICTION:** City of Martinsburg, WV

## ADMINISTRATIVE (CONTINUED)

| CODE ENFORCEMENT DEPARTMENT | An in-house department responsible for evaluating private properties and public grounds against local codes. |
|---|---|
| Is this Board, Commission, or Department in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | City of Martinsburg Planning and Zoning Department |
| Point-of-Contact: | Kim Petrucci |
| Meeting Schedule: | |
| Relation to Hazard Mitigation: | Responsible for administering Comprehensive Plan; Stormwater Ordinance, Zoning Ordinance and Subdivison Ordinance. |

Other administrative boards, commissions, or departments that should be included in the capability assessment for each participating jurisdiction:

- Board of Education
- Emergency Management
- Maintenance Department
- Mitigation Implementation Team
- Mutual aid agreements
- Planning Commission/Zoning Board
- Public Utility Board(s)
- Public Works Department
- Purchasing Department

**JURISDICTION:** City of Martinsburg, WV

## TECHNICAL

Indicate if the jurisdiction has the following staff positions in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider adding the position as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the staff position description include addressing hazard impacts and/or mitigation? If so, how and is staff trained on relevant issues related to hazard impacts and/or mitigation?
- What training and/or certification is required of the staff position?
- What additional training and/or certification does the current staff need?
- How can the staff be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **CHIEF BUILDING OFFICER** | The in-house or contracted code enforcement staff responsible for evaluating private properties and public grounds against local codes, answering citizen questions about the codes, and issuing citations for code violations. |
|---|---|
| Is this Staff Position in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☒ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | Building Code Official |
| Current Position Holder: | Charles Clingan |
| Length of Employment in this Position: | 4 years |
| Relation to Hazard Mitigation: | Responsible for enforcing building code and inspecting plans and structures for compliance. |

JURISDICTION: City of Martinsburg, WV

## TECHNICAL (CONTINUED)

| CIVIL ENGINEER - CONSTRUCTION PROJECT MANAGEMENT | The in-house or contracted engineering staff responsible for managing construction projects and meeting budget and schedule constraints. |
|---|---|
| Is this Staff Position in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☒ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | City Engineer and Contracted Engineer |
| Current Position Holder: | Kim Petrucci and Civil and Environmental Consultants |
| Length of Employment in this Position: | 4 years / 1 year |
| Relation to Hazard Mitigation: | To ensure compliance with applicable laws and regulations. |

| GRANT ADMINISTRATOR | The in-house or contracted staff familiar with and capable of successfully handling FEMA Hazard Mitigation Assistance (HMA) grant program requirements consistent with the Code of Federal Regulations, as well as non-FEMA funding sources. |
|---|---|
| Is this Staff Position in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☒ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | Finance Director |
| Current Position Holder: | Mark Spickler |
| Length of Employment in this Position: | 30 years |
| Relation to Hazard Mitigation: | |

**JURISDICTION:** City of Martinsburg, WV

## TECHNICAL (CONTINUED)

| GRANT WRITER | The in-house or contracted staff familiar with and capable of successfully applying for FEMA HMA grants, as well as non-FEMA funding sources. |
|---|---|
| Is this Staff Position in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☒ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | City Manager; Assistant City Manager; Economic Dev. Director; Finance Director; CDBG |
| Current Position Holder: | Mark Baldwin; Andy Blake, Shane Farthing; Mark Spickler; Nancy Strine |
| Length of Employment in this Position: | From 30 years to 1 year. |
| Relation to Hazard Mitigation: | |

Other technical staff positions that should be included in the capability assessment for each participating jurisdiction:

- Business Administrator
- Chief Financial Officer
- Civil Engineer – Design
- Civil Engineer – Inspections
- Clerk
- Community Planner
- Emergency Manager
- Floodplain Administrator
- GIS Coordinator (hazard and community asset data and information management, Hazus)

**JURISDICTION:** City of Martinsburg, WV

## FINANCIAL

Financial capabilities include access to or eligibility to use funding resources for hazard mitigation.

Indicate if the jurisdiction has access and/or eligibility for the following funding resources.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider pursuing the funding resource as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the funding resource been used in the past for hazard mitigation? If so, for what type of activities?
- Could the resource be used to fund future mitigation actions?
- How can the funding resource be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **CAPITAL IMPROVEMENTS PROGRAM** | A short-range plan, usually 4 to 10 years, which identifies capital projects and equipment purchases, provides a planning schedule and identifies options for financing the plan. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | City of Martinsburg Budget |
| Responsible Agency/Organization: | City of Martinsburg |
| Relation to Hazard Mitigation: | Budget priorities aligned with identified needs, long range plans, and the comprehensive plan. The capital improvement plan supports important public improvements such as streets, fire, police, sewer lines, water supply and storage facilities, wastewater treatment facilities, and other critical infrastructure that are vital to community functioning and warrant careful assessment of hazard risk through the hazard identification and risk assessment process. |

**JURISDICTION:** City of Martinsburg, WV

## FINANCIAL (CONTINUED)

| **FUNDING PROGRAMS – FEDERAL (NON-FEMA)** | Grant programs administered by Federal agencies other than FEMA with potential to fund mitigation actions. For example, the U.S. Department of Housing and Urban Development Community Development Block Grants, U.S. Department of Energy, and the U.S. Department of Transportation, etc. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | CDBG Funds ;Various Federal Grants |
| Responsible Agency/Organization: | City of Martinsburg |
| Relation to Hazard Mitigation: | Assists with priorities,identified needs, long range plans, and the comprehensive plan. The capital improvement plan supports important public improvements such as streets, fire, police, sewer lines, water supply and storage facilities, wastewater treatment facilities, and other critical infrastructure that are vital to community functioning and warrant careful assessment of hazard risk through the hazard identification and risk assessment process. |

| **UTILITY FEES FOR STORMWATER, WATER, SEWER, GAS, OR ELECTRIC SERVICES** | Fee levied by the jurisdiction, in addition to cost of service provided, for use in funding related capital programs, such as non-Federal shares for mitigation actions. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | Sewer and Water Fees |
| Responsible Agency/Organization: | City of Martinsburg |
| Relation to Hazard Mitigation: | Funds maintenance and operation of critical water and sewer systems. |

Other funding resources that should be included in the capability assessment for each participating jurisdiction:

- Community Development Block Grant
- FEMA – Hazard Mitigation Assistance
- FEMA – Public Assistance 406 Mitigation
- Funding programs – State
- Funding programs – Philanthropic
- General obligation bonds and/or special tax bonds
- Impact fees for new development
- Tax levies for specific purposes

**JURISDICTION:** City of Martinsburg, WV

# EDUCATION AND OUTREACH

Education and outreach capabilities include programs and methods already in place that could be used to support implementation of mitigation actions and communicate hazard-related information.

Indicate if the jurisdiction has the following programs or methods in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider developing the program or method as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the program/method been used in the past for hazard mitigation? If so, for what type of activities?
- Could the program/method be used to support future mitigation actions?
- How can the program/method be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **STORMREADY CERTIFICATION** | National Weather Service program that helps arm America's communities with communication and safety skills needed to save lives and property, before, during and after an event. |
|---|---|
| Is this Program/Method in Place? | ☐ YES ☒ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

**JURISDICTION:** City of Martinsburg, WV

## EDUCATION AND OUTREACH (CONTINUED)

| SEASONAL EMERGENCY MANAGEMENT AND MITIGATION OUTREACH | Seasonal outreach. For example, in advance of hurricane season or in anticipation of winter weather, including information regarding preparedness and mitigation measures that individuals can undertake for their own risk reduction. |
|---|---|
| Is this Program/Method in Place? | ☒ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | Martinsburg City Hall; Martinsburg Police; Martinsburg Fire and Martinsburg Stormwater |
| Responsible Agency/Organization: | City of Martinsburg |
| Relation to Hazard Mitigation: | City posts social media messages, sends email and text alerts to citizens regarding preventive and active hazard mitigation. Martinsburg Police, Martinsburg Fire and Martinsburg Stormwater actively educates citizens on various hazards. |

Other programs or methods that should be included in the capability assessment for each participating jurisdiction:

- Firewise USA certification
- Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.
- Natural disaster or safety related school programs
- Ongoing public education or information program (e.g., Environmental Education, Fire Safety, Household Preparedness, Responsible Water Use, etc.)
- Public-private partnership initiatives addressing disaster-related issues

JURISDICTION: City of Martinsburg, WV

# ATTACHMENT A

Attachment A includes the following additional guidance for assessment of specific capabilities:

- Potential agencies and organizations to contact for information
- Additional questions or considerations

## PLANNING AND REGULATORY

### PLANS AND POLICIES

| PLAN/POLICY | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Comprehensive/ Master Land Use Plan | Planning or Zoning Departments | ▫ Does the plan integrate hazard profile information from the current approved HMP into development suitability analysis?<br>▫ Is the plan effectively reducing or eliminating development in known hazard areas, i.e., is the rate of development in the Special Flood Hazard Area lower, the same, or higher?<br>▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP? |
| Climate Change Adaptation Plan | Planning Department | ▫ Does the plan include future hazard vulnerability projections? If so, are these projections included in the current approved HMP risk assessment?<br>▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP? |
| Emergency Operations Plan (EOP) | Emergency Management Department | ▫ Does the EOP address all hazards identified in the current approved HMP?<br>▫ Does the EOP address any hazards that are not included in the current approved HMP? If so, are these hazards for which mitigation actions might be appropriate to consider?<br>▫ Does the EOP identify obstacles or problems for response and recovery operations that could be alleviated entirely or in part through mitigation, e.g., limited access to floodprone areas due to transportation infrastructure limitations? |
| Streambank Buffer Protection Program | Local or regional natural resources conservation non-profit organizations | ▫ Does the program reference problem areas identified in the current approved HMP?<br>▫ Does the program identify problem areas that should be referenced in the HMP?<br>▫ Is acreage in the program increasing year to year? |

### CODES AND ORDINANCES

| CODE/ORDINANCE | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Building Code | Code Enforcement or Engineering Departments | ▫ What is the community's Building Code Effectiveness Grading Schedule Score? |
| Floodplain Ordinance/NFIP Compliance | Code Enforcement or Engineering Departments | ▫ What is the community's current status in the NFIP?<br>▫ Does the ordinance include higher standards than minimum requirements of the NFIP, e.g., additional freeboard above the Base Flood Elevation? |

# Community Capability Assessment Worksheet

**JURISDICTION:** City of Martinsburg, WV

## ADMINISTRATIVE AND TECHNICAL

### ADMINISTRATIVE

| BOARD/COMMISSION/ DEPARTMENT | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Engineering Department | Engineering or Public Works Departments | ▫ Does the department have ability and availability for design, engineering, project scoping (per HMA or other grant program requirements) and construction project management for mitigation actions included in the current approved HMP and/or proposed for plan update? |
| Code Enforcement Department | Code Enforcement or Engineering Departments | ▫ Are all ordinances and codes related to hazard mitigation (e.g., building code, floodplain management ordinance, zoning), enforced by the same department? If not, what are the departments and their respective responsibilities and are compliance reviews and enforcement activities coordinated between departments?<br>▫ Does the department have ability and availability to enforce all ordinances and codes related to hazard mitigation? |

### TECHNICAL

| STAFF POSITION | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Chief Building Officer | Code Enforcement or Engineering Departments | ▫ How does the Chief Building Officer position interact with other code and ordinance enforcement officials with hazard mitigation-related responsibilities, e.g., Floodplain Administrator? |
| Civil Engineer - Construction Project Management | Engineering Department | ▫ Have previous construction projects been completed, meeting budget and schedule constraints? |
| Grant Administrator | Finance or Emergency Management Departments | ▫ Does the Grant Administrator have experience with FEMA HMA grants administration? If so, have previous HMA grant administration experiences been completed successfully?<br>▫ Does the Grant Administrator have experience with other Federal non-FEMA grants administration used for mitigation purposes? If so, what are the grants and was the administration of the grants completed successfully? |
| Grant Writer | Finance or Emergency Management Departments | ▫ Does the grant writer have experience with FEMA HMA grants applications? Have previous HMA grant applications been awarded? Is so, what kinds of projects were funded?<br>▫ Does the grant writer have experience with other Federal non-FEMA grants applications used for mitigation purposes? Have previous non-FEMA grant applications been awarded? If so, what were the grants and what kinds of projects were funded? |

# Community Capability Assessment Worksheet

**JURISDICTION:** City of Martinsburg, WV

## FINANCIAL

| FUNDING RESOURCE | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Capital Improvement Program | Administration or Financial Departments | ▫ What is the process and timeframe for adding projects to the Critical Infrastructure Protection? |
| Funding programs – Federal (non-FEMA) | Finance or Emergency Management Departments | ▫ What were the grants, and what kinds of projects were funded? |
| Utility fees for stormwater, water, sewer, gas, or electric services | Finance or Public Works Departments | ▫ How much money is available annually to support implementation of hazard mitigation actions? Is that level of funding expected to decrease, stay the same, or increase in the next five years?<br>▫ What kinds of projects have been funded in this manner? |

## EDUCATION AND OUTREACH

| PROGRAM/METHOD | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| StormReady Certification | Emergency Management or Public Information Departments | ▫ How long has the community been certified?<br>▫ Have surveys been conducted to determine the effectiveness of the program? If so, what were the results? |
| Seasonal Emergency Management and Mitigation Outreach | Emergency Management or Public Information Departments | ▫ Is awareness of potential hazard impacts increasing year to year?<br>▫ Are individuals and businesses taking necessary precautions in advance of events? |

# Berkeley County
# Community Corrections

520 South Raleigh St.
Martinsburg, WV 25401
Phone: 304-262-1439
Fax: 304-262-9814
Timothy Czaja, Director

In 2015, the Washington Baltimore High Intensity Drug Traffic Area (HIDTA) performed a study in Berkeley County, WV and learned Berkeley County's overdose rate per capita exceeded that of Baltimore City, MD. This statistic was quite alarming. The Berkeley County Council wasted no time in formulating a plan to attack the opioid problem from a few different angles.

The **first step** was the creation of a Berkeley County Recovery Services Department. This department was established in March of 2016 with a staff of one; the Recovery Services Coordinator. The Berkeley County Recovery Services Department now has a staff of 9 people whose responsibilities range from facilitating community based recovery meetings, to knocking on the doors of people who experienced an overdose recently to offer support and treatment.

Work being accomplished through the Berkeley County Recovery Resource Center (BCRCC) includes the following:

- Staff host 9 recovery meetings on a weekly basis
- Juvenile Opioid Treatment Intervention and Prevention Program- staff go into the Middle and High Schools in Berkeley County to facilitate Too Good for Drugs Curriculum and engage with at risk youth and their families to offer education and support to those in need.
- Staff facilitate referrals from community members for those seeking detox, inpatient treatment, MAT, and recovery meetings.
- Quick Response Team- staff receive referrals from Berkeley County EMS and knock on the doors of individuals who have experienced an overdose 24-48 hours after the event. Quick Response team staff connect those individuals with detox, inpatient treatment, peer recovery coaching and recovery meetings.

The **second step** was the creation of the Berkeley County Day Report Center (DRC). Established on Aug.1, 2016 with only three staff members and a handful of referrals, the DRC has grown exponentially. The DRC now has a staff of 23 full time employees, 2 part time employees, and 250 active program participants.

The DRC is an alternative sentencing program for nonviolent offenders whose substance use disorder has led to legal involvement. The Mission of the DRC is to reduce recidivism among this population and to reduce the County's regional jail bill, which was becoming unmanageable. The DRC provides assessments, drug screening, and outpatient treatment to its program participants. Staff at the DRC consist of Case Managers, Peer Recovery Coaches, Drug

Screening Technicians and Drivers. The DRC is now saving Berkeley County approximately $3,500,000/yr.

The **third step** was the addition of the Berkeley County Home Confinement Program to the Community Corrections Department. The Home Confinement Program historically in Berkeley County was overseen by the Sheriff's Dept. For a variety of reasons, this program never grew. Since Berkeley County took over the supervision of this program on Jan 2, 2018, it has more than quadrupled in size.

The Berkeley County Home Confinement Program now employs five full time officers and has an active caseload of more than 80 offenders. These are people who have been convicted primarily of DUI offenses and are serving a jail sentence in their homes, while being monitored closely by GPS. Offenders pay a supervision fee and are permitted to attend work, health care appointments, religious services, and educational pursuits. This program has proven to be extremely beneficial not only to the jail bill, but also to the families and children of the offenders who are permitted to serve their sentences at home. Employment is the number one indicator of success while serving a home confinement sentence, so our officers not only monitor their whereabouts, but also assist with employment needs.

The opioid epidemic significantly impacted Berkeley County, but the Berkeley County Council has attacked this problem very aggressively in order to mitigate the harm that has been caused to our community. Substance abuse treatment options and supervision of drug offenders is now readily available in our community, when just 5 years, they were not.

**Emergency Communications R9 Multi-Jurisdictional Hazard Mitigation Plan 2022 Update**

On May 4, 2017, 911 fees raised from $2.75 - $5.00 for landlines

On October 10, 2017, renovations and expansion to the 7200 square foot State-of-the-Art building were completed. The facility located at 802 Emmett Rousch Drive, Suite A, Martinsburg. The spacious center boast 20 dispatch/Call taking workstations each outfitted with the most up-to-date dispatch technologies with room to expand for future growth. Renovations include the Operations Center, administrative offices, spacious training room, multiple conference rooms, bunkrooms for both male and female as well as a large industrial kitchen area. The campus is completely fenced with secure access via two entrance gates. The facility is continuously monitored both audio and visually though the County Security system.

On August 16, 2018, Berkeley County Council approved pay increase for all telecommunicators.

At the November 22, 2019 Board of Council meeting 911 Telecommuicators were recognized as First Responders.

On December 10, 2020 – Berkeley County Council approved 5 new Call Taker positions, CAD Support Specialist and 1 full and 1 part-time Quality Assurance position(s). Adding the Call Taker positions allows for faster and more efficient processing of calls for service. Adding the CAD Specialist has allowed for one person to focus on the rapidly changing technologies in 9-1-1. This position has given us an opportunity to focus on projects which are vital to the 9-1-1 center. The two Quality Assurance positions have provided the employees at the 9-1-1 Center an opportunity to receive feedback and training based upon the standards that the International Academy of Emergency Dispatch expects and the citizens deserve. We have seen a marked increase in the following the protocols in the very short time that the center has had the QA program up and running. We are looking forward to pursuing Accreditation (ACE) through the International Academy of Emergency Dispatch by the beginning of fiscal year 2023.

At the December 10, 2020 meeting of the Berkeley County Council approval was given for BARB (Box-area Automated Run-card Builder). This system automated the building of static run-cards for a CAD system for Fire and Emergency Medical services. BARB can also be used as a critical planning tool for disaster situations. The process allows for the inclusion of unlimited mutual aid and regional stations, specialty apparatus and more.

Starting in late 2020 the 9-1-1 Center employees have been participating in training classes such as completing all ICS entry level courses (100, 200, 700 and 800) several others have also completed ICS 300 and various other FEMA classes. Other classes have included, ProQA training and various other in-service training classes.

Beginning in December of 2020 began a community outreach program working with our Law Enforcement, Fire and EMS agencies as well as other community partners, such as Martinsburg Rescue Mission, Animal Control and Martinsburg Children's Home Society.

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## Appendix C-11 Morgan County Capability Assessment Worksheets

# FEMA REGION III
# HAZARD MITIGATION PLAN GUIDANCE
## Community Capability Assessment Worksheet

FEMA

**JURISDICTION:** Morgan County

## PLANNING AND REGULATORY

Planning and regulatory capabilities are plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

### PLANS AND POLICIES

Indicate if the jurisdiction has the following plans or policies in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider development of the plan/policy as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the plan/policy address hazard impacts? If so, how? For example, does the plan/policy include limitations to building in areas of risk, noted by the hazard mitigation plan? If so, what are those restrictions?
- Does the plan/policy identify projects that could be included in the mitigation strategy?
- Can the plan/policy be used to implement mitigation actions?
- How can the plan/policy be expanded and improved to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific plans or policies.

| **COMPREHENSIVE/MASTER LAND USE PLAN** | Overall policy guide for future community growth and development. |
|---|---|
| Is this Plan/Policy in Place? | ☑ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | MoCo Comprehensive Plan |
| Author/Owner: | Morgan Co. Planning Commission |
| Effective Date: | 2/14/17 |
| Next Scheduled Update (if known): | 2027 |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** Morgan

## PLANS AND POLICIES (CONTINUED)

| CLIMATE CHANGE ADAPTATION PLAN | An action plan and vulnerability assessment across a broad range of government services to anticipate, plan for, increase awareness of, and build momentum to address and adapt to a changing climate. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☑ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

| EMERGENCY OPERATIONS PLAN | Organizational procedures and processes to respond to and recover from an emergency. |
|---|---|
| Is this Plan/Policy in Place? | ☑ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | Emergency Operations Plan |
| Author/Owner: | Office of Emergency Management |
| Effective Date: | 2019 |
| Next Scheduled Update (if known): | 2021 |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** Morgan County

## PLANS AND POLICIES (CONTINUED)

| STREAMBANK BUFFER PROTECTION PROGRAM | A combination of conservation easements, vegetation management, and landscape restoration of vegetative buffers for streams and waterways to attenuate stormwater runoff quantity and quality issues, decrease streambank erosion, and increase habitat value of the waterway. |
|---|---|
| Is this Plan/Policy in Place? | ☑ YES ☐ NO ☐ IDK (see Attachment A) |
| Title: | MC Subdivision Regs + Floodplain Regs |
| Author/Owner: | MC Planning Commission |
| Effective Date: | S/D - 2018 F/P 2009 |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

Other plans and policies that should be included in the capability assessment for each participating jurisdiction:

- Brownfields Redevelopment Program
- Coastal Zone Management Program
- National Flood Insurance Program (NFIP) Community Rating System
- Community Wildfire Protection Plan
- Continuity of Operations Plan
- Disaster Recovery Plan
- Economic Development Plan
- Flood Mitigation Plan
- Land acquisition for open space and public recreation uses
- Transportation Plan
- Stormwater Management Plan

# Community Capability Assessment Worksheet

**JURISDICTION:** N Morgan

## CODES AND ORDINANCES

Indicate if the jurisdiction has the following codes or ordinances in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider enactment of the code/ordinance as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the code/ordinance address hazard impacts? If so, how?
- Is the code/ordinance adequately administered and enforced? For example, are there personnel dedicated to enforcement? Are the procedures for addressing violations clear?
- How many times has the code/ordinance been applied to enforce restrictions in hazard areas?
- Is the code/ordinance an effective measure for reducing hazard impacts?
- How can the code/ordinance be improved to reduce risk through the use of higher standards?

In addition, see Attachment A for additional questions or considerations for specific codes or ordinances.

| **BUILDING CODE** | Minimum requirements that must be met in the construction and maintenance of buildings to ensure public health and safety. |
|---|---|
| Is this Code or Ordinance in Place? | ☑ YES ☐ NO ☐ IDK (see Attachment A) No Bldg Codes |
| Name: | MC Subdivision & Floodplain Ord |
| Responsible Agency: | Planning Commission |
| Effective Date: | 2018 & 2009 |
| Next Scheduled Update (if known): | Unknown |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** Morgan

## CODES AND ORDINANCES (CONTINUED)

| FLOODPLAIN MANAGEMENT ORDINANCE/NFIP COMPLIANCE | The minimum floodplain management regulations for compliance with the NFIP that must be met by participating communities once FEMA provides flood hazard information. This is to ensure participating communities consider flood hazards, to the extent that they are known, in all official actions relating to land management and use. |
|---|---|
| Is this Code or Ordinance in Place? | ☑ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | Floodplain |
| Responsible Agency: | Morgan County Planning Commissi |
| Effective Date: | 2009 |
| Next Scheduled Update (if known): | Unknown |
| Relation to Hazard Mitigation: | |

Other codes and ordinances that should be included in the capability assessment for each participating jurisdiction:

- Fire department inspections
- International Property Maintenance Code
- Oher hazard-specific ordinances (stormwater, steep slope, and wildfire)
- Site plan development review ordinance
- Subdivision development review ordinance
- Zoning ordinance

# Community Capability Assessment Worksheet

**JURISDICTION:** Morgan

## ADMINISTRATIVE AND TECHNICAL

Administrative and technical capabilities include boards, commissions, departments, staff and consulting services, along with the related skills and tools, that can be used for mitigation planning and the implementation of specific mitigation actions.

*Note: For smaller jurisdictions without local resources, resources at the next level government may be able to provide administrative, technical, and/or financial assistance.*

### ADMINISTRATIVE

Indicate if the jurisdiction has the following boards, commissions, or departments in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider forming the board/commission/department as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the board / commission / department address hazard impacts? If so, how? For example, is the risk assessment of the approved Hazard Mitigation Plan (HMP) consulted when this board, commission or department considers projects or activities? If so, what is the process for review?
- Are staffing numbers and training adequate to carry out the mission of the board/commission/department?
- Does the board/commission/department identify projects that could be included in the mitigation strategy?
- Can the board/commission/department be engaged to implement mitigation actions?
- How can the board/commission/department be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| ENGINEERING DEPARTMENT | An in-house department providing civil engineering capability. |
|---|---|
| Is this Board, Commission, or Department in Place? | ☐ YES ☑ NO ☐ IDK (see Attachment A) |
| Name: | Contract w/ Potesta Engineering |
| Point-of-Contact: | Joe Knuckel |
| Meeting Schedule: | |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** N Morgan

## ADMINISTRATIVE (CONTINUED)

| CODE ENFORCEMENT DEPARTMENT | An in-house department responsible for evaluating private properties and public grounds against local codes. |
|---|---|
| Is this Board, Commission, or Department in Place? | ☑ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | Planning Commission |
| Point-of-Contact: | Alex Moore |
| Meeting Schedule: | |
| Relation to Hazard Mitigation: | |

Other administrative boards, commissions, or departments that should be included in the capability assessment for each participating jurisdiction:

- Board of Education
- Emergency Management
- Maintenance Department
- Mitigation Implementation Team
- Mutual aid agreements
- Planning Commission/Zoning Board
- Public Utility Board(s)
- Public Works Department
- Purchasing Department

# Community Capability Assessment Worksheet

**JURISDICTION:** Morgan

## TECHNICAL

Indicate if the jurisdiction has the following staff positions in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider adding the position as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the staff position description include addressing hazard impacts and/or mitigation? If so, how and is staff trained on relevant issues related to hazard impacts and/or mitigation?
- What training and/or certification is required of the staff position?
- What additional training and/or certification does the current staff need?
- How can the staff be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| CHIEF BUILDING OFFICER | The in-house or contracted code enforcement staff responsible for evaluating private properties and public grounds against local codes, answering citizen questions about the codes, and issuing citations for code violations. |
|---|---|
| Is this Staff Position in Place? | ☑ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☑ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | Planning / GIS Director |
| Current Position Holder: | Alex Moore |
| Length of Employment in this Position: | 1.5 years |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** Morgan

## TECHNICAL (CONTINUED)

| CIVIL ENGINEER - CONSTRUCTION PROJECT MANAGEMENT | The in-house or contracted engineering staff responsible for managing construction projects and meeting budget and schedule constraints. |
|---|---|
| Is this Staff Position in Place? | ☑ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☐ FT ☑ PT If PT, indicate % time or hours _____ |
| Title: | Contracted Engineer |
| Current Position Holder: | Potesta Engineers / Joe Knectel |
| Length of Employment in this Position: | |
| Relation to Hazard Mitigation: | |

| GRANT ADMINISTRATOR | The in-house or contracted staff familiar with and capable of successfully handling FEMA Hazard Mitigation Assistance (HMA) grant program requirements consistent with the Code of Federal Regulations, as well as non-FEMA funding sources. |
|---|---|
| Is this Staff Position in Place? | ☑ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☑ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | Commission Secretary / Grants Administrator |
| Current Position Holder: | Nina Padilla |
| Length of Employment in this Position: | 8 Months |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** Morgan

## TECHNICAL (CONTINUED)

| GRANT WRITER | The in-house or contracted staff familiar with and capable of successfully applying for FEMA HMA grants, as well as non-FEMA funding sources. |
|---|---|
| Is this Staff Position in Place? | ☑ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☑ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | Grants Administrator |
| Current Position Holder: | Anna Padilla |
| Length of Employment in this Position: | 8 months |
| Relation to Hazard Mitigation: | |

Other technical staff positions that should be included in the capability assessment for each participating jurisdiction:

- Business Administrator
- Chief Financial Officer
- Civil Engineer – Design
- Civil Engineer – Inspections
- Clerk
- Community Planner
- Emergency Manager
- Floodplain Administrator
- GIS Coordinator (hazard and community asset data and information management, Hazus)

# Community Capability Assessment Worksheet

**JURISDICTION:** Morgan

## FINANCIAL

Financial capabilities include access to or eligibility to use funding resources for hazard mitigation.

Indicate if the jurisdiction has access and/or eligibility for the following funding resources.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider pursuing the funding resource as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the funding resource been used in the past for hazard mitigation? If so, for what type of activities?
- Could the resource be used to fund future mitigation actions?
- How can the funding resource be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **CAPITAL IMPROVEMENTS PROGRAM** | A short-range plan, usually 4 to 10 years, which identifies capital projects and equipment purchases, provides a planning schedule and identifies options for financing the plan. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☐ YES ☑ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** Morgan

## FINANCIAL (CONTINUED)

| **FUNDING PROGRAMS – FEDERAL (NON-FEMA)** | Grant programs administered by Federal agencies other than FEMA with potential to fund mitigation actions. For example, the U.S. Department of Housing and Urban Development Community Development Block Grants, U.S. Department of Energy, and the U.S. Department of Transportation, etc. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☑ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | CBDG / USDA, DOT |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

| **UTILITY FEES FOR STORMWATER, WATER, SEWER, GAS, OR ELECTRIC SERVICES** | Fee levied by the jurisdiction, in addition to cost of service provided, for use in funding related capital programs, such as non-Federal shares for mitigation actions. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☐ YES ☑ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

Other funding resources that should be included in the capability assessment for each participating jurisdiction:

- Community Development Block Grant
- FEMA – Hazard Mitigation Assistance
- FEMA – Public Assistance 406 Mitigation
- Funding programs – State
- Funding programs – Philanthropic
- General obligation bonds and/or special tax bonds
- Impact fees for new development
- Tax levies for specific purposes

# Community Capability Assessment Worksheet

**JURISDICTION:** Morgan

## EDUCATION AND OUTREACH

Education and outreach capabilities include programs and methods already in place that could be used to support implementation of mitigation actions and communicate hazard-related information.

Indicate if the jurisdiction has the following programs or methods in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider developing the program or method as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the program/method been used in the past for hazard mitigation? If so, for what type of activities?
- Could the program/method be used to support future mitigation actions?
- How can the program/method be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| STORMREADY CERTIFICATION | National Weather Service program that helps arm America's communities with communication and safety skills needed to save lives and property, before, during and after an event. |
|---|---|
| Is this Program/Method in Place? | ☑ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | Storm Spotter / WV Storm Ready |
| Responsible Agency/Organization: | MC OES |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** Morgan

## EDUCATION AND OUTREACH (CONTINUED)

| SEASONAL EMERGENCY MANAGEMENT AND MITIGATION OUTREACH | Seasonal outreach. For example, in advance of hurricane season or in anticipation of winter weather, including information regarding preparedness and mitigation measures that individuals can undertake for their own risk reduction. |
|---|---|
| Is this Program/Method in Place? | ☑ YES ☐ NO ☐ IDK (see Attachment A) |
| Name: | Mass Notification System |
| Responsible Agency/Organization: | OES Preparedness Brochures |
| Relation to Hazard Mitigation: | |

Other programs or methods that should be included in the capability assessment for each participating jurisdiction:

- Firewise USA certification
- Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.
- Natural disaster or safety related school programs
- Ongoing public education or information program (e.g., Environmental Education, Fire Safety, Household Preparedness, Responsible Water Use, etc.)
- Public-private partnership initiatives addressing disaster-related issues

# FEMA REGION III
# HAZARD MITIGATION PLAN GUIDANCE
## Community Capability Assessment Worksheet

FEMA

**JURISDICTION:** PAW PAW

## PLANNING AND REGULATORY

Planning and regulatory capabilities are plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

### PLANS AND POLICIES

Indicate if the jurisdiction has the following plans or policies in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider development of the plan/policy as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the plan/policy address hazard impacts? If so, how? For example, does the plan/policy include limitations to building in areas of risk, noted by the hazard mitigation plan? If so, what are those restrictions?
- Does the plan/policy identify projects that could be included in the mitigation strategy?
- Can the plan/policy be used to implement mitigation actions?
- How can the plan/policy be expanded and improved to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific plans or policies.

| **COMPREHENSIVE/MASTER LAND USE PLAN** | Overall policy guide for future community growth and development. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☒ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** PAW PAW

## PLANS AND POLICIES (CONTINUED)

| **CLIMATE CHANGE ADAPTATION PLAN** | An action plan and vulnerability assessment across a broad range of government services to anticipate, plan for, increase awareness of, and build momentum to address and adapt to a changing climate. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☑ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

| **EMERGENCY OPERATIONS PLAN** | Organizational procedures and processes to respond to and recover from an emergency. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☐ NO ☑ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** PAW PAW

## PLANS AND POLICIES (CONTINUED)

| **STREAMBANK BUFFER PROTECTION PROGRAM** | A combination of conservation easements, vegetation management, and landscape restoration of vegetative buffers for streams and waterways to attenuate stormwater runoff quantity and quality issues, decrease streambank erosion, and increase habitat value of the waterway. |
|---|---|
| Is this Plan/Policy in Place? | ☐ YES ☑ NO ☐ IDK (see Attachment A) |
| Title: | |
| Author/Owner: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

Other plans and policies that should be included in the capability assessment for each participating jurisdiction:

- Brownfields Redevelopment Program
- Coastal Zone Management Program
- National Flood Insurance Program (NFIP) Community Rating System
- Community Wildfire Protection Plan
- Continuity of Operations Plan
- Disaster Recovery Plan
- Economic Development Plan
- Flood Mitigation Plan
- Land acquisition for open space and public recreation uses
- Transportation Plan
- Stormwater Management Plan

# Community Capability Assessment Worksheet

**JURISDICTION:** PAW PAW

## CODES AND ORDINANCES

Indicate if the jurisdiction has the following codes or ordinances in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider enactment of the code/ordinance as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the code/ordinance address hazard impacts? If so, how?
- Is the code/ordinance adequately administered and enforced? For example, are there personnel dedicated to enforcement? Are the procedures for addressing violations clear?
- How many times has the code/ordinance been applied to enforce restrictions in hazard areas?
- Is the code/ordinance an effective measure for reducing hazard impacts?
- How can the code/ordinance be improved to reduce risk through the use of higher standards?

In addition, see Attachment A for additional questions or considerations for specific codes or ordinances.

| **BUILDING CODE** | Minimum requirements that must be met in the construction and maintenance of buildings to ensure public health and safety. |
|---|---|
| Is this Code or Ordinance in Place? | ☐ YES ☑ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency: | |
| Effective Date: | |
| Next Scheduled Update (if known): | |
| Relation to Hazard Mitigation: | |

JURISDICTION: PAW PAW

# ADMINISTRATIVE AND TECHNICAL

Administrative and technical capabilities include boards, commissions, departments, staff and consulting services, along with the related skills and tools, that can be used for mitigation planning and the implementation of specific mitigation actions.

*Note: For smaller jurisdictions without local resources, resources at the next level government may be able to provide administrative, technical, and/or financial assistance.*

## ADMINISTRATIVE

Indicate if the jurisdiction has the following boards, commissions, or departments in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider forming the board/commission/department as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the board / commission / department address hazard impacts? If so, how? For example, is the risk assessment of the approved Hazard Mitigation Plan (HMP) consulted when this board, commission or department considers projects or activities? If so, what is the process for review?
- Are staffing numbers and training adequate to carry out the mission of the board/commission/department?
- Does the board/commission/department identify projects that could be included in the mitigation strategy?
- Can the board/commission/department be engaged to implement mitigation actions?
- How can the board/commission/department be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| ENGINEERING DEPARTMENT | An in-house department providing civil engineering capability. |
|---|---|
| Is this Board, Commission, or Department in Place? | ☐ YES ☑ NO ☐ IDK (see Attachment A) |
| Name: | |
| Point-of-Contact: | |
| Meeting Schedule: | |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** PAxx PAw

## TECHNICAL

Indicate if the jurisdiction has the following staff positions in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider adding the position as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the staff position description include addressing hazard impacts and/or mitigation? If so, how and is staff trained on relevant issues related to hazard impacts and/or mitigation?
- What training and/or certification is required of the staff position?
- What additional training and/or certification does the current staff need?
- How can the staff be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **CHIEF BUILDING OFFICER** | The in-house or contracted code enforcement staff responsible for evaluating private properties and public grounds against local codes, answering citizen questions about the codes, and issuing citations for code violations. |
|---|---|
| Is this Staff Position in Place? | ☐ YES ☑ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☐ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | |
| Current Position Holder: | |
| Length of Employment in this Position: | |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

JURISDICTION: PAW PAW

## TECHNICAL (CONTINUED)

| CIVIL ENGINEER - CONSTRUCTION PROJECT MANAGEMENT | The in-house or contracted engineering staff responsible for managing construction projects and meeting budget and schedule constraints. |
|---|---|
| Is this Staff Position in Place? | ☐ YES ☑ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☐ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | |
| Current Position Holder: | |
| Length of Employment in this Position: | |
| Relation to Hazard Mitigation: | |

| GRANT ADMINISTRATOR | The in-house or contracted staff familiar with and capable of successfully handling FEMA Hazard Mitigation Assistance (HMA) grant program requirements consistent with the Code of Federal Regulations, as well as non-FEMA funding sources. |
|---|---|
| Is this Staff Position in Place? | ☑ YES ☐ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☐ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | RON DAVIS |
| Current Position Holder: | TOWN CLERK |
| Length of Employment in this Position: | >3 yrs |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** PAW PAW

## TECHNICAL (CONTINUED)

| **GRANT WRITER** | The in-house or contracted staff familiar with and capable of successfully applying for FEMA HMA grants, as well as non-FEMA funding sources. |
|---|---|
| Is this Staff Position in Place? | ☐ YES ☒ NO ☐ IDK (see Attachment A) |
| Full Time or Part Time? | ☐ FT ☐ PT If PT, indicate % time or hours _____ |
| Title: | |
| Current Position Holder: | |
| Length of Employment in this Position: | |
| Relation to Hazard Mitigation: | |

Other technical staff positions that should be included in the capability assessment for each participating jurisdiction:

- Business Administrator
- Chief Financial Officer
- Civil Engineer – Design
- Civil Engineer – Inspections
- Clerk
- Community Planner
- Emergency Manager
- Floodplain Administrator
- GIS Coordinator (hazard and community asset data and information management, Hazus)

# Community Capability Assessment Worksheet

**JURISDICTION:** PAW PAW

## FINANCIAL

Financial capabilities include access to or eligibility to use funding resources for hazard mitigation.

Indicate if the jurisdiction has access and/or eligibility for the following funding resources.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider pursuing the funding resource as part of the mitigation strategy
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the funding resource been used in the past for hazard mitigation? If so, for what type of activities?
- Could the resource be used to fund future mitigation actions?
- How can the funding resource be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

| **CAPITAL IMPROVEMENTS PROGRAM** | A short-range plan, usually 4 to 10 years, which identifies capital projects and equipment purchases, provides a planning schedule and identifies options for financing the plan. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☐ YES ☐ NO ☒ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

# Community Capability Assessment Worksheet

**JURISDICTION:** PAW PAW

## FINANCIAL (CONTINUED)

| **FUNDING PROGRAMS – FEDERAL (NON-FEMA)** | Grant programs administered by Federal agencies other than FEMA with potential to fund mitigation actions. For example, the U.S. Department of Housing and Urban Development Community Development Block Grants, U.S. Department of Energy, and the U.S. Department of Transportation, etc. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☐ YES ☐ NO ☑ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

| **UTILITY FEES FOR STORMWATER, WATER, SEWER, GAS, OR ELECTRIC SERVICES** | Fee levied by the jurisdiction, in addition to cost of service provided, for use in funding related capital programs, such as non-Federal shares for mitigation actions. |
|---|---|
| Is there Access to and/or Eligibility for this Funding Resource? | ☐ YES ☐ NO ☑ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

Other funding resources that should be included in the capability assessment for each participating jurisdiction:

- Community Development Block Grant
- FEMA – Hazard Mitigation Assistance
- FEMA – Public Assistance 406 Mitigation
- Funding programs – State
- Funding programs – Philanthropic
- General obligation bonds and/or special tax bonds
- Impact fees for new development
- Tax levies for specific purposes

# Community Capability Assessment Worksheet

**JURISDICTION:** Paw Paw

## EDUCATION AND OUTREACH (CONTINUED)

| **SEASONAL EMERGENCY MANAGEMENT AND MITIGATION OUTREACH** | Seasonal outreach. For example, in advance of hurricane season or in anticipation of winter weather, including information regarding preparedness and mitigation measures that individuals can undertake for their own risk reduction. |
|---|---|
| Is this Program/Method in Place? | ☐ YES ☑ NO ☐ IDK (see Attachment A) |
| Name: | |
| Responsible Agency/Organization: | |
| Relation to Hazard Mitigation: | |

Other programs or methods that should be included in the capability assessment for each participating jurisdiction:

- Firewise USA certification
- Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.
- Natural disaster or safety related school programs
- Ongoing public education or information program (e.g., Environmental Education, Fire Safety, Household Preparedness, Responsible Water Use, etc.)
- Public-private partnership initiatives addressing disaster-related issues

# Community Capability Assessment Worksheet

JURISDICTION: PAW PAW

## ATTACHMENT A

Attachment A includes the following additional guidance for assessment of specific capabilities:

- Potential agencies and organizations to contact for information
- Additional questions or considerations

### PLANNING AND REGULATORY

#### PLANS AND POLICIES

| PLAN/POLICY | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Comprehensive/ Master Land Use Plan | Planning or Zoning Departments | ▫ Does the plan integrate hazard profile information from the current approved HMP into development suitability analysis?<br>▫ Is the plan effectively reducing or eliminating development in known hazard areas, i.e., is the rate of development in the Special Flood Hazard Area lower, the same, or higher?<br>▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP? |
| Climate Change Adaptation Plan | Planning Department | ▫ Does the plan include future hazard vulnerability projections? If so, are these projections included in the current approved HMP risk assessment?<br>▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP? |
| Emergency Operations Plan (EOP) | Emergency Management Department | ▫ Does the EOP address all hazards identified in the current approved HMP?<br>▫ Does the EOP address any hazards that are not included in the current approved HMP? If so, are these hazards for which mitigation actions might be appropriate to consider?<br>▫ Does the EOP identify obstacles or problems for response and recovery operations that could be alleviated entirely or in part through mitigation, e.g., limited access to floodprone areas due to transportation infrastructure limitations? |
| Streambank Buffer Protection Program | Local or regional natural resources conservation non-profit organizations | ▫ Does the program reference problem areas identified in the current approved HMP?<br>▫ Does the program identify problem areas that should be referenced in the HMP?<br>▫ Is acreage in the program increasing year to year? |

#### CODES AND ORDINANCES

| CODE/ORDINANCE | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Building Code | Code Enforcement or Engineering Departments | ▫ What is the community's Building Code Effectiveness Grading Schedule Score? |
| Floodplain Ordinance/NFIP Compliance | Code Enforcement or Engineering Departments | ▫ What is the community's current status in the NFIP?<br>▫ Does the ordinance include higher standards than minimum requirements of the NFIP, e.g., additional freeboard above the Base Flood Elevation? |

# Community Capability Assessment Worksheet

JURISDICTION: PAW PAW

## ADMINISTRATIVE AND TECHNICAL

### ADMINISTRATIVE

| BOARD/COMMISSION/ DEPARTMENT | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Engineering Department | Engineering or Public Works Departments | ▫ Does the department have ability and availability for design, engineering, project scoping (per HMA or other grant program requirements) and construction project management for mitigation actions included in the current approved HMP and/or proposed for plan update? |
| Code Enforcement Department | Code Enforcement or Engineering Departments | ▫ Are all ordinances and codes related to hazard mitigation (e.g., building code, floodplain management ordinance, zoning), enforced by the same department? If not, what are the departments and their respective responsibilities and are compliance reviews and enforcement activities coordinated between departments?<br>▫ Does the department have ability and availability to enforce all ordinances and codes related to hazard mitigation? |

### TECHNICAL

| STAFF POSITION | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Chief Building Officer | Code Enforcement or Engineering Departments | ▫ How does the Chief Building Officer position interact with other code and ordinance enforcement officials with hazard mitigation-related responsibilities, e.g., Floodplain Administrator? |
| Civil Engineer - Construction Project Management | Engineering Department | ▫ Have previous construction projects been completed, meeting budget and schedule constraints? |
| Grant Administrator | Finance or Emergency Management Departments | ▫ Does the Grant Administrator have experience with FEMA HMA grants administration? If so, have previous HMA grant administration experiences been completed successfully?<br>▫ Does the Grant Administrator have experience with other Federal non-FEMA grants administration used for mitigation purposes? If so, what are the grants and was the administration of the grants completed successfully? |
| Grant Writer | Finance or Emergency Management Departments | ▫ Does the grant writer have experience with FEMA HMA grants applications? Have previous HMA grant applications been awarded? Is so, what kinds of projects were funded?<br>▫ Does the grant writer have experience with other Federal non-FEMA grants applications used for mitigation purposes? Have previous non-FEMA grant applications been awarded? If so, what were the grants and what kinds of projects were funded? |

# Community Capability Assessment Worksheet

**JURISDICTION:** PAW PAW

## FINANCIAL

| FUNDING RESOURCE | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| Capital Improvement Program | Administration or Financial Departments | ▫ What is the process and timeframe for adding projects to the Critical Infrastructure Protection? |
| Funding programs – Federal (non-FEMA) | Finance or Emergency Management Departments | ▫ What were the grants, and what kinds of projects were funded? |
| Utility fees for stormwater, water, sewer, gas, or electric services | Finance or Public Works Departments | ▫ How much money is available annually to support implementation of hazard mitigation actions? Is that level of funding expected to decrease, stay the same, or increase in the next five years?<br>▫ What kinds of projects have been funded in this manner? |

## EDUCATION AND OUTREACH

| PROGRAM/METHOD | AGENCY/ORGANIZATION | ADDITIONAL QUESTIONS/CONSIDERATIONS |
|---|---|---|
| StormReady Certification | Emergency Management or Public Information Departments | ▫ How long has the community been certified?<br>▫ Have surveys been conducted to determine the effectiveness of the program? If so, what were the results? |
| Seasonal Emergency Management and Mitigation Outreach | Emergency Management or Public Information Departments | ▫ Is awareness of potential hazard impacts increasing year to year?<br>▫ Are individuals and businesses taking necessary precautions in advance of events? |

## Appendix C-12 Berkeley County Mitigation Action Review Worksheets

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Status | | | | Status Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | Completed | Canceled | Deferred | Ongoing | |
| Town of Hedgesville | 17B | Radon Exposure | Assist Berkeley County in educating the public regarding radon systems and home testing available. | | | | ✓ | Will Try To continue To Work on Radon Testing |
| Town of Hedgesville | 30B | Source Water Contamination | Work with area school/libraries/public facilities to include source water protection curriculum/classroom events/public education events. | | | | ✓ | |

Please email completed form to kelly.asselin@mbakerintl.com

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Status | | | | Status Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | Completed | Canceled | Deferred | Ongoing | |
| Berkeley County | 1B | Drought | Develop an informational brochure to distribute to local farmers and residents regarding drought. | X | | | | -Farm Bureau and WVU Extension Agency to take lead on disseminating information to farmers and residents<br>-Berkeley OEM has brochure to disseminate |
| Berkeley County | 2B | Drought, Source Water Contamination | Evaluate current public water system to identify the most feasible locations to construct upgrades that would reduce or eliminate the effects of drought. A survey of residential wells and public water customers should also be conducted to evaluate the status of residential drinking water in the county and identify trends. | | | | X | County water authority and city water department have continuing oversight and authority |
| Berkeley County | 3B | Flooding | Develop stringent stormwater management codes for future development. | | | | X | -2009 Floodplain Ordinance is in effect being enforced. Ongoing process for updating ordinance |
| Berkeley County | 4B | Flooding | Consider conducting acquisition and relocation projects (buyouts) in flood-prone areas. This includes repetitive, severe repetitive loss and nonrepetitive and severe repetitive loss structures. | | | | X | Buyouts occurring/have occurred at Sportsman's Paradise. Ongoing project to transition into a green space park |
| Berkeley County | 5B | Thunderstorm, Lightning Strike | Coordinate with the National Weather Service in Sterling, Virginia to warn residents of impending severe thunderstorm conditions. | X | | | | Alerts disseminated by Berkeley OEM via Alert Berkeley |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Berkeley County | 6B | Extreme Temperatures, Drought | Educate local residents on the benefits of conserving water during a heat wave. | X | | | | -Berkeley OEM has brochure to disseminate |
| Berkeley County | 7B | Wildfire | Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires. | X | | | | Berkeley OEM has brochure to disseminate |
| Berkeley County | 8B | Transportation Accident | Work with airport safety officials to determine how best to respond to a crash involving larger planes. | X | | | | -Zoning has provided for increased runway protection areas<br>-Ongoing cooperative work with 167th ANG Fire/Rescue and enacted mutual aid agreements |
| Berkeley County | 9B | Hailstorm | Coordinate efforts with local media to post advance warnings of hailstorms. | X | | | | Notifications disseminated via Alert Berkeley and National Weather Service |
| Berkeley County | 10B | Flooding | Continue coordinating county efforts to meet the requirements of participation in the CRS. | | | | X | Continuing/on-going work on CRS requirements. Regular updates are required for continued CRS rating schedule. |

**Please email completed form to Kelly.asselin@mbakerintl.com**

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Berkeley County | 11B | Hazardous Materials | 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. | X | | | | Berkeley OEM and Berkeley Fire has equipment to sample and test various HazMat and foreign/unknown substances |
| Berkeley County | 12B | Hazardous Materials | Conduct a study to determine what hazardous materials & how much is transported on the roadways and rail. | X | | | | -Commodity Flow study completed 2016<br>-Commodity Flow Study Railway Addendum completed 2020<br>-Future updates as funding is available |
| Berkeley County | 13B | Winter Storm, Windstorm, Tornado, Thunderstorm, Lightning Strike, Hurricane, Tropical Storm, Nor'easter, Extreme Temperature, Flooding, Epidemic, Drought, Hailstorm, Infestation | 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. | X | | | | Alerts disseminated from Berkeley OEM via Alert Berkeley |
| Berkeley County | 14B | Transportation Accidents | 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. | X | | | | Traffic Incident Management Committee had been formed and met (prior to COVID) to discuss and work through problems and determine best practices. Meetings will resume as soon as feasible. |

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# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Berkeley County | 15B | Winter Storm | Create an informational brochure and/or digital media to inform/educate community members on how to be prepared for an event that my render them immobile for a period of time. Brochure should include suggested items and quantities of goods to have on hand. | X | | | | Berkeley OEM has brochures to disseminate |
| Berkeley County | 16B | Source Water Contamination | Maintain county Source Water Protection Plan (SWPP) according to state regulatory requirements. | | | | | |
| Berkeley County | 19B | Flooding | Continue coordinating county efforts to meet the requirements of participation in the CRS. | X | | | | County is part of CRS program and has active and on-going work to maintain participation |
| Berkeley County | 20B | Infestation | Develop an informational brochure to distribute to local farmers and residents concerning the potential effects of an infestation. | | | | X | -Farm Bureau and WVU Extension Service lead agencies on dissemination to farmers<br>-Berkeley OEM to disseminate brochures as available |
| Berkeley County | 21B | Landslides | Construct a stabilization wall or safety fence along roadways which pass through areas that are prone to landslides. | | | | X | No known landslide-prone areas at this time. DOH and all public safety entities will continue to monitor and evaluate as needed. |

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# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Berkeley County | 22B | Transportation Accident | 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 | Further research and collaboration needed. |
| Berkeley County | 23B | Structure and Infrastructure | 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. | | | | X | Continuing efforts to evaluate areas of repetitive loss and apply for applicable grants and funding as necessary. |
| Berkeley County | 24B | Flooding | Utilize electronic tools and/or broadcast systems to communicate to citizens in Special Flood Hazard Areas. | X | | | | Alerts disseminated by Berkeley OEM via Alert Berkeley |
| Berkeley County | 25B | Flooding | Complete acquisition of floodplain area at the Sportsman's Paradise development and maintain for recreation-green space | | | | X | Buyouts occurring/have occurred at Sportsman's Paradise. Ongoing project to transition into a green space park |

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# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Berkeley County | 26B | Drought | 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. | X | | | | Brochures and information can/will be distributed by various applicable agencies, including but not limited to: Berkeley OEM, Water Authority, Farm Bureau, WVU Extension Service, etc. |
| Berkeley County | 27B | Epidemic | 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. | X | | | | -Berkley OEM to disseminate brochures<br>-Various other partners, including Health Department, hospitals, etc. to provide timely public information as needed |
| Berkeley County | 28B | Extreme Temperature | 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. | X | | | | -Berkeley OEM to disseminate brochures<br>-NWS typically will issue information and alerts regarding extreme temps. |
| Berkeley County | 29B | Utility Interruption | 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. | X | | | | -Berkeley OEM has preparedness brochures<br>-Utility companies typically issue information on reporting and have various methods for reporting outages. |
| Berkeley County | 31B | Hazardous Materials | Consider updating the existing Tier 2 report to include agricultural substances such as herbicides. | | X | | | Tier II reporting procedures and what must be reported is set by federal and state law. County has little to no authority to require additional Tier II reporting |

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# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Berkeley County | 32B | Dam and Levee Failure | Coordinate with partners throughout the region to identify the location of privately owned dams. | | | | X | Berkeley OEM working with Region 9 on updating contact information. Berkeley OEM has dam emergency plans for those that are required to submit such. Will continue outreach and contacting any known dams. |
| Berkeley County | 33B | Earthquake | 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. | X | | | | Berkeley OEM has brochures to disseminate |
| Berkeley County | 34B | Infestation | Create an informational brochure and/or digital media to inform/educate local farmers and residents on the potential effects of an infestation. | | | | X | Seeking appropriate brochures to disseminate. Farm Bureau and WVU Extension Service would be lead agencies in providing information |
| Berkeley County | 35B | Terrorism | 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. | X | | | | Berkeley OEM and Berkeley County Sheriff's Office will continue to monitor and disseminate information as needed and necessary |
| Berkeley County | 36B | Wildfire | 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. | X | | | | Berkeley OEM has brochures to disseminate |

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# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Status | | | | Status Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | Completed | Canceled | Deferred | Ongoing | |
| Region 9 | 1R | Flooding | Perform annual review to ensure communities are maintaining 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 | |
| Region 9 | 2R | Flooding | Perform annual review to ensure communities are undertaking buyout, elevation, and/or relocation projects in the Region IX Planning and Development Council area when and if funding is available. | | | | X | |
| Region 9 | 3R | Dam Failure | Coordinate, as appropriate, with partners throughout the region to identify the location of privately-owned dams. | | | | X | |

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## Appendix C-13 Morgan County Mitigation Action Review Worksheets

# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Status | | | | Status Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | Completed | Canceled | Deferred | Ongoing | |
| Town of Bath | 10M | Flooding | Review and maintain agreement with Morgan County Planning Commission to provide floodplain management. | | | | X | The Town of Bath needs to approach the Morgan County Planning Commission to discuss this issue. |
| Town of Bath | 37M | Flooding | Work with WVDOH to find solutions to flood impacted parts of US Route 522 within town limits, such as S. Washington Street. | | | | X | The Town of Bath needs to approach the WVDOH to discuss this issue. |
| Town of Bath | 38M | All Natural Hazards | Establish shelters within existing government facilities. | | | X | | The existing Town Municipal Center is very tight on space and would be very limited in any overnight accommodations that it could provide. The Morgan County Homeless Coalition has identified other facilities that are better suited for providing comfortable overnight shelters. Also, in the case of an emergency, the Red Cross would have access to better facilities in the vicinity of the Town for establishing temporary emergency shelters. |
| Town of Bath | 39M | Utility Interruption | Seek funding for generators and other equipment to aid in the continuation of essential services in the event of utility interruption. | | | | X | The Town of Bath has a generator in place at the Berkeley Spring Water Works plant to ensure continued operations of water service in the event of a utility disruption. Not sure that the Town Municipal Center has a generator back-up in place at this time. The Town Council will examine this issue further to determine the need for acquiring a generator for the Town Municipal Center. |

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# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Status | | | | Status Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | Completed | Canceled | Deferred | Ongoing | |
| Town of Paw Paw | 11M | Flooding | Review and maintain agreement with Morgan County Planning Commission to provide floodplain management. | | | | x | |
| Town of Paw Paw | 12M | Flooding | 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. | | | | x | |
| Town of Paw Paw | 40M | All Natural Hazards | Establish shelters within existing government facilities. | | | | x | |
| Town of Paw Paw | 41M | Source Water Contamination | 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. | x | | | | |
| Town of Paw Paw | 42M | Utility Interruption | Seek funding for generators and other equipment to aid in the continuation of essential services in the event of utility interruption. | | | | | |

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# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Status | | | | Status Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | Completed | Canceled | Deferred | Ongoing | |
| Morgan County | 1M | All Hazards | Review all existing regulations to ensure adequacy in reducing the amount of future identified hazard areas. | | | | X | |
| Morgan County | 2M | All Hazards | Expand the mission and membership of the Morgan County Local Emergency Planning Committee to act as a countywide disaster task force. | | | | X | Our LEPC has created different social media outlets to provide community outreach and marketing materials. We engage our community partners and encourage participation during trainings, exercises and real time events. |
| Morgan County | 3M | All Hazards | Develop adequate emergency shelter and evacuation plans for citizens and animals (domestic pets, livestock and wildlife). | | | | X | |
| Morgan County | 4M | Transportation Accidents | Construct a bypass along US Route 522 to improve safety and ease of access. | | | | X | Construction Begins July 2021 |
| Morgan County | 5M | Utility Interruption | Reduce utility interruption by establishing standards for tree trimming, burying power lines, and install redundancies and loop feeds. | | | | X | |

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# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Morgan County | 6M | Source Water Contamination | Educate water system operators and workers about the importance of safe available water and SWPPs, update the SWPP as necessary. | | | | X | |
| Morgan County | 7M | Flooding | Use floodplain ordinances, NFIP, CRS participation, public education, and property acquisition to remove existing developed properties from flood hazard areas and limit new development. | | | | X | |
| Morgan County | 8M | Hazardous Materials | Increase awareness of key hazardous material transportation routes and storage areas and conduct drills with local agencies focusing on high risk areas. | | | | X | We participate in yearly regional trainings with our community partners that consist of tabletop, functional, and full scale exercises. We ensure and monitor yearly updates to our Tier II participants within our county. We attend and participate in trainings during our yearly SERC conference. |
| Morgan County | 9M | Winter Storm | Assist vulnerable populations and publicize road conditions using news stations, newspapers, and radio during winter storms. | | | | X | Information is shared via our mass notification system (Everbridge), webpage, and other social media outlets. IE: Facebook, Twitter. |
| Morgan County | 13M | All Hazards | Collect address data to assist in the creation of accurate disaster mapping. | X | | | | Address Verification Grant Completed July 202 |

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# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Morgan County | 14M | All Hazards | Develop updated aerial photography to assist in analyzing disaster risks to property. | X | | | | Completed Flyover in 2018 |
| Morgan County | 15M | Flooding | Ensure that flood insurance policies remain affordable through the county and municipal government programs. | | | | X | |
| Morgan County | 16M | Flooding | Support Morgan County's efforts in the CRS program, and provide training to municipalities on the CRS program and encourage them to participate. | | | | X | |
| Morgan County | 17M | Flooding | 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 | Annual Report March 2021 |
| Morgan County | 18M | Flooding | Identify owners of repetitive and severe repetitive loss properties that may be willing to participate in future property acquisition and relocation projects. | | | | X | Annual Report March 2021 |

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# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Morgan County | 19M | All Hazards | Review all comprehensive plans to ensure that designated growth areas are not in hazard areas. | | | | X | |
| Morgan County | 20M | Flooding | Provide training to municipalities on the CRS program and encourage them to participate. | X | | | | Trained on Tools Still Has County Review and Approve |
| Morgan County | 21M | Flooding | Work with WV Department of Highways to identify areas of frequent roadway flooding and develop mitigation strategies. | | | | X | |
| Morgan County | 22M | Transportation Accidents, Hazardous Materials | Identify strategies to mitigate risks from the transportation and/or storage of hazardous materials in Morgan County. | | | | X | We review all Tier II Emergency Plans on a yearly basis within our LEPC to identify and mitigate any risks. |
| Morgan County | 23M | All Hazards | 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. | | | | X | |

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# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Morgan County | 24M | All Hazards | Establish a formal process for the city and the Park Service to coordinate disaster related efforts, which will include defining boundaries and establishing responsibilities. | | | | X | OES - Coordinates logistics for All Hazards |
| Morgan County | 25M | All Hazards | Conduct training exercises that include representatives from the city and the Park Service to facilitate increased coordination. | | | | X | |
| Berkeley County | 26M | Flooding | Continue to enforce ordinances that new structures do not interfere with flood mitigation measures. | | | | X | |
| Morgan County | 27M | Flooding | Obtain updated information on the number of NFIP policyholders in Morgan County and its municipalities. | | | | X | |
| Morgan County | 28M | All Hazards | Develop mitigation strategies to protect any at-risk historic properties. | | | | X | |

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# 2017 Mitigation Action Review

| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Morgan County | 29M | Flooding | Conduct a survey of all historic sites that are located in hazard areas. | | | | X | |
| Morgan County | 30M | Hazardous Materials | Apply for Hazardous Materials Emergency Preparedness (HMEP) grant from WVOES to finance the development of a hazardous materials survey for Morgan County. | | | | X | A commodity flow study grant has been submitted to the SERC through HMEP. We also applied to update our County EOP. Neither of these have been granted due to financial instability. |
| Morgan County | 31M | Flooding, Landslide and Land Subsidence | Review all capital improvement plans to ensure that infrastructure improvements are not directed towards hazardous areas. | | | | X | |
| Morgan County | 32M | All Hazards | Continue to support initiatives established under the Morgan County Office of Emergency Services. | | | | X | |
| Morgan County | 33M | Flooding | 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 | | | | X | |

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# 2017 Mitigation Action Review

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 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. | | | | X | |
| Morgan County | 34M | Hailstorm | Reinforce structures and infrastructure against hail and increase awareness before hailstorms with public announcements. | | | | X | |
| Morgan County | 35M | Wind Storm, Tornado | Use building codes, retrofits, and increased risk awareness to protect property, infrastructure, and utilities from wind storms and tornadoes. | | X | | | Morgan County Does Not Enforce Building Code. Not Adopted |
| Morgan County | 36M | Wildfire | Assess areas vulnerable to wildfires and publicize outdoor burning regulations and wildfire risks using pamphlets, news articles, and the Firewise Program. | | | | X | We participate in our yearly Fire Prevention Week through the Board of Education. Information is also distributed throughout the year via social media outlets. |
| Morgan County | 43M | Terrorism | Post and distribute terrorism preparedness information based on current data. | | | | X | |
| Morgan County | 44M | Hurricane, Tropical Storm, Nor' Easter | 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. | | | | X | Weather spotter classes have been offered local through the assistance of the NWS, pre COVID. Monthly preparedness safety tips are provided via social media outlets and local newspaper. |

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# 2017 Mitigation Action Review

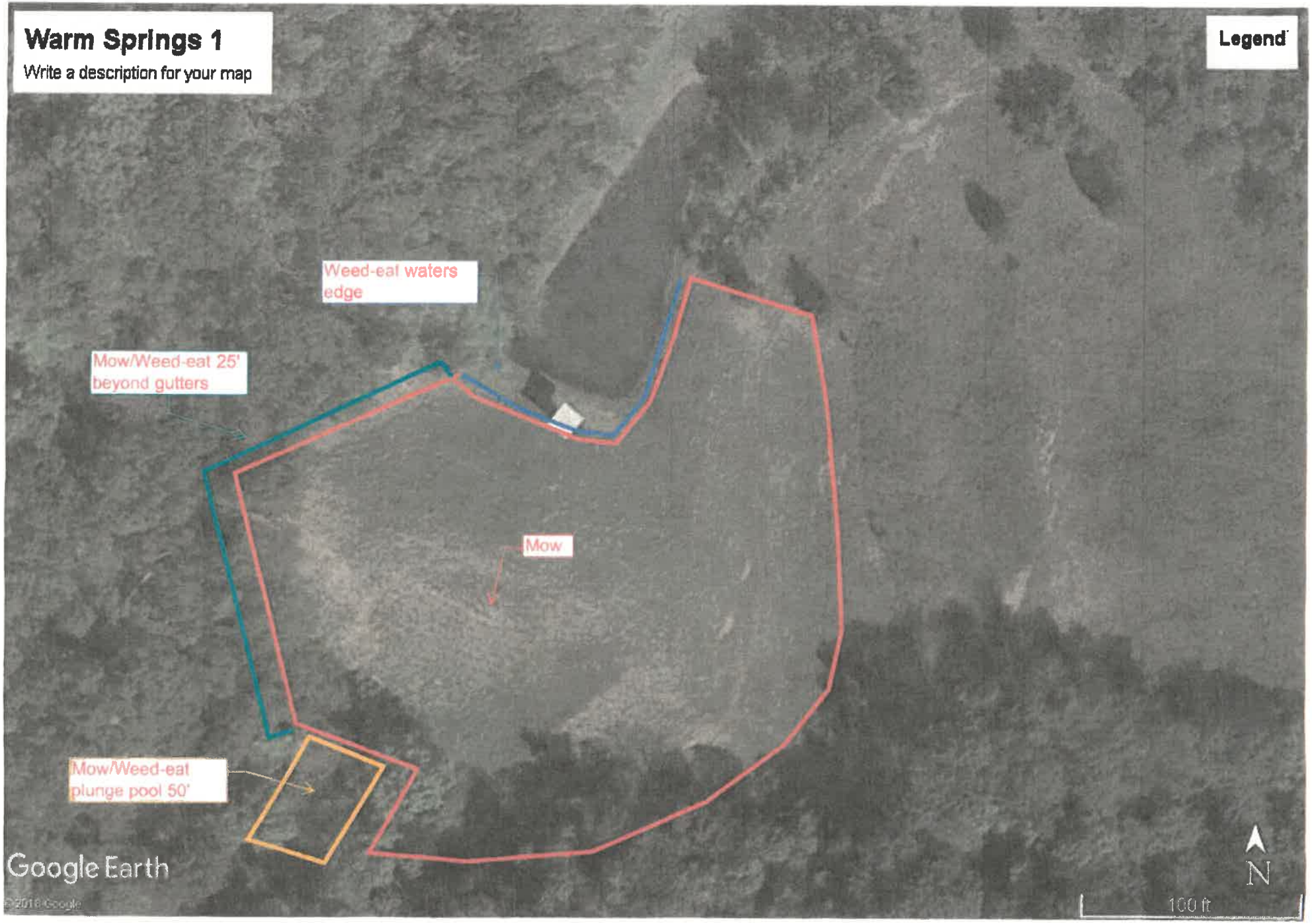
| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Morgan County | 45M | Radon Exposure | Provide pamphlets and educational material to county residents to encourage annual residential radon testing. | | | | X | |
| Morgan County | 46M | Drought | Monitor water supply and conserve water through public awareness campaigns conducted using news and radio stations. A survey of residential wells and public water customers should also be conducted to evaluate the status of residential drinking water in the county and identify trends. | | | | | |
| Morgan County | 47M | Dam and Levee Failure | Monitor rainfall and conduct annual inspections of berms to protect against structural failures. | | | | X | |
| Morgan County | 48M | Earthquake | Adopt and enforce building codes, perform building inspections, and conduct outreach to the public and builders through pamphlets. | | | X | | |
| Morgan County | 49M | Extreme Temperatures | Educate the public about the risks associated with extreme temperatures using the county website and local radio stations. | | | | X | Monthly preparedness safety tips are provided via social media outlets, local radio and newspaper. |

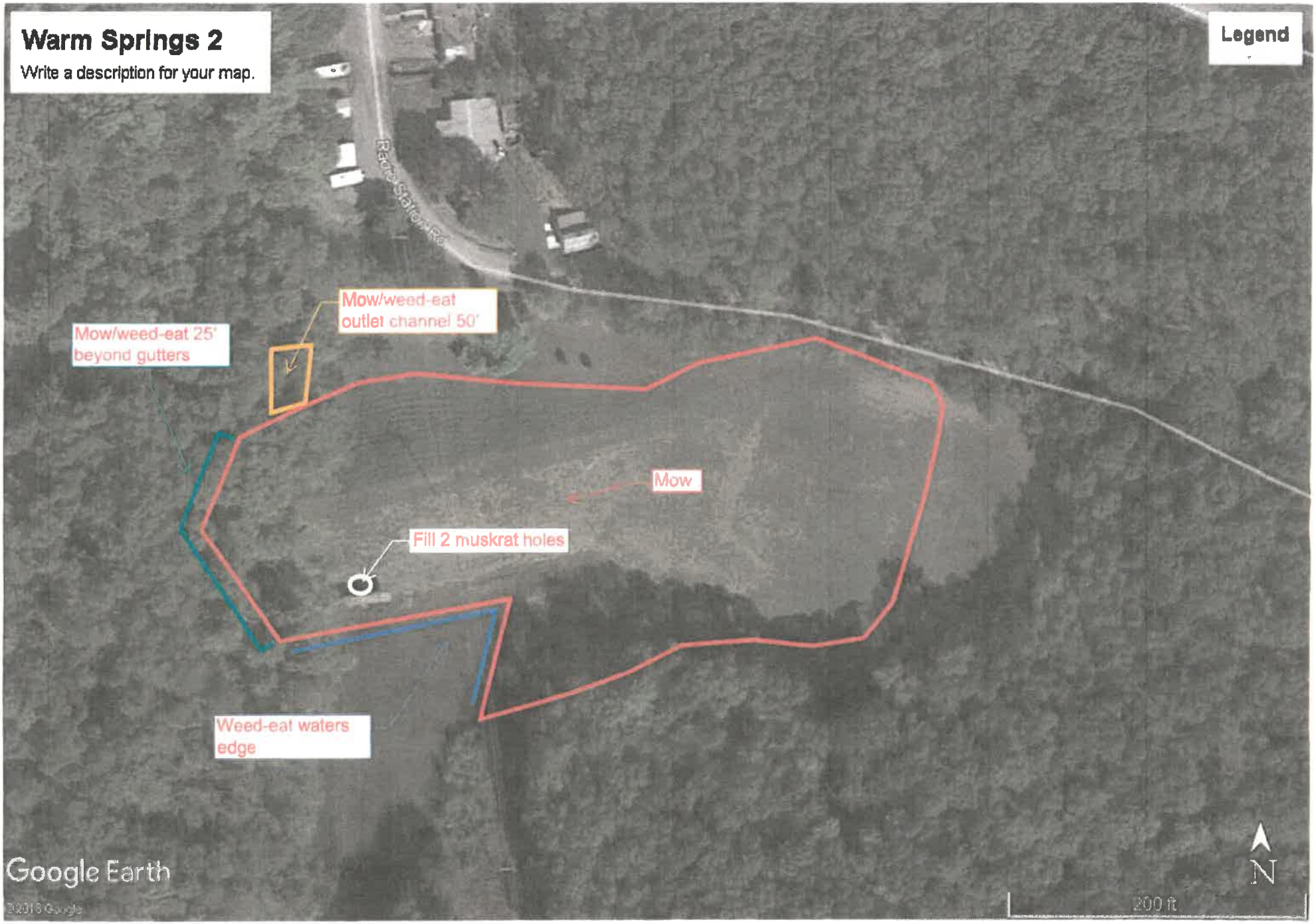
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# 2017 Mitigation Action Review

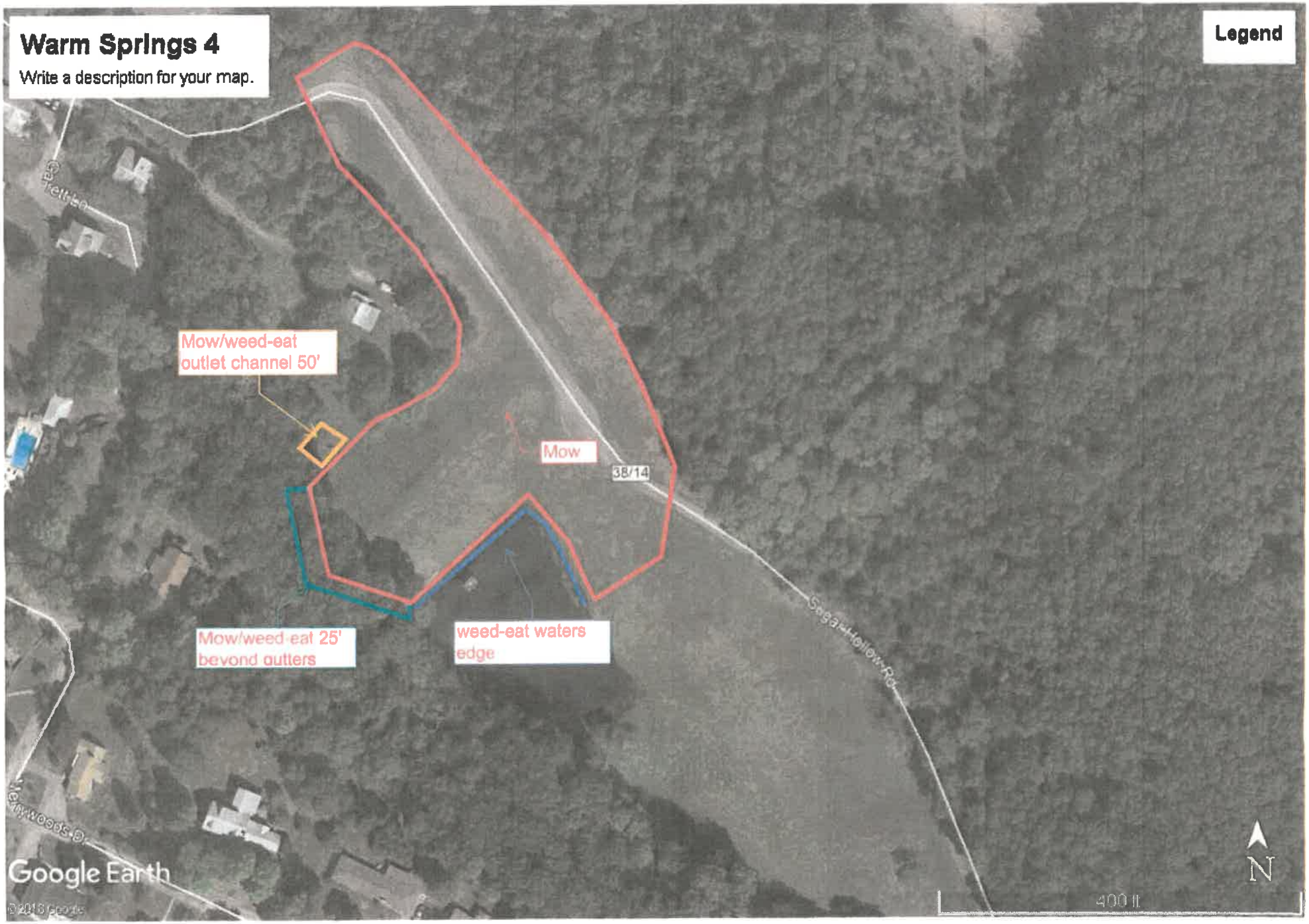
| Community | # | Hazard(s) Addressed | Mitigation Action | Completed | Canceled | Deferred | Ongoing | Status Notes |
|---|---|---|---|---|---|---|---|---|
| Morgan County | 50M | Epidemic | When a disease reoccurs in a community use pamphlets, local news media, and online resources to educate the public about mitigation. | | | | X | Community awareness and education information is shared by the Local Health Department via WVPH Alert System, social media sites, and email communication with the LEPC membership. |
| Morgan County | 51M | Landslide and Land Subsidence | Protect roadways and remove buildings in potential landslide and land subsidence hazard areas. | | | | X | |
| Morgan County | 52M | Thunderstorm, Lightning Strike | Utilize pamphlets and articles about the warning signs and the potential damages of thunderstorms and lightning strikes. | | | | X | We distribute information through our social media pages and provide pamphlets to our community partners during LEPC meetings. |
| Morgan County | 53M | Infestation | Conduct control initiatives, such as the Gypsy Moth Spray Program, and conduct public education and awareness campaigns. | | | | X | |

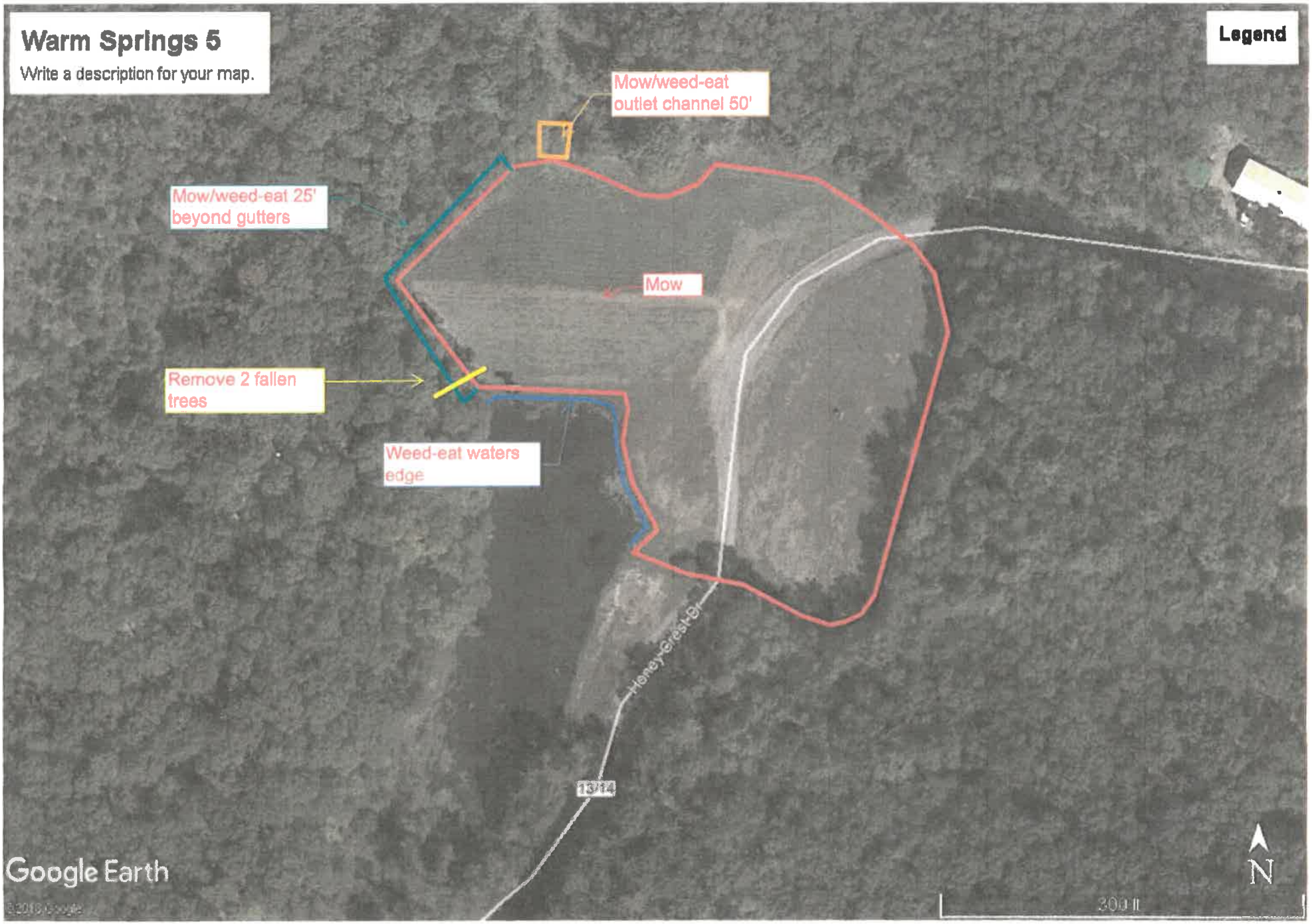
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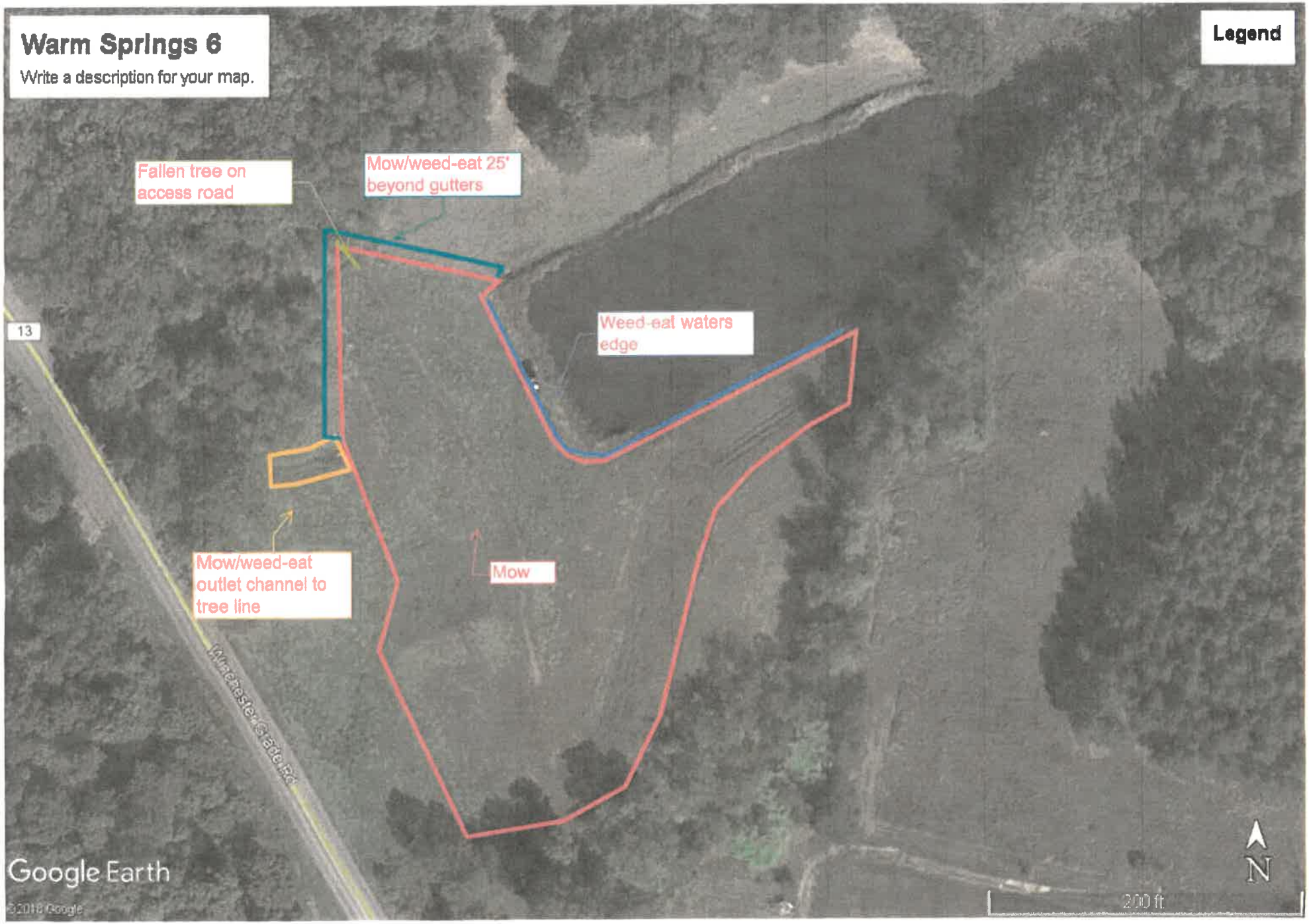

Warm Springs 1
Write a description for your map
Legend
Weed-eat waters edge
Mow/Weed-eat 25' beyond gutters
Mow
Mow/Weed-eat plunge pool 50'
Google Earth
© 2018 Google
N
100 ft


Warm Springs 2
Write a description for your map.
Legend
Mow/weed-eat outlet channel 50'
Mow/weed-eat 25' beyond gutters
Mow
Fill 2 muskrat holes
Weed-eat waters edge
Google Earth
200 ft
N


Warm Springs 3
Write a description for your map.
Legend
Mow/weed-eat outlet channel 50'
Mow/weed-eat 25' beyond gutters
weed-eat waters edge
Mow
Flowing Waters Ln
Google Earth
N
200 ft


Warm Springs 4
Write a description for your map.
Legend
Mow/weed-eat outlet channel 50'
Mow
38/14
Mow/weed-eat 25' beyond gutters
weed-eat waters edge
Saga Hollow Rd
Google Earth
N
400 ft


Warm Springs 5
Write a description for your map.
Legend
Mow/weed-eat outlet channel 50'
Mow/weed-eat 25' beyond gutters
Mow
Remove 2 fallen trees
Weed-eat waters edge
Honey Creek Dr
1314
Google Earth
N
300 ft


Warm Springs 6
Write a description for your map.
Legend
Fallen tree on access road
Mow/weed-eat 25' beyond gutters
Weed-eat waters edge
13
Mow/weed-eat outlet channel to tree line
Mow
Winchester Gate Rd
Google Earth
©2018 Google
N
200 ft


Warm Springs 7
Write a description for your map.
Legend
Mow/weed-eat 25' beyond gutters
Weed-eat waters edge
Mow
Mow/weed-eat outlet channel 50
Google Earth
©2018 Google
N
100 ft

R+13


Warm Springs 9
Write a description for your map.
Legend
Fellow Rd
Mow/weed-eat outlet channel 50'
Fill 2 groundhog holes
Mow
Weed-eat waters edge
Google Earth
200 ft
N

## Appendix C-14 Berkeley County New Mitigation Actions Worksheets

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | Berkeley County Council |
| **Name and Title:** | Tim Czaja, Director, Berkeley County Community Corrections |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | Substance Use Disorder- (SUD) |
| Assessing the Risk | |
| Hazard(s) addressed | Addiction to various substances including but not limited to: opioids and all other illegal substances, alcohol and marijuana, and all related behaviors including but not limited to: crime, overdose, unemployment, child neglect, etc. |
| Describing the Action | |
| Background/issue addressed | In 2015 the Washington Baltimore HIDTA launched a study of Berkeley County, WV and determined that Berkeley County's overdose rate, per capita, exceeded that of Baltimore City, MD. |
| Action description | In January of 2016 the Berkeley County Recovery Resource Center was created.<br>In August of 2016 the Berkeley County Day Report Center was created.<br>In January of 2018, the Berkeley County Home Confinement Program was moved under the leadership of the Council. |
| Evaluating the Action | |
| Cost estimate | The eastern regional jail bill was increasing rapidly. The creation of these programs designed to address the underlying SUD (which is the primary cause of incarceration and crime in Berkeley County) have significantly reduced the overall jail bill. These programs are estimated to be saving Berkeley County between 3 and 4 million dollars a year. |
| Priority | 3 |
| Implementing the Action | |
| Responsible party | Berkeley County Council, Berkeley Day Report Center, Berkeley County Recovery Resource Center and Berkeley County Home Confinement Program. |
| Potential partners | Local judiciary, law enforcement, Health Department, The Martinsburg Initiative, Mountaineer Recovery Center, WVU Medicine. |

| | |
|---|---|
| Potential funding sources | Berkeley County Council, Washington Baltimore HIDTA, WV DHHR, WV Supreme Court of Appeals, WV Justice and Community Services, Department of Justice. |
| Timeline | These programs are currently operational, but the need will continue to increase as the population of Berkley County increases. Berkeley County has been identified as the fastest growing county in the *nation.* The need to expand the size of our currently facilities will arrive in estimated 3-5 years. |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | Morgan County/Sleepy Creek Watershed Association |
| **Name and Title:** | Charles W. Marsh, President |

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| | |
|---|---|
| **Action Title** | **Curtailment of Pollution into Sleepy Creek** |
| Assessing the Risk | |
| Hazard(s) addressed | Uncontrolled introduction of sediment, nutrient, and biological contaminants into Sleepy Creek as a fresh water source for the residents of the Sleepy Creek, Potomac River, and Chesapeake Bay Watersheds. |
| Describing the Action | |
| Background/issue addressed | Sleepy Creek has been identified by the Environmental Protection Agency as an impaired stream for biological fecal coliform and other pollution sources. The Sleepy Creek Watershed Association has been addressing these issues since 2003. |
| Action description | The Association will continue working with partners to identify non-point sources of pollution and coordinate funding and other assistance to curtail these sources from entering Sleepy Creek. Such contaminant sources include home septic systems, farm animals, farm cultivation practices, flooding, and high-water streambank erosion. |
| Evaluating the Action | |
| Cost estimate | Continuing and unknown |
| Priority | High |
| Implementing the Action | |
| Responsible party | Sleepy Creek Watershed Association |
| Potential partners | Landowners, Morgan County Commission, Eastern Panhandle Conservation District, WV Conservation Agency, WV Departments of Environmental Protection, Agriculture, Highways, Natural Resources, and federal department equivalents |
| Potential funding sources | Federal Chesapeake Bay Program, WV State, Morgan County, land owner and other private contributors |
| Timeline | 2022 and forward |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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| | |
|---|---|
| **Action Title** | **Prohibit and reduce impacts of Civil Disturbance** |
| Assessing the Risk | |
| Hazard(s) addressed | Civil Disturbance |
| Describing the Action | |
| Background/issue addressed | Civil disturbance, also referred to as "civil disorder" or civil unrest, is defined as any public disturbance involving acts of violence by assemblages of three or more persons, which causes an immediate danger of or results in damage or injury to the property or person of any other individual, as defined in 18 U.S. Code 232. In this context, civil unrest is distinct from peaceful public celebrations, lawful protests and acts of civil disobedience (such as peaceful but un-permitted protests, sit-ins and comparable protest actions). |
| Action description | • Continue to provide pertinent and timely information to the public so public is engaged and educated about issues affect local community. • Continue community policing efforts and relationships with public. • Maintain intelligence and law enforcement relationships with local, state and federal agencies. • Ensure police are adequately trained. • Continue to encourage "See Something; Say Something." |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | Berkeley County Homeland Security; State of West Virginia; Eastern Panhandle Violent Crimes Task Force; State Police; Fusion Center; FBI; Department of Justice |

Please email completed form to kelly.asselin@mbakerintl.com

| | |
|---|---|
| Potential funding sources | |
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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| | |
|---|---|
| **Action Title** | **Prohibit or block Cyber Terrorism on Public Facilities** |
| Assessing the Risk | |
| Hazard(s) addressed | Cyber Terrorism |
| Describing the Action | |
| Background/issue addressed | **Cyberterrorism** is the use of the Internet to conduct violent acts that result in, or threaten, the loss of life or significant bodily harm, in order to achieve political or ideological gains through threat or intimidation. Local governments have become a popular target for ransom attacks and data breaches. Acts of cyberwarfare, cyberterrorism, and cybercrime threaten the integrity of the virtual world, which houses many of the nation's most essential financial, communications, information, and security systems. |
| Action description | • Ensure IT systems are up-to-date . • Continue staff training. • Transition to Microsoft 365 . • Continue routine server backups. • Ensure City is adequately insured. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | |
| Potential funding sources | |

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| | |
|---|---|
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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| | |
|---|---|
| **Action Title** | **Reduce risks and dangers of Dam Failure** |
| Assessing the Risk | |
| Hazard(s) addressed | Dam Failure |
| Describing the Action | |
| Background/issue addressed | 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. There are no known dams in Martinsburg. |
| Action description | No known dam failure hazards in Martinsburg. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | |
| Potential funding sources | |
| Timeline | Ongoing |

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# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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| | |
|---|---|
| **Action Title** | **Reduce consequences and impacts of Drought** |
| Assessing the Risk | |
| Hazard(s) addressed | Drought |
| Describing the Action | |
| Background/issue addressed | Drought affects all parts of our environment and our communities. The many different drought impacts are often grouped as "economic," "environmental," and "social" impacts. All of these impacts must be considered in planning for and responding to drought conditions. Martinsburg is especially sensitive to drought given its underground water supply. |
| Action description | • Update Martinsburg Water Model. • Educate residents about benefits of conserving water and where Martinsburg's water resources come from. • Ensure redundancy remains between Martinsburg's water plants. • Continue inflow and infiltration reduction efforts. • Ensure latest adoption of plumbing codes. • Consider adopting Drought Contingency Plan. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | Berkeley Water; Argos, WV DEP, WV PSC |
| Potential funding sources | |

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| | |
|---|---|
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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| | |
|---|---|
| **Action Title** | **Reduce risks and dangers an earthquake** |
| Assessing the Risk | |
| Hazard(s) addressed | Earthquake |
| Describing the Action | |
| Background/issue addressed | An earthquake is caused by sudden, violent shifting of massive rocks called plates under the earth's surface. This movement of the plates releases stress that accumulates along geologic faults. The severity of an earthquake's impact is dependent on the amount of energy released from the fault (or epicenter) of the quake. Earthquakes usually occur without warning and severe earthquakes can quickly cause massive damage and extensive casualties |
| Action description | •. Enforce building code •. : Continue to educate the public as to the potential for earthquakes in West Virginia, specifically Berkeley County. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | Berkeley County Homeland Security; FEMA |
| Potential funding sources | |

| | |
|---|---|
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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| | |
|---|---|
| **Action Title** | **Reduce impacts of Extreme Temperature** |
| Assessing the Risk | |
| Hazard(s) addressed | Extreme Temperatures |
| Describing the Action | |
| Background/issue addressed | Extreme temperature includes both heat and cold events that can have significant direct impacts to human health and commercial/agricultural businesses and primary and secondary effects on infrastructure (e.g., burst pipes and power failure). Distinguishing characteristics of “extreme cold” or “extreme heat” vary by location, based on the conditions to which the population is accustomed. Martinsburg record high temperature is 112 degrees on July 10, 1936; its record low is -14.8 |
| Action description | • Maintain and continue to plant shade trees to reduce urban heat island effect. • Continue public education on weather events – including extreme temperatures. • Maintain and replace aging infrastructure to reduce chance of freezing pipes. • Coordinate and ensure heating and cooling shelters when appropriate. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | National Weather Service; West Virginia Forestry; Martinsburg – Berkeley County Parks; Berkeley County Homeland Security; |
| Potential funding sources | |

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|---|---|
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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| | |
|---|---|
| **Action Title** | **Reduce impact of flooding.** |
| Assessing the Risk | |
| Hazard(s) addressed | Flooding |
| Describing the Action | |
| Background/issue addressed | Common impacts of flooding include damage to personal property, buildings, and infrastructure; bridge and road closures; service disruptions; and injuries or even fatalities |
| Action description | • Enforce flood plain ordinance. • Enforce zoning and subdivision ordinance. • Enforce building code. •Enforce Martinsburg Stormwater Ordinance and design of projects. Promote compliance with safety codes, regulations, and statutes. • Continue educating public about flood plain and impact of flooding and mitigation techniques. • Continue compliance with NFIP. • Participate in CRS. • Implement Stormwater Utility Fee. • Improve stormwater drainage system and capacity. • Ensure all critical facilities are out of the flood plain. • Comply with MS4 permit. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | Berkeley County Homeland Security, FEMA, EPA. |
| Potential funding sources | |

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|---|---|
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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| | |
|---|---|
| **Action Title** | **Reduce risks of hailstorm damage** |
| Assessing the Risk | |
| Hazard(s) addressed | Hailstorm |
| Describing the Action | |
| Background/issue addressed | Hailstorms are a potentially damaging outgrowth of severe thunderstorms. Hailstorms frequently accompany thunderstorms, so their locations and spatial extents overlap. Hail can cause substantial damage to vehicles, roofs, landscaping, and other areas of the built environment. U.S. agriculture is typically the area most affected by hail storms, which cause severe crop damage even during minor events. |
| Action description | • Enforce existing building code. • Educate public about storm threats. • Encourage "when thunder roars, go indoors" |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | Berkeley County Homeland Security; National Weather Service. |
| Potential funding sources | |
| Timeline | Ongoing |

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# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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| | |
|---|---|
| **Action Title** | **Eliminate or reduce risk due to either accidental releases of hazardous materials or exposure to toxic substances** |
| Assessing the Risk | |
| Hazard(s) addressed | Hazardous Materials |
| Describing the Action | |
| Background/issue addressed | For all general hazards and risks, as well as for hazardous materials, experience has shown again and again that lives can be saved, damage to property can be reduced significantly, and economic recovery can be accelerated by consistently building safer and stronger buildings, strengthening existing infrastructures, ensuring safer transportation, enforcing building codes, and making the proper preparations BEFORE a disaster occurs. |
| Action description | • Improve methods and procedures for storing, transporting, handling, and processing hazardous materials. •Promote compliance with safety codes, regulations, and statutes. • Enforce land-use plans that regulate the location of sites with hazardous chemicals. •Increase public and community awareness and support for prevention. • Ensure mutual aide agreements with public safety partners are current. •Acquire and maintain proper equipment to respond to hazardous materials situation. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | Berkeley County Homeland Security, FEMA, Berkeley County Fire. |
| Potential funding sources | |

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| | |
|---|---|
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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| | |
|---|---|
| **Action Title** | **Reduce impacts Hurricane, Tropical Storm, Nor'easter** |
| Assessing the Risk | |
| Hazard(s) addressed | Hurricane, Tropical Storm, Nor'easter |
| Describing the Action | |
| Background/issue addressed | Nor'easters may include snow, sleet, freezing rain, or a mix of these wintry forms of heavy precipitation which down trees, cause widespread power outages, damage property, and cause fatalities and injuries. Remnants of hurricanes and tropical storms can cause damaging winds and heavy rains causing flooding. |
| Action description | • Take same actions as Winter Storm and Heavy Winds mitigation. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | First Energy, National Weather Service, Berkeley County Homeland Security, Mountaineer Gas, Berkeley County Senior Center. |
| Potential funding sources | |
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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| | |
|---|---|
| **Action Title** | **Reduce risks and dangers of invasive species** |
| Assessing the Risk | |
| Hazard(s) addressed | Invasive Species |
| Describing the Action | |
| Background/issue addressed | An invasive species is a species that is not indigenous to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. These species can be any type of organism: plant, fish, invertebrate, mammal, bird, disease, or pathogen. Infestations may not necessarily impact human health, but can create a nuisance or agricultural hardships by destroying crops, defoliating populations of native plant and tree species, or interfering with ecological systems |
| Action description | •. Work with subject matter experts to create or share an already created informational brochure and/or digital media to inform/educate local farmers and residents on the potential effects of an infestation.” |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | Farm Bureau; WVU Extension Office |
| Potential funding sources | |

Please email completed form to kelly.asselin@mbakerintl.com

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|---|---|
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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| | |
|---|---|
| **Action Title** | **Reduce risks and dangers of Land Subsidence** |
| Assessing the Risk | |
| Hazard(s) addressed | Land Subsidence |
| Describing the Action | |
| Background/issue addressed | Land subsidence is defined as a gradual settling or abrupt sinking of the Earth's surface as a result of subsurface movement of earthen material. The principal causes of subsidence are aquifer depletion and compaction, underground mining, natural compaction, sinkholes, drainage of organic soils, and hydrocompaction |
| Action description | •. Enforce building code •. Identify areas prone to land subsidence . |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | Berkeley County Homeland Security; |
| Potential funding sources | |
| Timeline | Ongoing |

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# New Mitigation Action Form

| | |
|---|---|
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| **Name and Title:** | |

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| | |
|---|---|
| **Action Title** | **Reduce the spread and impacts of pandemics and infectious disease.** |
| Assessing the Risk | |
| Hazard(s) addressed | Pandemic and Infectious Disease |
| Describing the Action | |
| Background/issue addressed | Pandemics and infectious disease outbreaks are large-scale outbreaks of infectious disease that can greatly increase morbidity and mortality over a wide geographic area and cause significant economic, social, and political disruption. |
| Action description | • Invest and strengthen core public health infrastructure, including water and sanitation systems; increasing situational awareness; and rapidly extinguishing sparks that could lead to pandemics. • Ensure partnerships and coordinated response between governmental partner, medical providers and private sector should be implemented focusing on maintenance of situational awareness, public health messaging, reduction of transmission, and care for and treatment of the ill. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | West Virginia; Berkeley County Health Department; WVU Medicine; |
| Potential funding sources | |

| | |
|---|---|
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
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| | |
|---|---|
| **Action Title** | **Reduce impacts of Radon Exposure** |
| Assessing the Risk | |
| Hazard(s) addressed | Radon Exposure |
| Describing the Action | |
| Background/issue addressed | Radon is the second leading cause of lung cancer after cigarette smoking. Having a home tested is the only effective way to determine whether a person is at risk of high radon exposure. Radon is a colorless, odorless, tasteless, and radioactive gas that originates from the ground. Radon is formed through a naturally occurring process of radioactive decay. Uranium found in the earth's rock and soil decays into radon. Because it is a gas, radon can move into water or air. |
| Action description | • Educate public about impact of radon . • Enforce building code. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | DEP |
| Potential funding sources | |

| | |
|---|---|
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
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| | |
|---|---|
| **Action Title** | **Ensure Well Head Protection Plan Remains Updated** |
| Assessing the Risk | |
| Hazard(s) addressed | Source Water Contamination |
| Describing the Action | |
| Background/issue addressed | The City of Martinsburg source of supply consists of two separate ground water sources providing raw water to their respective filtration plants. The City of Martinsburg also maintains an alternate source of raw water at a nearby reservoir for a backup source of supply of raw water. |
| Action description | The City's existing Well Head Protection Plan should be updated to address growth, land use, and contamination threats, and should be correlated with development regulations, including the Zoning Ordinance, to ensure the safety of local drinking water. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | WVDEP, Health Department, Watershed Associations, Martinsburg Storrmwater, Berkeley Water |
| Potential funding sources | |
| Timeline | TBD |

# New Mitigation Action Form

| | |
|---|---|
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| **Name and Title:** | |

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| | |
|---|---|
| **Action Title** | **Reduce consequences and impacts of Substance Abuse Disorder** |
| Assessing the Risk | |
| Hazard(s) addressed | Substance Abuse Disorder. |
| Describing the Action | |
| Background/issue addressed | Substance use disorder occurs when a person's use of alcohol or another substance (opioids, stimulants, hallucinogens, (other drugs) leads to health issues or problems at work, school or home.. |
| Action description | • Continued partnership in the Martinsburg Initiative. • Continued participation in Eastern Panhandle Violent Crimes Task Force. • Continued utilization of Martinsburg Drug House Ordinance. • Continued police enforcement against distribution chains. • Continued participation and partnership with schools and school children |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | Local, state and federal law enforcement agencies; Eastern Panhandle Violent Crimes Task Force, Martinsburg Initiative, Berkeley County, Berkeley County Board of Education. |
| Potential funding sources | |
| Timeline | Ongoing |

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# New Mitigation Action Form

| | |
|---|---|
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| **Name and Title:** | |

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| | |
|---|---|
| **Action Title** | **Reduce impacts of terrorism.** |
| Assessing the Risk | |
| Hazard(s) addressed | Terrorism |
| Describing the Action | |
| Background/issue addressed | Terrorism is use of force or violence against persons or property with the intent to intimidate or coerce. 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. |
| Action description | • Continue partnerships with federal, state and local law enforcement agencies. • Ensure public buildings and facilities are well-lit and secure. • Ensure critical offices and facilities are away from uncontrolled public areas. •Locate critical assets (people, activities, systems) away from entrances, vehicle circulation and parking, and loading and maintenance areas. • Continue and enhance community policing. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | West Virginia; Berkeley County Homeland Security; Federal, State and Local Law Enforcement, US Homeland Security. |
| Potential funding sources | |

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|---|---|
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
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| **Name and Title:** | |

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| | |
|---|---|
| **Action Title** | **Reduce impacts of Thunderstorm and Lightening** |
| Assessing the Risk | |
| Hazard(s) addressed | Thunderstorm, Lightening Strike |
| Describing the Action | |
| Background/issue addressed | Lightning is a leading cause of injury and death from weather-related hazards. Although most lightning victims survive, people struck by lightning often report a variety of long-term, debilitating symptoms. |
| Action description | • Educate public that when thunder roars, go indoors! . • Notify residents, when possible, of severe weather. • Ensure public facilities have backup power and properly grounded . • Enforce building code. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | |
| Potential funding sources | |
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | **Build and maintain a transportation network that safely and efficiently serves all modes, including automobile, bicycle and pedestrian travel.** |
| Assessing the Risk | |
| Hazard(s) addressed | Transportation Accidents |
| Describing the Action | |
| Background/issue addressed | Safe and convenient transportation is critical to the future growth and development of Martinsburg. The City's transportation network is multifaceted, including a variety of road and street types, rail, public transportation, and bicycle and pedestrian facilities. Traffic circulation planning provides a framework on which to base land use decisions and will likely have a major impact on the success of many ongoing planning efforts including the revitalization of the City's Downtown. The City's primary transportation infrastructure is its road network. Martinsburg's streets all fall into one of five classifications: interstate, major collector, minor arterial, other principal arterial, and local. |
| Action description | • Increase road and sidewalk maintenance. • Increase access to Downtown and West End redevelopment zones • Study and improve traffic congestion points. • Work toward a complete network that allows convenient pedestrian and/or bicycle travel to all areas of the City. • Explore increased public transit, addressing convenience, efficiency, and user-friendly accessibility. • Improve Ride-Share and Park & Ride solutions for commuters. • Ensure Public Safety Agencies has appropriate equipment and staffing to respond. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg, WVDOT |
| Potential partners | WVDOT, HEPMPO, USDOT, |

Please email completed form to kelly.asselin@mbakerintl.com

| | |
|---|---|
| Potential funding sources | City, WVDOT, USDOT |
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | **Reduce utility interruption and impact of utility interruption.** |
| Assessing the Risk | |
| Hazard(s) addressed | Utility Interruption |
| Describing the Action | |
| Background/issue addressed | Public facilities and services are the backbone of City government. Water, sewer, public safety, and administration make much of Martinsburg life possible. While these services are rarely glamourous, the City cannot attract new businesses, grow its population, or improve the lives of its residents without them. Martinsburg provides an excellent level of service for its current size and population. The City's challenge for the future will be to grow its services in proportion to the growth of population and commerce so that service levels are maintained or improved over time.<br><br>Utility interruptions (water, sewer, gas, electric) may impact the whole community and the economy. A utility interruption is when a utility goes out unexpectedly. Utility descriptions may:<br>• Disrupt communications, water and transportation.<br>• Close retail businesses, grocery stores, gas stations, ATMs, banks and other services.<br>• Cause food spoilage and water contamination.<br>• Prevent use of medical devices. |
| Action description | • Follow and update Well head Protection Plan. • Maintain and upgrade aging water and sewer infrastructure. • Continually monitor, maintain and upgrade lines, tanks, and other system infrastructure to avoid leaks that water and waste water could potentially cause damage to City infrastructure or private property • Protect existing water sources from potential pollution from surface runoff, industrial contamination, or other sources. • Ensure collection lines are sized adequately for future capacity. |
| Evaluating the Action | |
| Cost estimate | |

Please email completed form to kelly.asselin@mbakerintl.com

| | |
|---|---|
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | WV PSC, Mountaineer Gas, First Energy, Comcast, Fronter, Shentel |
| Potential funding sources | |
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | **Prohibit and reduce impacts of Wildfire** |
| Assessing the Risk | |
| Hazard(s) addressed | Wildfire |
| Describing the Action | |
| Background/issue addressed | A wildfire is any outdoor fire that is not controlled, supervised, or arranged. Wildfire probability depends on local weather conditions; outdoor activities such as camping, debris burning, and construction; and the degree of public cooperation with fire prevention measures. Wildfires can result in widespread damage to property and loss of life. |
| Action description | • Develop Fire Inspection Program with newly hired Fire Inspector. • Ensure Fire Department has adequate equipment and staffing. • Identify wildlife hazard areas and overall community vulnerability. • Enforce building and fire safety code. • Educate public to increase awareness of fire and wildfire risk and strategies for protecting homes, structures and infrastructure. • Ensure mutual aid agreements are valid. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | Berkeley County Homeland Security; State of West Virginia; Berkeley Fire and local volunteer departments; State Forestry |
| Potential funding sources | |

Please email completed form to kelly.asselin@mbakerintl.com

| | |
|---|---|
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | **Reduce Impacts of Windstorm, Tornado** |
| Assessing the Risk | |
| Hazard(s) addressed | Windstorm, Tornado |
| Describing the Action | |
| Background/issue addressed | The destruction caused by tornadoes ranges from light to catastrophic depending on the intensity, size, and duration of the storm. Typically, tornadoes cause the greatest damage to structures of light construction, including residential dwellings and particularly manufactured homes. Tornadoes are more likely to occur during the months of March through May and tend to form in the late afternoon and early evening. Severe wind can occur alone, such as during straight line wind events and derechos, or it can accompany other natural hazards, including hurricanes and severe thunderstorms. Severe wind poses a threat to lives, property, and vital utilities primarily due to the effects of flying debris or downed trees and power lines. Severe wind will typically cause the greatest damage to structures of light construction, particularly manufactured homes. |
| Action description | • Enforce adopted building codes. • Inform public of impending storms and impacts. • Encourage wind engineering measures and construction techniques that better withstand high winds. • Participate in severe weather awareness week. • Coordinate with power company to ensure trees adjacent to power lines are properly trimmed. • Encourage/require undergrounding of new or replaced utilities. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | First Energy, National Weather Service, Berkeley County Homeland Security, FEMA. |

Please email completed form to kelly.asselin@mbakerintl.com

| | |
|---|---|
| Potential funding sources | |
| Timeline | Ongoing |

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | City of Martinsburg |
| **Name and Title:** | |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | **Reduce Impacts of Winter Storms** |
| Assessing the Risk | |
| Hazard(s) addressed | Winter Storm |
| Describing the Action | |
| Background/issue addressed | Severe winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Severe winter weather can down trees, cause widespread power outages, damage property, and cause fatalities and injuries. |
| Action description | • Enforce adopted building codes. • Coordinate with power company and other utilities to ensure utilities are winter ready and preventative maintenance has occurred. • Maintain and provide adequate snow removal and debris equipment. • Inform public of impending storms and impacts. • Coordinate and ensure cold weather shelter is available. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | City of Martinsburg |
| Potential partners | First Energy, National Weather Service, Berkeley County Homeland Security, Mountaineer Gas, Berkeley County Senior Center. |
| Potential funding sources | |
| Timeline | Ongoing |

Please email completed form to kelly.asselin@mbakerintl.com

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | Berkeley County / Planning Department |
| **Name and Title:** | Heather Williams, CFM, Planning Director |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | Repetitive Loss Area Maps |
| **Assessing the Risk** | |
| Hazard(s) addressed | Recurring flooding of insured properties and surrounding areas. |
| **Describing the Action** | |
| Background/issue addressed | Improving awareness of where these areas are located and putting mitigation plans in place for the more severe areas. |
| Action description | Publicizing the Repetitive Loss Area maps through the WV Flood Tool |
| **Evaluating the Action** | |
| Cost estimate | low = time to generate maps & submit |
| Priority | medium |
| **Implementing the Action** | |
| Responsible party | County CRS Coordinator |
| Potential partners | WVU GIS Technical Center |
| Potential funding sources | mitigation grants for mitigation component TBD |
| Timeline | 1-year |

Please email completed form to kelly.asselin@mbakerintl.com

## Appendix C-15 Morgan County New Mitigation Actions Worksheets

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | Berkeley-Morgan County Board of Health |
| **Name and Title:** | Jennifer Schetrompf – Threat Preparedness/Health Promotion Coordinator |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | **Morgan County: Community Opioid Crisis Response** |
| Assessing the Risk | |
| Hazard(s) addressed | Opioid Epidemic |
| Describing the Action | |
| Background/issue addressed | Education, Awareness of Substance Use Disorder, Linkage to Services |
| Action description | See details included in email. |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | |
| Potential partners | |
| Potential funding sources | |
| Timeline | |

Please email completed form to kelly.asselin@mbakerintl.com

# New Mitigation Action Form

| | |
|---|---|
| Municipality/Organization: | Morgan County |
| Name and Title: | |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | |
| Assessing the Risk | |
| **Hazard(s) addressed** | Cyber Security |
| Describing the Action | |
| **Background/issue addressed** | Morgan County was recently hacked. Our emails and data were compromised |
| **Action description** | Established protocols, hired an IT Director Implementing virus protection, cloud servers and employee education |
| Evaluating the Action | |
| **Cost estimate** | |
| **Priority** | High |
| Implementing the Action | |
| **Responsible party** | Commission - IT |
| **Potential partners** | SocD |
| Potential funding sources | Grants for software and equipment |
| **Timeline** | Ongoing |

Please email completed form to kelly.asselin@mbakerintl.com

| | |
|---|---|
| **From:** | Schetrompf, Jennifer R |
| **To:** | Asselin, Kelly |
| **Cc:** | Stefanie Allemong (sallemong@morgancountywv.gov); Dick Myers; Rachel Snavely; Matthew Pennington; Truax, Troy D |
| **Subject:** | EXTERNAL: Mitigation Action: Morgan County Opioid Crisis Response |
| **Date:** | Tuesday, June 15, 2021 2:37:33 PM |
| **Attachments:** | CHRONIC PAIN & DISEASE FLYER (4).pdf<br>MC HR Brochure 2.png<br>MC HR Brochure 1.png<br>Worksheet 2 - Mitigation Action Form_Berkeley.docx<br>Community Opioid Crisis & Harm Reduction Flyer.pdf |

---

Good afternoon,

Below and attached are some information that I have regarding Morgan County's response to the opioid crisis from the Health Department and Grass Roots perspectives. I have included that start of a Mitigation Action Form.
I'm sure that Stephanie will have additional information relating to our Day Report program that can be included as well.
If more information/details are needed, please let us know.

**Morgan County Harm Reduction Steering Committee:**

The Morgan County Harm Reduction Steering Committee held our first meeting on 12.10.18.
We continued to meet monthly until the Morgan County Partnership received a HRSA planning grant related to the opioid epidemic.
We merged the MCHRSC with the planning grant committee which then became known as Project Resolve.
The Morgan County Partnership is a coalition made up of local citizens united in a shared vision of building a supportive network for our young people, their families and others connected with them to create a safe, healthy, and drug-free community. The Partnership includes all sectors of the community, such as area nonprofits, government groups, agencies, volunteer organizations, the school district, churches, businesses, parents, and youth.

**Chronic Pain Self-Management Program:**

I have attached a flyer for the Chronic Pain Self-Management Program (CPSMP) - in addition to Chronic Disease. I am trained to help lead CPSMP classes which we partner to provide for the Eastern Panhandle with additional leaders with under the licensing through WVU Medicines East.

**Morgan County Community Opioid Crisis & Harm Reduction Forum:**

Below are links to 2 news articles regarding the Morgan County Community Opioid Crisis & Harm Reduction Forum that was held on 6.15.19 as well as a copy of the event flyer.

https://www.newsbreakapp.com/n/0M7nKbcD?&share_destination_id=MTUyMDA2MjY2LTE2MjM3Njk5MzgwNTI=&s=a7&pd=0AHnly32&hl=en_US&lp=v4

https://www.morganmessenger.com/2019/06/12/forum-to-focus-on-local-drug-crisis-public-health-effort-to-reduce-harm/

**Heroin's Grip: Documentary Film Screening & Panel Discussion**

For continued public outreach and education, our steering committee planned a screening event of the

Heroin's Grip Documentary. The screening was held on 9.15.19 and was sponsored by local partners . The creator/producer of the documentary traveled to Berkeley Springs to attend the screening and to be part of the panel discussion.

**Morgan County Harm Reduction Program:**

On 8.25.2020 we began our weekly Harm Reduction Program at the Morgan County Health Department. Front and Back of the Brochure is attached. Services continue to be offered weekly.

**WV Office of Drug Control Policy - Data Dashboard**

Data Dashboard (wv.gov)

> Data Dashboard - West Virginia
>
> For additional information related to criteria used to identify overdose, please contact ODCP.
>
> dhhr.wv.gov

**Grassroots:**

**Life or Drugs, Tri-State Support:**

This organization began in November 2013 as a support mechanism for loved ones of those battling substance use disorder. Very quickly those battling SUD themselves asked to join. The organization began holding weekly combine support group meetings which allowed those suffering from SUD who were in various stages of recovery, and the loved ones of those suffering from SUD or those who had lost loved ones to SUD, to learn from each other.

The organization partners with school systems and organizations to provide speakers to present SUD education and awareness.

**Team Hope:**

Under the Life or Drugs TSS Non-profit, various group members with a passion for help children, began a support group for youth, ages 9 - 16 that began meeting weekly in August of 2017. The organization's focus on peer and leader support for those dealing with split family situations, substance use disorder of loved ones and/or self, low self-esteem, coping with grief/loss, building positive life &coping skills, education and prevention of SUD and bullying.

Best regards,
Jen

Jennifer Schetrompf
Threat Preparedness/Health Promotion Coordinator
Berkeley-Morgan County Board of Health
Direct: 304-263-5131 ext. 8243
Work Cell: 304-676-7294

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# Living Well *with* CHRONIC CONDITIONS

## Chronic Disease & Chronic Pain Self-Management 6 Week Programs

## WORKSHOPS INCLUDE:

- ✔ Techniques to deal with frustration, fatigue, pain, isolation, stress and poor sleep
- ✔ Appropriate exercise to maintain/improve strength, flexibility and endurance
- ✔ Appropriate use of medication
- ✔ More about the pain and symptom cycle and successful ways of dealing with difficult emotions
- ✔ How to work with your health care team and much more

The Living Well Chronic Disease and Chronic Pain Self-Management Programs will empower you to take charge of your health giving you the tools to better manage your health so you can feel better, be in control and do the things you want to! Programs have been developed by Stanford University and are evidence based. They are FREE and to open to all.

WVUMedicine

**FOR MORE INFO OR TO SIGN UP:**
**Dana DeJarnett at**
**dana.dejarnett@wvumedicine.org**
**or call 304-264-1232**

**CHRONIC PAIN VIA ZOOM**
**TUESDAYS**
**January 19 - February 23, 2021**
**3pm - 5:30pm**

*Programs are offered either via zoom or by a mailed tool kit with a weekly telephone conference call. Zoom sessions are 6 weeks for 2 ½ hours a week. The tool kit version is 6 weeks for 1 hour a week. The tool kit version is for those who do not have access to zoom.*

# COMMUNITY OPIOID CRISIS & HARM REDUCTION FORUM

## WHEN

**June 15th, 2019**
**1pm - 4:30pm**

## WHERE

**Berkeley Spring High School Auditorium**

## INFORMATIONAL TOPICS:

- Perspectives on Substance Use Disorder (SUD)
- Understanding Medically Assisted Treatment (MAT) Programs
- Harm Reduction Need in WV
- Harm Reduction: A Personal Experience
- Open Discussion/Q&A

## BROUGHT TO YOU BY:

**THE MORGAN COUNTY HARM REDUCTION COMMUNITY PARTNERS STEERING COMMITTEE**

## SPEAKERS

Jan Augusta Nieves RN, PCCN

Dr. Brandt Williamson, MD

Angela Gray, BSN, RN

Andrea Wright, MA IC, CPRS, CRC, CBHC



## COMMUNITY FORUM SPONSORS

Berkeley-Morgan County Board of Health

Morgan County Partnership

Valley Health War Memorial Hospital

Tri-State Community Health Center

Morgan County Prosecutor's Office

Morgan County Sheriff's Department

Morgan County 911 Center

Eastern Panhandle Empowerment Center

Life or Drugs Tri-State Support

Chapel of Praise

Team Hope

## Morgan County Harm Reduction Goals

- Reduce needle sharing
- Reduce the rate of HIV, Hepatitis C, and Hepatitis B
- Reduce stigma and/or discrimination against people who use drugs.
- Promote referrals to medical and recovery services
- Provide safe disposal of used needles
- Raise awareness of drug overdose and death
- Provide Naloxone


Morgan County Health Department
137 War Memorial Dr
Berkeley Springs, WV 25411
Phone: 304-258-1513
Fax: 304-258-6148


Join us on facebook!

Public Health
Prevent. Promote. Protect.

# Morgan County Health Department




Tuesday
1:00 – 3:00pm


137 War Memorial Dr
Berkeley Springs, WV 25411
304-258-1513
www.Morgancountyhealthdepartment.com

# HEROIN'S GRIP DOCUMENTARY




## WHEN

**Sunday, September 15, 2019**
**2:00pm - 4:00pm**

Time Includes: Panel Discussion following the screening

## WHERE

**The Star Theatre**
49 N. Washington St., Berkeley Springs WV

**STORIES FROM THE FRONT LINES OF THE HEROIN AND OPIOID CRISIS.**

**WWW.HEROINSGRIP.COM**

## SCREENING EVENT

## FREE ADMISSION

*** Trigger Warning

## SUGGESTED AUDIENCE:

Medical Professionals
Law Enforcement
Judicial
General Public
...as we have all been Impacted in some way.

## SPONSORS

Screening/Hosting:
DrivePros
Location:
Berkeley Baptist Church

## SUPPORTED BY

Morgan County Harm Reduction Community Partners Steering Committee



## What is Harm Reduction?

*Harm Reduction is a group of strategies used to reduce health issues caused from using injectable drugs.*

- Safer use
- Managed use
- Recovery
- Meeting drug users "where they are at"

*Harm reduction provides new, sterile syringes and supplies, as well as disposal of used syringes.*

## Benefits of a Harm Reduction Program:

- Helps prevent the spread of HIV, Hepatitis C, Hepatitis B, and other blood borne diseases
- Leads people who use drugs to seek testing, counseling, and treatment
- Helps clients reduce risky behaviors
- Harm reduction programs/syringe exchanges **DO NOT** lead to an increase of injectable drug use
- Helps prevent costly disease treatment




## Morgan County Harm Reduction Clinic

### List of Services:

- New sterile syringes
- Disposal of used syringes
- Works
- Education on safer injection practices
- Free STD testing
- Free HIV, Hepatitis C, Hepatitis B testing
- Family planning services
- Immunizations
- Naloxone training and supply
- Recovery coaches

*For more information, call the MCHD at: 304-258-1513*

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | Paw Paw |
| **Name and Title:** | Ron Davis, Councilman |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | Create space in town to serve as shelter, etc, for major disasters |
| Assessing the Risk | |
| Hazard(s) addressed | all primarily weather and pandemics |
| Describing the Action | |
| Background/issue addressed | Provide shelter in event of major disaster / provide quarantine site |
| Action description | Renovate old fire hall for use as evac/quarantine/vaccinating site possible police hub |
| Evaluating the Action | |
| Cost estimate | TBD |
| Priority | high |
| Implementing the Action | |
| Responsible party | town |
| Potential partners | dhsem, hud, usda, county |
| Potential funding sources | same as above |
| Timeline | 2 years dependent on funding |

Please email completed form to kelly.asselin@mbakerintl.com

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | Town of Bath |
| **Name and Title:** | Chris Chapman, Councilman |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | **Develop a Capital Improvements Program** |
| Assessing the Risk | |
| Hazard(s) addressed | Financial capability to mitigate hazards |
| Describing the Action | |
| Background/issue addressed | Development of this plan will help the Town of Bath to ensure financial capability to address hazard mitigation. |
| Action description | A short-range plan or 4 to 10 years will be developed, which identifies capital projects and equipment purchases. The plan will develop a schedule for completion of the plan and identify options for funding the plan. |
| Evaluating the Action | |
| Cost estimate | No foreseeable cost |
| Priority | Medium to low |
| Implementing the Action | |
| Responsible party | Town Planning Commission |
| Potential partners | Town of Bath Public Works Committee, Public Safety Committee, and Finance Committee |
| Potential funding sources | None |
| Timeline | Completion by June 30, 2025 |

Please email completed form to kelly.asselin@mbakerintl.com

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | Town of Bath |
| **Name and Title:** | Chris Chapman, Councilman |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | **Develop a Climate Change Adaptation Plan** |
| Assessing the Risk | |
| Hazard(s) addressed | Response to climate change. |
| Describing the Action | |
| Background/issue addressed | Development of this plan will help the Town of Bath to address and adapt to a changing climate. |
| Action description | An action plan and vulnerability assessment will be developed across a broad range of government services to anticipate, plan for, increase awareness of, and build momentum to address and adapt to a changing climate. |
| Evaluating the Action | |
| Cost estimate | No foreseeable cost |
| Priority | Medium to low |
| Implementing the Action | |
| Responsible party | Town Planning Commission |
| Potential partners | To be determined |
| Potential funding sources | None |
| Timeline | Completion by June 30, 2025 |

Please email completed form to kelly.asselin@mbakerintl.com

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | Town of Bath |
| **Name and Title:** | Chris Chapman, Councilman |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | **Seek Storm Ready Certification** |
| Assessing the Risk | |
| Hazard(s) addressed | Improved skills for addressing hazards |
| Describing the Action | |
| Background/issue addressed | Seeking this certification will help to ensure that programs and methods are in place t-related information to constituents. |
| Action description | Participation in the National Weather Service 'Stormready Certification" program will help arm the Town with communication and safety skills needed to save lives and property, before, during, and after an emergency event. |
| Evaluating the Action | |
| Cost estimate | No foreseeable cost |
| Priority | Medium to low |
| Implementing the Action | |
| Responsible party | Town Planning Commission |
| Potential partners | Town of Bath Public Safety Committee |
| Potential funding sources | None |
| Timeline | Completion by June 30, 2025 |

Please email completed form to kelly.asselin@mbakerintl.com

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | Morgan County Commission |
| **Name and Title:** | Bill Clark County commission member |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | **Warm Springs Run channel mitigation and urbanized flow obstruction** |
| Assessing the Risk | |
| Hazard(s) addressed | Flooding |
| Describing the Action | |
| Background/issue addressed | The town of Bath was bult over and along the Warm Springs run well before FEMA and flood plain management has confined flows throughout town. |
| Action description | Mitigation and strategies to guarantee maximum flow during rain events and extreeme rain events. |
| Evaluating the Action | |
| Cost estimate | $20,000 engineering and permitting and $90,000 for implementation |
| Priority | High |
| Implementing the Action | |
| Responsible party | State of WV |
| Potential partners | Morgan County and Town of bath |
| Potential funding sources | FEMA, WV Homeland Security and flood mitigation |
| Timeline | 2021-22 planning 2023-24 implementation |

Please email completed form to kelly.asselin@mbakerintl.com

# New Mitigation Action Form

| | |
|---|---|
| **Municipality/Organization:** | FirstEnergy |
| **Name and Title:** | Thomas Butcher, External Affairs |

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 hazards. This resource is located at https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf.

| | |
|---|---|
| **Action Title** | **Tree trimming** |
| Assessing the Risk | |
| Hazard(s) addressed | Trees falling into or growing into electric lines. |
| Describing the Action | |
| Background/issue addressed | Trees will be trimmed on a four-year cycle. FE will request permission to cut off right-of-way hazard trees from property owns. |
| Action description | |
| Evaluating the Action | |
| Cost estimate | |
| Priority | |
| Implementing the Action | |
| Responsible party | Potomac Edison |
| Potential partners | |
| Potential funding sources | |
| Timeline | |

Please email completed form to kelly.asselin@mbakerintl.com

## Appendix C-16 Berkeley County NFIP Compliance Worksheets

1. Who is your FPA or floodplain manager? Please provide office/agency name, position title, and contact information.
    a. Heather Williams, CFM
    b. Berkeley County Planning Commission
    c. Planning Director
    d. 304-267-5000 x8165; hwilliams@berkeleywv.org

2. Where do you keep your FIRM and FIS report?
    a. Hardcopies are located in the Planning Department
    b. Electronic access is available through the WV Flood Tool
        i. WV Flood Tool (mapwv.gov)
        ii. The flood tool is made available on the county flood page
            1. Berkeley County Council (berkeleywv.org)

3. Has your community adopted? When was the adoption? Where is that information stored?
    a. The most recent maps were adopted with an effective date of July 7, 2009 and the floodplain ordinance was adopted at the same time.

4. How does your municipality support requests for map updates, specifically LOMAs?
    a. LOMAs are tracked by Heather Williams, the Floodplain Administrator, in the planning department. Hardcopies are saved in a binder. Electronic copies are saved on the secure department drive. The WV Flood Tool also provides access to them.

5. Is there a specific agency/department responsible for compiling these updates and tracking Letters of Map Changes (LOMCs)?
    a. Requested changes are tracked by the Floodplain Administrator, in the planning department.

6. How do you collect updated technical or scientific data and modeling? How do you share this with FEMA?
    a. At this time, the WV Flood Tool is the primary source for updated data and modeling. The Advisory Flood Heights available in the expert layer on this tool are used to provide information to property owners regarding best practices for existing structures, new building permits and new subdivisions.
7. Does your municipality provide assistance with local floodplain determinations? If yes, specify how.
    a. The WV Flood Tool is used to generate a floodplain map, including advisory flood heights, of a specific parcel for property inquiries from perspective buyers, current owners, real estate agents, insurance agencies, and developers.
    b. The WV Flood Tool is also used to generate a floodplain map, including advisory flood heights to make determinations regarding all proposed building permits, subdivisions and boundary changes.

8. Do the people/agencies responsible for using these tools in your community have the access they need? Which tools does your community rely on?
    a. The WV Flood Tool is available to the public directly through this link: WV Flood Tool (mapwv.gov)
    b. The WV Flood Tool and other flood related information is also available through the Berkeley County Flood Page on the county website: Berkeley County Council (berkeleywv.org)
    c. The hard copy regulatory floodplain maps are housed in a floodplain file cabinet in the planning department. This includes regulatory maps and corresponding FIS studies from 2009, 1988 and 1975.
    d. As time allows, the historical maps from 1975 and 1988 are being scanned and added to the county Flood Page.

9. Does your municipality issue permits for all proposed development in the SFHA? What office/position is responsible.
    a. The floodplain administrator, or designee within the planning department evaluates the proposed development for compliance with the floodplain ordinance.
        i. If proposed development involves a structure, documentation is included in the building permit processing which is managed by the permitting and inspections department.
        ii. If proposed development involves a stream bank restoration, WV DOH bridge repair, or similar activity within a floodway, a floodplain permit letter is issued by the floodplain administrator or designee.

10. Does your municipality obtain, review, and utilized BFE and floodway data, or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres? If so, what department or office is responsible?
    a. This language is included within the floodplain ordinance and the planning department is responsible for requested and reviewing this information.

11. How does your community identify substantially improved structures? When do they intervene to ensure construction increases the resilience (e.g. building above the BFE, anchoring, using flood-resistant materials, and/or elevating utility locations to prevent water damage)?
    a. All building permits for structures within the floodplain are evaluated to determine if the proposed construction qualifies as substantially improved by comparing the value of the proposed construction to the assessed value of the structure. If the proposed construction value has the potential to reach 50% of the assessed value, a more detailed estimate for construction costs is requested.

12. Does your community have a coordinated process to determine substantial damage and to permit repair and improvement? Does the municipality conduct substantial damage

assessments in the SFHA? Does your community have a plan for who will conduct substantial damage assessments and a procedure for assessment?

a. Aside from evaluation of structures at the building permit application stage, the county does not have a coordinated process to determine substantially damaged properties.

13. Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures? Does your municipality require Elevation Certificates? If yes, how is it documented and which office/agency/department is responsible?
    a. Pre-construction Elevation Certificates are required for all new and substantially improved structures within the SFHA.
    b. These certificates are maintained by the planning department. Hardcopies are kept in a binder and electronic copies are saved in the planning department floodplain records.
    c. Electronic copies of pre-construction Elevation Certificates are also included within the building permit application files located on the LAMA permits which is easily accessible to staff.

14. How does the municipality enforce the floodplain ordinance sections? Does enforcement include monitoring compliance and taking remedial action to correct potential violations? How does the municipality address SI/SD violations?
    a. The floodplain administrator, or designee, reviews all floodplain complaints regarding potential violations for compliance with the floodplain ordinance. If a violation is detected, the property owner is sent a letter with instructions on the steps necessary to remedy the violation.

15. Has your municipality had a Community Assistance Visit? If so, are there any corrective actions remaining to complete (the process?), or have the actions been completed and remedied to the greatest extent possible? How does your community track open and closed actions, and when closed, what was the activity that led to closure?
    a. A Community Assistance Visit took place on July 12, 2018 with Ben Love and his trainee Damon Sprigg. We visited the Sportsman's Paradise location and Ben took several photos of the remediated properties. On the drive to the Sportsman's Paradise location, Ben noted the tremendous level of activity with new subdivisions being graded and homes being constructed.
    b. After reviewing documents back in the office, Ben indicated that the state coordinator's office was shifting the Town of Hedgesville floodplain management role to fall within the Berkeley County administrator responsibilities. Since there is not any mapped regulatory floodplain within the Town of Hedgesville, he indicated that this was more of a formality and that there would be no additional floodplain permitting work required.
    c. At the end of the meeting there were no corrective actions to be completed.

16. Does your municipality have higher ordinance standards than the NFIP? Has the municipality considered adopting regulations that extend beyond the minimum requirements? Please describe the higher standards and where they are documented.
    a. Berkeley County is a Class 7 CRS community and, as a result, is held to higher regulatory standards.
    b. Due to the number of repetitive loss structures within the County, participation in the CRS program is required. Berkeley County has 55 repetitive loss properties and is a Category C community for CRS purposes. The community is required to submit either a Repetitive Loss Area Analysis or a Floodplain Management Plan. No CRS credit points are applicable to this section of the CRS Manual.
    c. The Class 7 rating is achieved by first meeting these minimum repetitive loss requirements and then by having regulations above minimum requirements in other categories of floodplain management. These categories are described in the evaluation form provided by the ISO Verisk CRS Resource Specialist during the 5-year cycle verification.
    d. All of these items are evaluated through an annual verification and through a 5-year cycle verification. The CRS Coordinator, Heather Williams, is currently preparing for the county's 5-year cycle verification that will be taking place in 2021.
    e. See previous 5-year cycle verification report for details regarding higher standards and points earned towards the CRS classification.

17. Are any local officials/departments in your community interested in a training? What topics relate most to your community?
    a. As a Class 7 CRS community, the county is required to have a CFM on staff. This CFM certificate requires on-going training with a minimum of 16 credit hours in specified courses and conferences, to be applied towards the 2-year CFM certificate renewal application.
    b. Due to the County's close proximity to the FEMA Emergency Management Institute in Emmitsburg, MD, there are typically multiple opportunities for acquiring these credits. During 2020 and 2021, it has been more challenging to locate these opportunities, due to the pandemic.
    c. The WV Floodplain Manager's Association annual conference is typically held in June and provides the opportunity to earn several credit hours towards this certificate. This conference was canceled for 2020 and 2021 due to the pandemic.

18. How does the municipality educate community members about the availability and value of flood insurance?
    a. As a Class 7 CRS community, most property owners in the county are eligible to receive a 15% discount on flood insurance.
    b. When staff in the planning department discuss property with perspective buyers, current owners, real estate agents, insurance agencies, and developers, emphasis is placed on the 15% flood insurance discount as one of the primary reasons for the need

to comply with the floodplain ordinance and storm water management ordinance regulations.

19. Does the municipality inform community property owners about changes to the FIRM that would impact their insurance rates?
    a. When appropriate, the floodplain administrator will recommend that the property owner apply for a LOMA (Letter of Map Amendment) through FEMA to remove a structure from the FIRM. The property owner then gives this LOMA to their insurance contact and requests an insurance rate reduction.
    b. The floodplain administrator provides assistance and guidance to the property owner throughout the LOMA process.

20. How does the municipality provide general assistance to community members regarding flood insurance issues?
    a. When a property owner has difficulty understanding the floodplain requests of their insurance contact, the floodplain administrator offers to communicate directly with the insurance contact to determine what specific floodplain information is needed to answer their questions. Typically a detailed map from the WV Flood Tool with BFEs and corresponding ground elevations provides the information needed.

21. Does the municipality keep track of the number of residential and non-residential structures in the SFHA? How many structures are in the SFHA in your community?
    a. The annual CRS report submission requires tracking of this number.
    b. As of the most recent annual report submitted there were 1,105 buildings in the SFHA in Berkeley County.

22. Does the municipality have any levees or levee systems in its jurisdiction?
23. Is the levee or levee system accredited by FEMA?
24. Is the levee or levee system a Provisionally Accredited Levee (PAL)?
25. Is the levee or levee system part of the USACE Rehabilitation and Inspection Program (RIP)?
    a. The floodplain administrator is not aware of any levee systems within Berkeley County.

26. Does your community have any Major Dams or High Hazard Dams, and if so, have you applied for FEMA's High Hazard Potential Dam grant?
    a. Stonebridge Dam is listed as a High Hazard Dam and is state regulated (see separate documents from previous CRS cycle verification)
    b. Sleepy Creek (see separate documents from previous CRS cycle verification)
    c. Lake Holliday, located north of Winchester, VA but if breached has the potential to affect downstream Berkeley County property owners in the Back Creek watershed. 1045 Lakeview Drive, Cross Junction, VA 22625 (link provided for a reference point: Lake Holiday, Virginia - Wikipedia)
    d. The community has not applied for FEMA's High Hazard Potential Dam grant.

# FEMA REGION 3
# HAZARD MITIGATION PLAN GUIDANCE
## Checking In On The NFIP



Whether you are here as a requirement for hazard mitigation planning (44 CFR 201.6(c)(3)ii) or to take strategic action as a floodplain administrator, this document is intended for you and any other staff/ partners necessary to help you fill in the questions for each section. Being a part of the National Flood Insurance Program (NFIP) unlocks a lot of valuable resources and connections to state and federal partners. FEMA developed this worksheet to assist you in finding opportunities to meet AND EXCEED requirements as you help your community.

## FLOODPLAIN IDENTIFICATION AND MAPPING

The first step is to figure out what made you eligible for the NFIP, where those resources are, and who is accountable for tracking them.

As part of the application to join the NFIP, each participating community was required to identify a floodplain administrator (FPA)/floodplain manager. If the person/position changes, the community should notify their State NFIP Coordinator and FEMA. Please consider who is designated to manage floodplain development and enforce compliance. The role may be completed by multiple individuals with other job responsibilities (e.g., "wearing multiple hats") as long as one person/position is ultimately accountable for the responsibilities of FPA.

### 1. Who is your FPA or floodplain manager? Please provide office/agency name, position title, and contact information.

*Kim Petrucci, City Engineer*
*232 N. Queen Street*
*Martinsburg, WV 25401*
*kpetrucci@cityofmartinsburg.org*
*304-264-2131*



Each municipality is required to maintain accessible copies of its effective Flood Insurance Rate Map (FIRM) and the most recent Flood Insurance Study (FIS) report.

### 2. Where do you keep your FIRM and FIS report?

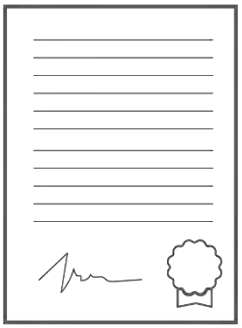
*The City of Martinsburg has a Certified Floodplain Manager, located in the Planning Department. Services. Copies are contained in the Planning Office.*

**RESOURCE ALERT!**
Don't forget you can see your FIRM on the National Flood Hazard Layer.

Communities participating in the NFIP must also formally adopt the most recent FIRM and FIS report.

### 3. Has your community adopted? When was the adoption? Where is that information stored?

*Most recent FIRM was effective 7/7/2009. Adoption was by ordinance in 2009. Ordinance is on City's website, codified ordinances and City Recorder's office.*



The maps capture one moment in time in a dynamic community. Communities are required to track requests for map changes (for instance through Letters of Map Amendment [LOMAs] and Letters of Map Revision [LOMRs]).

### 4. How does your municipality support requests for map updates, specifically LOMAs?

Martinsburg Planning and Zoning
Kim Petrucci, City Engineer

### 5. Is there a specific agency/department responsible for compiling these updates and tracking Letters of Map Change (LOMCs)?

*Martinsburg Planning and Zoning*
*Kim Petrucci, City Engineer*

**RESOURCE ALERT!**
Don't forget you can see LOMCs and download FIS reports on the Map Service Center. If you have more questions about LOMCs please consider reviewing application instructions here and here, calling the FEMA Mapping and Insurance eXchange (FMIX) at 877-FEMA MAP (877-336-2627), or following up with your State NFIP Coordinator on any potential LOMC-related trainings.



Communities are ever evolving as their development, hazardous conditions, and overall risk profile change over time. Often, we track some of these changes at a project-specific scale, for instance an engineering study used to figure out if DOT should widen a culvert as part of their road improvements project, or a university looking at water flow modeling through a neighborhood. If it could potentially impact a map, the data must be shared with FEMA within 6 months.



### 6. How do you collect updated technical or scientific data and modeling? How do you share this with FEMA?

*Building permits, subdivision plans, GIS mapping.*

The National Flood Hazard Layer is good for general planning and reference. To look at where the Special Flood Hazard Area (SFHA) overlaps with specific parcels, many states and local governments have map viewers available. The FPA should also have this information, be aware of future development and any Conditional Letters of Map Revision (CLOMRs), as well as possible flood risk areas not yet mapped. Because the edge of the floodplain can sometimes be unclear, residents may have questions about what restrictions apply to them, their property, and their structures.

### 7. Does your municipality provide assistance with local floodplain determinations? If yes, specify how.

Access to online tools such as state map viewers, FEMA's Map Service Center, and the National Flood Hazard Layer, Staff will also meet with applicants and review pertinent information to assist.



**RESOURCE ALERT!**

State map viewers often include helpful data and layers. Check out your state's viewer:

DC DE MD PA VA WV

### 8. Do the people/agencies responsible for using these tools in your community have the access they need? Which tools does your community rely on?

*As far as we know. WV Flood Plain Tool is available online. Maps are available at City Hall. The City has an entire section on its website dedicated to the flood plain and tools.*



**ACTION OPPORTUNITY!**

FEMA looks to the community FPA and mitigation planners to collect this worksheet data to inform hazard mitigation planning with the goal of taking action. How are you using your mapping information to reduce risk in your community?

# COMMUNITY WORKSHEET

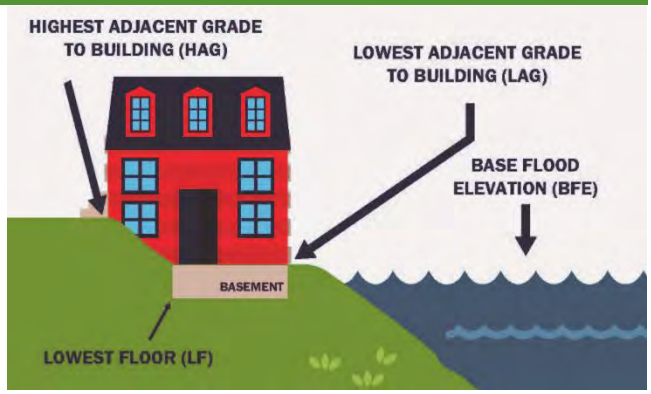
## FLOODPLAIN IDENTIFICATION AND MAPPING

| | |
|---|---|
| 1. Where do you keep your FIRM and FIS report? | |
| 2. Has your community adopted the most recent FIRM? When was the adoption? Where is that information stored? | |
| 3. Has your community updated the floodplain ordinance language to include the current FIRM and FIS? | |
| 4. Does your municipality support requests for map updates? | |
| 5. Is there a specific agency/department responsible for compiling these updates and tracking LOMCs? | |
| 6. Do you collect updated technical or scientific data and modeling? How do you share this with FEMA? | |
| 7. Does your municipality provide assistance with local floodplain determinations? If yes, specify how. | |
| 8. Who is your FPA or floodplain manager? Please provide office/agency name, position title, and contact information. | |
| 9. Do the people/agencies responsible for using these tools in your community have the access they need? Which tools does your community rely on? | |

Floodplain management requires that you understand the mapping and data side when working with the public. If you were unsure or answered no to any of these questions, how would you put a plan together to address them? Are there other partners/resources needed to be successful in that action?

# FLOODPLAIN MANAGEMENT

FPAs are expected to track how their communities manage development and change in the floodplain- for instance, through permitting and enforcement. For structures, the FPA or other designated permitting official must track the lowest floor elevation and Elevation Certificate. Individuals seeking a LOMC must provide an elevation form and lowest adjacent grade (LAG).




Each municipality is required to adopt floodplain regulations - as a standalone ordinance or specific sections in other land use and zoning ordinances. To participate in the NFIP, the ordinance language must include:

- Process guidance on permitting in the SFHA
- How Base Flood Elevation (BFE) data are gathered, analyzed, and used
- An administrative process for measuring substantial modification (damage and/or improvement)
- A process for documenting elevation (Elevation Certificates) and Substantial Damage/Improvement Calculations

### 9. Does your municipality issue permits for all proposed development in the SFHA? What office/position is responsible?

*Martinsburg's permitting officer permits all new development in the community. For properties in the SFHA, the permitting officer issues a conditional permit pending approval by the Martinsburg FPA. For properties in the SFHA, construction cannot begin until the FPA signs off.*

**RESOURCE ALERT!**
All Region 3 states have a "model floodplain ordinance" that communities can (and are encouraged to) use. These ordinances are regularly reviewed for clarity and compliance with NFIP and state requirements. If your regulations have not been updated in recent years, it might be time to review for needed improvements.

To track the impact of development and land changes on the water surface elevations (WSELs), communities are expected to obtain, review, and use BFE and floodway data for subdivision proposals, development greater than 50 lots or 5 acres, and otherwise as documented in the community's floodplain ordinance.

### 10. Does your municipality obtain, review, and utilize BFE and floodway data, or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres? If so, what department or office is responsible?

*Martinsburg collects all applicable BFE data and uses contractors to provide analysis of BFE and flow impacts. It shall be unlawful for any contractor, person, partnership, business, or corporation to undertake or cause to be undertaken, any development, new construction, substantial improvement, repair of substantial damage, or the placement or relocation of any structure (including manufactured homes) within the City of Martinsburg, unless a permit application has been completed and a permit or Certificate of Compliance has been obtained from the Floodplain Administrator or designated agent. In addition, where land partially or fully in the floodplain is to be developed, subdivided, utilized for a manufactured home park or subdivision or otherwise developed, a site plan with elevation data must be submitted to, and approved by, the Floodplain Administrator prior to any development.*

**RESOURCE ALERT!**
There are a lot of trainings available to help FPAs understand how to best manage their floodplains, for example, L273 - Introduction to Floodplain Management. For more courses and to find a location near you, contact your State NFIP Coordinator.



Not every structure in the SFHA will meet NFIP requirements - some may have been grandfathered in or have been granted an exception. As a tool to increase compliance with older structures, the NFIP requires communities to track when a structure is more than 50 percent damaged or improved. The community can decide how the percentage will be calculated (e.g., tax assessed, market rate, etc.). Any structure over 50-percent modified must be brought into compliance with all NFIP requirements.

### 11. How does your community identify substantially improved structures? When do they intervene to ensure construction increases the resilience (e.g., building above the BFE, anchoring, using flood-resistant materials, and/or elevating utility locations to prevent water damage)?

*Martinsburg tracks substantial improvement through the permitting office as defined by the West Virginia Building Code adopted by the City of Martinsburg. As some construction may be less obvious (e.g., a kitchen or bathroom remodel), Martinsburg also conducts regular outreach to frequently used contractors and through onsite inspectors. Any repair, reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the Start of Construction of the improvement.*

**DID YOU KNOW…?**
Substantial improvement only applies to structures in the SFHA (unless the community has adopted a higher standard that says all properties are tracked this way), BUT the modification can be a home improvement project (e.g., bathroom remodel) or damage caused by any disaster – not just flooding.

After a disaster, FPAs or their designees conduct substantial damage assessments to determine if any properties are more than 50-percent damaged. The disaster may be individual, such as a house fire, or communal—widespread flooding after a hurricane.

**COMMUNITY CONNECTION**
FPAs often work with their town and city councils to set standards higher than required by the NFIP. This helps their communities to be more resilient over time – for instance with a 2-foot freeboard requirement, 40-percent damaged triggers substantial damage, etc. Often when one community finds a method that works, their neighbors want to try something similar.

### 12. Does your community have a coordinated process to determine substantial damage and to permit repair and improvement?

Yes, as adopted by the 2019 Berkeley County Emergency Operations Plan. Appendix 1 to Annex I.

**Does the municipality conduct substantial damage assessments in the SFHA? Does your community have a plan for who will conduct substantial damage assessments and a procedure for assessment?**

*Yes, as adopted by the 2019 Berkeley County Emergency Operations Plan. Appendix 1 to Annex I.*

**RESOURCE ALERT!**

In addition to the Desk Reference, FEMA also has trainings on how to develop an SI/SD administrative procedure, and a Substantial Damage Estimator (SDE) Tool that includes training. The SDE Tool allows assessors to plug in information before a disaster to expedite information sharing and SI/SD designations afterwards. The tool can be used to pre-populate door placards and letters.

Records of structures in the SFHA must be kept in perpetuity. Make sure you are storing them in a safe area (not in a potentially flooded basement) and consider making them digital and regularly back them up.



13. **Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures? Does your municipality require Elevation Certificates? If yes, how is it documented and which office/agency/department is responsible?**

*Yes. Martinsburgs's FPA keeps all the data for structures in the SFHA easily accessible to staff. The Building Inspectors conduct multiple inspections of construction to make sure all floodplain requirements are being met – including elevation above the BFE.*

14. **How does the municipality enforce the floodplain ordinance sections? Does enforcement include monitoring compliance and taking remedial action to correct potential violations? How does the municipality address SI/SD violations?**

*The Floodplain Ordinance sets forth penalties that are enforced for failing to comply. The FPA and City inspectors have the authority and jurisdiction to enforce the provisions of the ordinance and does so through the permitting and inspection processes.*



Each state/commonwealth is required to track how well communities participating in the NFIP are monitoring development and/or changes in/to the SFHA. FEMA then assesses how well the state is administering their NFIP program oversight. At the community level, state and federal partners may reach out to conduct tours of the SFHA, review permitting documentation, etc. When FEMA and/or the State NFIP Coordinator conduct these reviews of community compliance with the NFIP it is often called a Community Assistance Visit and/or Community Assistance Contact. If something is found to be out of compliance with the NFIP, the state and/or FEMA will document it and then work with the community to identify corrective actions to rectify the issue.

### 15. Has your municipality had a Community Assistance Visit? If so, are there any corrective actions remaining to complete (the process?), or have the actions been completed and remedied to the greatest extent possible? How does your community track open and closed actions, and when closed, what was the activity that led to closure?

FEMA encourages communities to exceed the requirements identified in the NFIP for land use, development, permitting, and enforcement. Examples include:

- Higher freeboard (e.g., 24 inches above the BFE instead of at the BFE or BFE plus 18 inches)
- Prohibition of production or storage of chemicals in the SFHA
- Prohibition of fill in the floodplain
- Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in the SFHA
- Prohibition of certain types of residential housing (manufactured homes) in the SFHA
- Floodplain ordinances that prohibit any new residential or nonresidential structures in the SFHA

### 16. Does your municipality have higher ordinance standards than the NFIP? Has the municipality considered adopting regulations that extend beyond the minimum requirements? Please describe the higher standards and where they are documented.

*Martinsburg has adopted a floodplain ordinance which meets NFIP standards. The ordinance is on the City's website, codified ordinances and in the City Recorder's office.*

Local Officials from municipalities participating in the NFIP are eligible for state and FEMA trainings on floodplain management.

### 17. Are any local officials/departments in your community interested in a training? What topics relate most to your community?

*City inspectors engage in routine annual training.*





**ACTION OPPORTUNITY!**

How you manage development in or near the floodplain directly impacts your community's level of risk. How are you using your floodplain management activities to reduce risk in your community?

# COMMUNITY WORKSHEET

## FLOODPLAIN MANAGEMENT

| | |
|---|---|
| 9. Does your municipality issue permits for all proposed development in the SFHA? What office/ position is responsible? | |
| 10. Does your municipality require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres? If so, what department or office is responsible? | |
| 11. How does your community identify substantially improved structures? When do they intervene? | |
| 12. Does your community have a coordinated process to determine substantial damage and to permit repair and improvement? Does the municipality conduct substantial damage assessments in the SFHA? Does your community have a plan for who will conduct substantial damage assessments and a procedure for assessment? | |
| 13. Does your municipality require Elevation Certificates for new or substantially improved structures? If yes, how is it documented and which office/agency/department is responsible? | |
| 14. How does the municipality enforce the floodplain ordinance sections? How does the municipality address SI/SD violations? | |
| 15. Has your municipality had a Community Assistance Visit? If so, were any corrective actions required? | |
| 16. Does your municipality have or is considering higher ordinance standards than the NFIP? Please describe the higher standards and where they are documented. | |
| 17. Are any local officials/departments in your community interested in a training? What topics relate most to your community? | |

Floodplain management has many parts. If you were unsure or answered no to any of these questions, how would you put a plan together to address them? Are there other partners/resources needed to be successful in that action?

# FLOOD INSURANCE

One of the benefits of participating in the NFIP is access to flood insurance. Flooding is the costliest and most common natural disaster in the U.S., claiming lives, inflicting financial losses on households and businesses, and straining the government agencies that provide flood response and relief. Flooding occurs from many types of events – and in some parts of our Region, sunny day flooding is occurring from the impacts of sea level rise, high tides, and subsidence. Flood Insurance rates may vary by flood zone, elevation difference, building/occupancy type, construction date, and coverage limits/deductibles.

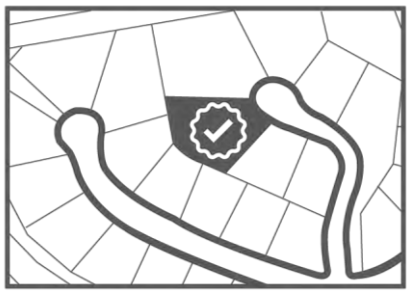
After a flood, it can be difficult for a community (residents and businesses) to recover. In fact, 90 percent of businesses fail within a year if they do not reopen within the first 5 days following a disaster. Access to flood insurance can help decrease the financial impact.



### 18. How does the municipality educate community members about the availability and value of flood insurance?

*Yes, through the City's website, social media postings, literature within the Planning office.*

When the FIRM is updated (for a watershed-wide study, specific section, or LOMC), the known risk for some property owners may change, and their insurance options may change too. For example, someone newly mapped into the SFHA may be required to obtain flood insurance when applying for a mortgage. Someone mapped out of the SFHA may be eligible for a reduced rate flood insurance policy.



### 19. Does the municipality inform community property owners about changes to the FIRM that would impact their insurance rates?

*Yes.*

Flood insurance coverage and what is eligible can be confusing. The NFIP, for instance, offers an Increased Cost of Compliance (ICC) insurance rider (up to $30,000) for mitigation activities that are required by the municipal ordinance if the structure is substantially damaged. This will bring a building built in the SFHA before publication of the community's first FIRM into compliance with local regulations, reducing future damages and lowering flood insurance rates.

### 20. How does the municipality provide general assistance to community members regarding flood insurance issues?

*Yes. Through public outreach after an incident; news releases, website and social media posts.*

**COMMUNICATIONS ALERT!**

If you are looking to share your messages about flood insurance broadly, it may help to consider the professional and trade groups impacted - for instance, real estate brokers, bankers, and others involved in the insurance process. Some communities convene these groups to make sure they are informed about the most up-to-date FEMA maps and guidance.

When considering the municipality's overall risk to flooding, it is important to track structures in the SFHA (including those with repetitive loss) and identify a strategy to reduce future loss. Many communities maintain this strategy in their hazard mitigation plan as part of the mitigation strategy and regularly check in on implementation of each action.

### 21. Does the municipality keep track of the number of residential and non-residential structures in the SFHA? How many structures are in the SFHA in your community?

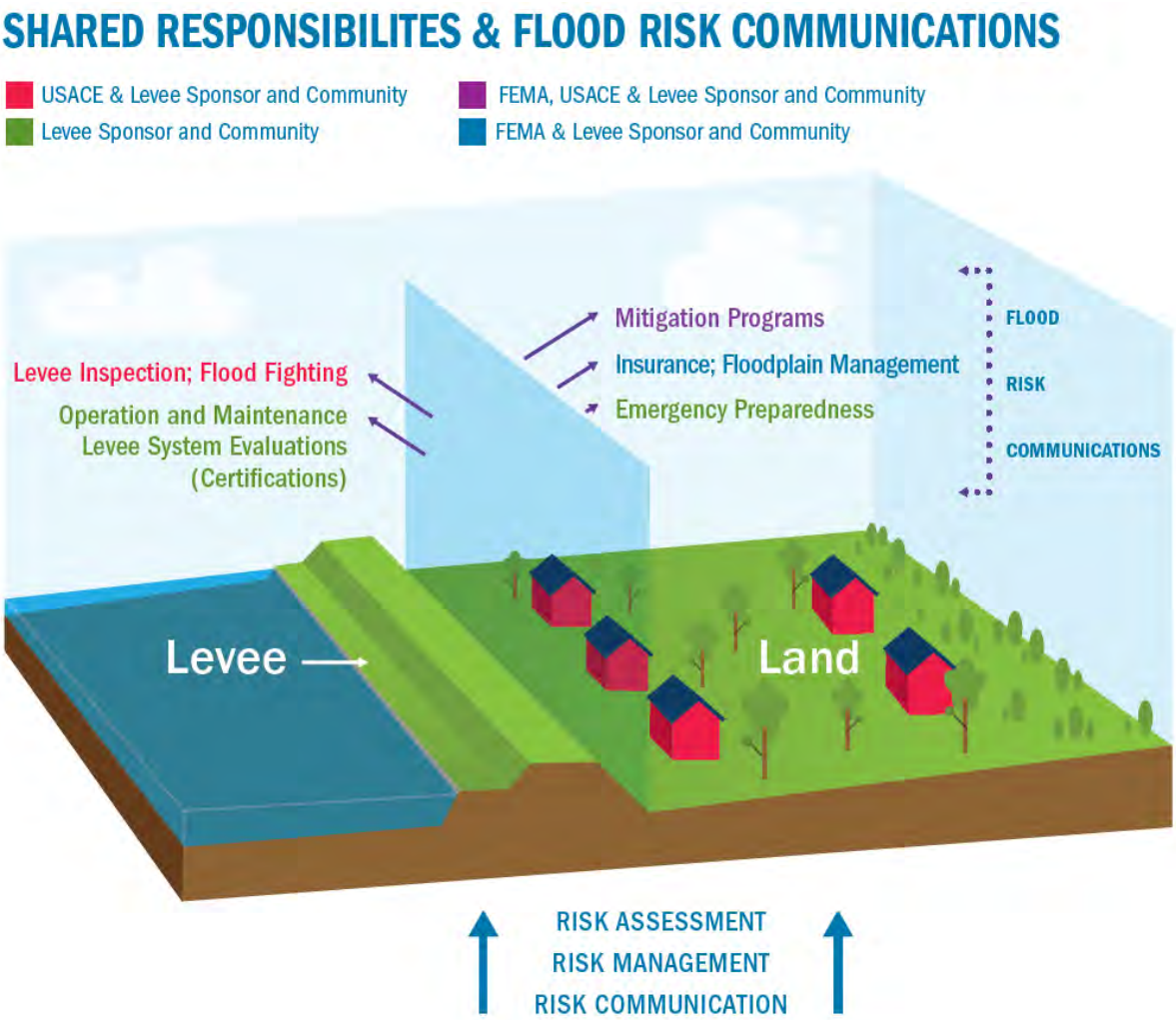
*Yes, through the City and County's GIS mapping.*

**RESOURCE ALERT!**

The U.S. Army Corps of Engineers (USACE), in partnership with FEMA, tracks the nation's levees in the National Levee Database (NLD) https://levees.sec.usace.army.mil/#/



Levees may reduce the risk of flooding and protect structures, giving them a significant reduction in insurance rates. Although levees may reduce the risk of flooding, that reduction depends on the levee's condition and height. FEMA does not design, certify, own, operate, maintain, or inspect levee systems. FEMA does identify, analyze, and map the flood hazards associated with levees, as well as depict accreditation on FIRMs for those levee systems for which the appropriate certification documents have been submitted.




Levees that are known to USACE can be found in the NLD. This includes USACE-built levees, state and local levees, and some private levees. This site also tracks whether the levee has been accredited by FEMA.

While owners with structures behind an accredited levee are not required to buy flood insurance, it is important that they understand the risks to being near a levee and the potential for flooding after high water events (such as a large rainstorm or hurricane) when water levels exceed the levee's design height. FPAs and emergency managers in communities with levees should regularly conduct outreach and educate residents on their remaining risk.

## 22. Does the municipality have any levees or levee systems in its jurisdiction?

*No*

Most levees designed and built by USACE have agreements with the local municipalities (non-federal sponsors) to operate and maintain the levee. To assist the municipalities in this and to ensure that the levees operate correctly, the USACE has periodic inspections which review the functioning of the levee and recommend fixes, as needed. For flood insurance purposes, FEMA requires a review of the levee to ensure that it has adequate freeboard (top of the levee must be 3 feet above the BFE) and that the levee system operates as designed. If the levee does not meet the requirements, the "Protected by Levee" status on the FIRM is removed and the areas behind the levee will have a mandatory flood insurance purchase requirement.

Currently, FEMA lists Accredited Levees (those that meet the criteria to operate effectively), Provisionally Accredited (those that are in the process of submitting their documentation), and non-Accredited levees. You can find the status of your levee in the NLD.

## 23. Is the levee or levee system accredited by FEMA?

*N/A*

## 24. Is the levee or levee system a Provisionally Accredited Levee (PAL)?

*N/A*

The non-federal sponsor of the levee is responsible for the operation and maintenance of their levee as well as funding that ongoing work. Non-federal sponsors participating in the USACE Rehabilitation and Inspection Program benefit from the periodic inspections, technical assistance, and USACE financial support if their levee is damaged as a result of flooding.



## 25. Is the levee or levee system part of the USACE Rehabilitation and Inspection Program (RIP)?

*N/A*

When thinking about large-scale structures that may impact your community's risk, please also consider dams. How are you collecting data about dams in your community and ranking them for risk? Risk might be ranked by likelihood of dam failure, number of people and critical infrastructure that may be impacted by a dam breach, etc. Each agency you work with may have different designations too, from Major Dams to High Hazard Dams, etc.

If you haven't reached out yet, your state's Dam Safety Officer (DSO) may have helpful information about your dams and those up and downstream from you.

If you have a dam improvement project, have you considered applying for a FEMA High Hazard Potential Dam grant?

## 26. Does your community have any Major Dams or High Hazard Dams, and if so, have you applied for FEMA's High Hazard Potential Dam grant?

*No*

**ACTION OPPORTUNITY!**

Insurance coverage can be complicated – what are your local officials, insurance agents, real estate brokers, and other leaders in your community doing to make sure home and business owners understand what is available to them?



# COMMUNITY WORKSHEET

## FLOOD INSURANCE

| | |
|---|---|
| 18. How does the municipality educate community members about the availability and value of flood insurance? | |
| 19. Does the municipality inform community property owners about changes to the FIRM that would impact their insurance rates? | |
| 20. How does the municipality provide general assistance to community members regarding insurance issues? | |
| 21. Does the municipality keep track of the number of residential and non-residential structures in the SFHA? How many structures are in the SFHA in your community? | |
| 22. Does the municipality have any levees or levee systems in its jurisdiction? | |
| 23. Is the levee or levee system certified and accredited? | |
| 24. Is the levee or levee system a Provisionally Accredited Levee (PAL)? | |
| 25. Is the levee or levee system part of the USACE Rehabilitation and Inspection Program? | |
| 26. Does your community have any Major Dams or High Hazard Dams, and if so, have you applied for FEMA's High Hazard Potential Dam grant? | |

Flood risk communication to the public is vital for a community to be truly resilient. Understanding what, where, and how a disaster may affect your residents is the key. If you were unsure or answered no to any of these questions, how would you put a plan together to address them? Are there other partners/resources needed to be successful in that action?

### NEXT STEPS

- What are your short- and long-term action items?
- If you need help identifying trainings or other resources, consider contacting your State Hazard Mitigation Officer or State NFIP Coordinator.

**U.S. Department of Homeland Security**
500 C Street, SW
Washington, DC 20472

FEMA

April 2, 2018

Mr. Douglas Copenhaver
Coucil President of Berkeley County
400 west Stephen Street, Suite 201
Martinsburg, WV 25401

Dear Mr. Copenhaver:

The purpose of this letter is to provide you with the results of the National Flood Insurance Program (NFIP) Community Rating System (CRS) field verification findings based on your five-year cycle application. I am pleased to inform you the Department of Homeland Security, Federal Emergency Management Agency (FEMA), has determined that your community will retain its current rating as a CRS Class 7 community in the NFIP CRS. The floodplain management activities implemented by your community will continue to qualify flood insurance policy holders in your community for a 15 percent discount in the premium costs for NFIP policies issued or renewed in Special Flood Hazard Areas. I am enclosing the field verification report based on your five-year cycle application for your records. This savings is a tangible result of the flood mitigation activities your community implements to protect lives and reduce property damage

Please note Preferred Risk Policies, applicable in Zones B, C, and X, on your community's NFIP Flood Insurance Rate Map, are not eligible for the CRS discount. Standard rated flood insurance policies in Zones B, C, X, D, AR, and A99 are limited to a CRS discount of ten percent in Class 1-6 communities and five percent in Class 7-9 communities. The rates for these zones already reflect significant premium reductions.

If there are no NFIP noncompliance actions, the CRS rating for your community will automatically be renewed annually and a notification letter will not be sent to your community. This renewal will occur as long as your community continues to implement the CRS activities you certify annually. If no additional modifications or new CRS activities are added, the next verification visit for your community will be in accordance with its established five-year cycle. In the interim, FEMA will periodically send the *NFIP/CRS Update* Newsletter and other notices to your CRS Coordinator to keep your community informed.

I commend you on your community actions and your determination to lead your community to be more disaster resistant. This commitment enhances public safety, property protection, and protects the natural functions of floodplains, and reduces flood insurance premiums.

If you have any questions or need additional information, please contact the FEMA Region III Office, CRS Coordinator, Richard J. Sobota, by telephone at (215) 931-5514.

Sincerely,

William H Lesser

William H. Lesser, CRS Coordinator
Federal Insurance and Mitigation Administration

Enclosure

cc: Heather Williams, CRS Coordinator

NFIP/CRS

COMMUNITY RATING SYSTEM

# VERIFICATION REPORT

**Berkeley County, WV**

**Verified Class 7**

Cycle

NFIP Number: 540282

Date of Verification Visit: October 19, 2016

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 1511 credit points are verified which results in a recommendation that the community remain classified as a CRS Class 7. 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 320 – Map Information Service:** Credit is provided for furnishing inquirers with basic flood zone information from the community's latest Flood Insurance Rate Map (FIRM). Credit is also provided for the community furnishing additional FIRM information, information about problems not shown on the FIRM, and historical flood information. The service is publicized annually and records are maintained. (90 points)

**Activity 330 – Outreach Projects:** Credit is provided for informational outreach projects that include brochures at public buildings, general outreach projects that include flood information at public events, and a targeted outreach project that includes outreach to the repetitive loss areas. These projects are disseminated annually. (73 points)

**Activity 340 – Hazard Disclosure:** Credit is provided for community regulations requiring disclosure of flood hazards. Real estate agents provide a brochure advising prospective buyers about insurance and checking property flood hazards. (13 points)

**Activity 350 – Flood Protection Information:** Documents relating to floodplain management are available in the reference section of the Martinsburg-Berkeley Public Library. (2 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. (57 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, enclosure limits, and local drainage protection. Credit is also provided for the enforcement of building codes, a Building Code Effectiveness Grading Schedule (BCEGS) Classification of 4/4, other higher standards, state mandated regulatory standards, and regulations administration. (650 points)

**Activity 440 – Flood Data Maintenance:** Credit is provided for maintaining and using digitized maps in the day to day management of the floodplain. Credit is also provided for maintaining copies of all previous FIRMs and Flood Insurance Study Reports. (137 points)

**Activity 450 – Stormwater Management:** The community enforces regulations for stormwater management, low impact development, soil and erosion control, and water quality. (93 points)

**Section 502 – Repetitive Loss Category:** Based on the updates made to the NFIP Report of Repetitive Losses as of May 31, 2016, Berkeley County, WV has 55 repetitive loss properties and is a Category C community for CRS purposes. The community is required to submit either a Repetitive Loss Area Analysis or Floodplain Management Plan. (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, 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 520 – Acquisition and Relocation**: Credit is provided for acquiring and relocating 53 buildings from the community's regulatory floodplain. (180 points)

**Activity 630 – Dams:** Credit is provided for a State Dam Safety Program. (30 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 1.09.

Attached is the Community Calculations Worksheet that lists the verified credit points for the Community Rating System.

**CEO Name / Address:**

Douglas Copenhaver
Council President
400 West Stephen Street, Suite 201
Martinsburg, West Virginia 25401

**CRS Coordinator Name / Address:**

Heather Williams
Planner/Floodplain Manager
400 West Stephen Street, Suite 201
Martinsburg, West Virginia 25401
(304) 267-5000

Date Report Prepared: September 12, 2017

**Community :** Berkeley County, WV **NFIP Number :** 540282

## 720 COMMUNITY CREDIT CALCULATIONS (Cycle):

### CALCULATION SECTION :

| Verified Activity Calculations: | | | | | | Credit |
|---|---|---|---|---|---|---|
| c310 | 38 | | | | | 38 |
| c320 | 90 | | | | | 90 |
| c330 | 73 | | | | | 73 |
| c340 | 13 | | | | | 13 |
| c350 | 2 | | | | | 2 |
| c360 | | | | | | |
| c370 | | | | | | |
| c410 | 52 | x CGA | 1.09 | = | | 57 |
| c420 | | x CGA | | = | | |
| c430 | 596 | x CGA | 1.09 | = | | 650 |
| c440 | 126 | x CGA | 1.09 | = | | 137 |
| c450 | 85 | x CGA | 1.09 | = | | 93 |
| c510 | 148 | | | | | 148 |
| c520 | 180 | | | | | 180 |
| c530 | | | | | | |
| c540 | | | | | | |
| c610 | | | | | | |
| c620 | | | | | | |
| c630 | 30 | | | | | 30 |

**Community Classification Calculation:**

cT = total of above cT = 1511

Community Classification (from Table 110-1): Class = 7

**CEO Name/Address:**

Douglas Copenhaver
Council President
400 West Stephen Street, Suite 201
Martinsburg, West Virginia 25401

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Martinsburg, West Virginia 25401
(304) 267-5000

Date Report Prepared: September 12, 2017

## Appendix C-17 Morgan County NFIP Compliance Worksheets

FEMA REGION 3 HAZARD MITIGATION PLAN GUIDANCE Checking In On The NFIP

*Town of Bath, Morgan County, West Virginia*

COMMUNITY WORKSHEET FLOODPLAIN IDENTIFICATION AND MAPPING

1. Where do you keep your FIRM and FIS report? **In Town of Bath files.**

2. Has your community adopted the most recent FIRM? **No.** When was the adoption? Where is that information stored?

3. Has your community updated the floodplain ordinance language to include the current FIRM and FIS? **No.**

4. Does your municipality support requests for map updates? **Not currently.**

5. Is there a specific agency/department responsible for compiling these updates and tracking LOMCs? **Not currently.**

6. Do you collect updated technical or scientific data and modeling? How do you share this with FEMA? **Not currently.**

7. Does your municipality provide assistance with local floodplain determinations? **Not currently.** If yes, specify how.

8. Who is your FPA or floodplain manager? **No one is currently assigned.** Please provide office/agency name, position title, and contact information.

9. Do the people/agencies responsible for using these tools in your community have the access they need? **They currently do not.** Which tools does your community rely on?

COMMUNITY WORKSHEET FLOODPLAIN MANAGEMENT

10. Does your municipality issue permits for all proposed development in the SFHA? **Not currently.** What office/ position is responsible?

11. Does your municipality require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres? **Not currently.** If so, what department or office is responsible?

12. How does your community identify substantially improved structures? **No current process.** When do they intervene?

13. Does your community have a coordinated process to determine substantial damage and to permit repair and improvement? **Not currently.** Does the municipality conduct substantial damage assessments in the SFHA? **Not currently.** Does your community have a plan for who will conduct substantial damage assessments and a procedure for assessment? **Not currently.**

14. Does your municipality require Elevation Certificates for new or substantially improved structures? **Not currently.** If yes, how is it documented and which office/agency/department is responsible?

15. How does the municipality enforce the floodplain ordinance sections? **It currently does not.** How does the municipality address SI/SD violations? **It currently does not.**

16. Has your municipality had a Community Assistance Visit? **No.** If so, were any corrective actions required?

17. Does your municipality have or is considering higher ordinance standards than the NFIP? **Not currently.** Please describe the higher standards and where they are documented.

18. Are any local officials/departments in your community interested in a training? **Yes.** What topics relate most to your community? **Hazard mitigation planning and floodplain administration strategic action.**

COMMUNITY WORKSHEET FLOOD INSURANCE

19. How does the municipality educate community members about the availability and value of flood insurance? **The Town of Bath currently does not have an active program for educating community members about the availability and value of flood insurance.**

20. Does the municipality inform community property owners about changes to the FIRM that would impact their insurance rates? **The Town of Bath currently does not have an active program for informing community members about changes to the FIRM that would impact their insurance rates.**

21. How does the municipality provide general assistance to community members regarding insurance issues? **The Town of Bath currently does not have an active program for providing general assistance to community members regarding insurance issues.**

22. Does the municipality keep track of the number of residential and non-residential structures in the SFHA? **Not currently.** How many structures are in the SFHA in your community?

23. Does the municipality have any levees or levee systems in its jurisdiction? **No.**

24. Is the levee or levee system certified and accredited? **Not applicable to the Town of Bath.**

25. Is the levee or levee system a Provisionally Accredited Levee (PAL)? **Not applicable to the Town of Bath.**

26. Is the levee or levee system part of the USACE Rehabilitation and Inspection Program? **Not applicable to the Town of Bath.**

27. Does your community have any Major Dams or High Hazard Dams, and if so, have you applied for FEMA's High Hazard Potential Dam grant? **Not applicable to the Town of Bath.**

# FEMA REGION 3
# HAZARD MITIGATION PLAN GUIDANCE
## Checking In On The NFIP



Whether you are here as a requirement for hazard mitigation planning (44 CFR 201.6(c)(3)ii) or to take strategic action as a floodplain administrator, this document is intended for you and any other staff/ partners necessary to help you fill in the questions for each section. Being a part of the National Flood Insurance Program (NFIP) unlocks a lot of valuable resources and connections to state and federal partners. FEMA developed this worksheet to assist you in finding opportunities to meet AND EXCEED requirements as you help your community.

## FLOODPLAIN IDENTIFICATION AND MAPPING

The first step is to figure out what made you eligible for the NFIP, where those resources are, and who is accountable for tracking them.

As part of the application to join the NFIP, each participating community was required to identify a floodplain administrator (FPA)/floodplain manager. If the person/position changes, the community should notify their State NFIP Coordinator and FEMA. Please consider who is designated to manage floodplain development and enforce compliance. The role may be completed by multiple individuals with other job responsibilities (e.g., "wearing multiple hats") as long as one person/position is ultimately accountable for the responsibilities of FPA.

1. **Who is your FPA or floodplain manager? Please provide office/agency name, position title, and contact information.** Alex Moore Morgan County Planning Director

   *Ex. Dangerville (a fictional community) has had a lot of turnover recently. When the HMP team convened, they noticed their FPA had retired and asked about the replacement. Council solicited nominations and formally designated the Chief Zoning Officer as the new FPA. They also allocated funds to help the CZO attend trainings and learn about the position responsibilities. The CZO worked with the Deputy Director of Planning to reassign some projects to accommodate the FPA workload.*



Each municipality is required to maintain accessible copies of its effective Flood Insurance Rate Map (FIRM) and the most recent Flood Insurance Study (FIS) report.

2. **Where do you keep your FIRM and FIS report?** In the planning Office

   *Ex. Dangerville keeps these documents at local libraries and encourages the libraries to include digital links on their landing pages.*

   *Ex. Riskburg (another fictional community) keeps their documents in the zoning office. They hold twice annual coffee break open houses where they invite the public in to view and comment on the maps. Any changes identified are cataloged to be included in future updates.*

**RESOURCE ALERT!**
Don't forget you can see your FIRM on the National Flood Hazard Layer.

Communities participating in the NFIP must also formally adopt the most recent FIRM and FIS report.



### 3. Has your community adopted? When was the adoption? Where is that information stored?

*Ex. Dangerville adopted their most recent maps after the Letter of Final Determination came out. They announced the update through news media and worked with the planning team to identify any long-term impacts and potential ordinance and administrative changes to begin reducing the risk identified in the maps. To streamline efforts, Dangerville also made and publicized a procedural change for data collection.*

**The maps capture one moment in time in a dynamic community. Communities are required to track requests for map changes (for instance through Letters of Map Amendment [LOMAs] and Letters of Map Revision [LOMRs]).**

### 4. How does your municipality support requests for map updates, specifically LOMAs?

**Where are these tracked and by whom?**

### 5. Is there a specific agency/department responsible for compiling these updates and tracking Letters of Map Change (LOMCs)?

*Ex. Riskburg tracks every requested change in an Excel spreadsheet and on a paper map. Every pending and approved LOMC is included with the date. Riskburg Planners also go into the FEMA Map Service Center to make sure the LOMCs listed are up to date.*

**RESOURCE ALERT!**
Don't forget you can see LOMCs and download FIS reports on the Map Service Center. If you have more questions about LOMCs please consider reviewing application instructions here and here, calling the FEMA Mapping and Insurance eXchange (FMIX) at 877-FEMA MAP (877-336-2627), or following up with your State NFIP Coordinator on any potential LOMC-related trainings.



Communities are ever evolving as their development, hazardous conditions, and overall risk profile change over time. Often, we track some of these changes at a project-specific scale, for instance an engineering study used to figure out if DOT should widen a culvert as part of their road improvements project, or a university looking at water flow modeling through a neighborhood. If it could potentially impact a map, the data must be shared with FEMA within 6 months.



6. **How do you collect updated technical or scientific data and modeling? How do you share this with FEMA?**

   *Ex. Dangerville convenes their HMP team twice a year to review the plan and consider any community changes. They also discuss data changes and submit those to FEMA.*

The National Flood Hazard Layer is good for general planning and reference. To look at where the Special Flood Hazard Area (SFHA) overlaps with specific parcels, many states and local governments have map viewers available. The FPA should also have this information, be aware of future development and any Conditional Letters of Map Revision (CLOMRs), as well as possible flood risk areas not yet mapped. Because the edge of the floodplain can sometimes be unclear, residents may have questions about what restrictions apply to them, their property, and their structures.

7. **Does your municipality provide assistance with local floodplain determinations? If yes, specify how.**

WV Flood tool

**RESOURCE ALERT!**

State map viewers often include helpful data and layers. Check out your state's viewer:

DC DE MD PA VA WV

Access to online tools such as state map viewers, FEMA's Map Service Center, and the National Flood Hazard Layer may vary.

8. **Do the people/agencies responsible for using these tools in your community have the access they need? Which tools does your community rely on?**

   *Ex. Riskburg's firewall update blocked access to the state map viewer that the Planners were using frequently. Riskburg's planners worked with their NFIP coordinator and set up a data sharing procedure, including a weekly upload of new GIS shapefiles through FTP to make sure everyone had the most up-to-date information possible.*

**ACTION OPPORTUNITY!**

FEMA looks to the community FPA and mitigation planners to collect this worksheet data to inform hazard mitigation planning with the goal of taking action. How are you using your mapping information to reduce risk in your community?

# COMMUNITY WORKSHEET

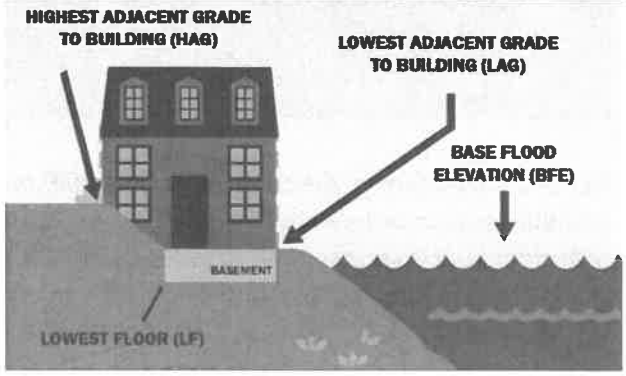
## FLOODPLAIN IDENTIFICATION AND MAPPING

| | |
|---|---|
| 1. Where do you keep your FIRM and FIS report? | In the Morgan County Planning office. |
| 2. Has your community adopted the most recent FIRM? When was the adoption? Where is that information stored? | Yes, 9/25/2009. Keep in the Planning office digital versions online |
| 3. Has your community updated the floodplain ordinance language to include the current FIRM and FIS? | Yes |
| 4. Does your municipality support requests for map updates? | Yes |
| 5. Is there a specific agency/department responsible for compiling these updates and tracking LOMCs? | Planning/GIS departments |
| 6. Do you collect updated technical or scientific data and modeling? How do you share this with FEMA? | No |
| 7. Does your municipality provide assistance with local floodplain determinations? If yes, specify how. | Yes by providing elevation Certificates when acquired. |
| 8. Who is your FPA or floodplain manager? Please provide office/agency name, position title, and contact information. | Alex Moore 304-867-3133<br>Morgan County Commission<br>Planning/GIS Director<br>amoore@morgancountywv.gov |
| 9. Do the people/agencies responsible for using these tools in your community have the access they need? Which tools does your community rely on? | Yes. WV Flood Tool and ArcGIS |

Floodplain management requires that you understand the mapping and data side when working with the public. If you were unsure or answered no to any of these questions, how would you put a plan together to address them? Are there other partners/resources needed to be successful in that action?

# FLOODPLAIN MANAGEMENT

FPAs are expected to track how their communities manage development and change in the floodplain- for instance, through permitting and enforcement. For structures, the FPA or other designated permitting official must track the lowest floor elevation and Elevation Certificate. Individuals seeking a LOMC must provide an elevation form and lowest adjacent grade (LAG).




Each municipality is required to adopt floodplain regulations - as a standalone ordinance or specific sections in other land use and zoning ordinances. To participate in the NFIP, the ordinance language must include:

- Process guidance on permitting in the SFHA
- How Base Flood Elevation (BFE) data are gathered, analyzed, and used
- An administrative process for measuring substantial modification (damage and/or improvement)
- A process for documenting elevation (Elevation Certificates) and Substantial Damage/Improvement Calculations

## 9. Does your municipality issue permits for all proposed development in the SFHA? What office/position is responsible?

*Ex. Dangerville's permitting officer permits all new development in the community. For properties in the SFHA, the permitting officer issues a conditional permit pending approval by the Dangerville FPA. For properties in the SFHA, construction cannot begin until the FPA signs off.*

### RESOURCE ALERT!

All Region 3 states have a "model floodplain ordinance" that communities can (and are encouraged to) use. These ordinances are regularly reviewed for clarity and compliance with NFIP and state requirements. If your regulations have not been updated in recent years, it might be time to review for needed improvements.

**To track the impact of development and land changes on the water surface elevations (WSELs), communities are expected to obtain, review, and use BFE and floodway data for subdivision proposals, development greater than 50 lots or 5 acres, and otherwise as documented in the community's floodplain ordinance.**

## 10. Does your municipality obtain, review, and utilize BFE and floodway data, or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres? If so, what department or office is responsible?

*Ex. Dangerville collects all applicable BFE data but their staff engineers do not have Hydrology and Hydraulics (H&H) training, so they use contractors to provide analysis of BFE and flow impacts.*

*Ex. Riskburg passed a higher standard ordinance than FEMA requires and now does not allow development to increase the water surface elevation (WSEL) at all. The Riskburg Engineers calculate each proposal's request using the same process and data to ensure there aren't discrepancies between proposals.*

**RESOURCE ALERT!**
There are a lot of trainings available to help FPAs understand how to best manage their floodplains, for example, L273 - Introduction to Floodplain Management. For more courses and to find a location near you, contact your State NFIP Coordinator.



Not every structure in the SFHA will meet NFIP requirements - some may have been grandfathered in or have been granted an exception. As a tool to increase compliance with older structures, the NFIP requires communities to track when a structure is more than 50 percent damaged or improved. The community can decide how the percentage will be calculated (e.g., tax assessed, market rate, etc.). Any structure over 50-percent modified must be brought into compliance with all NFIP requirements.

**11. How does your community identify substantially improved structures? When do they intervene to ensure construction increases the resilience (e.g., building above the BFE, anchoring, using flood-resistant materials, and/or elevating utility locations to prevent water damage)?**

*Ex. Riskburg tracks substantial improvement through the permitting office. As some construction may be less obvious (e.g., a kitchen or bathroom remodel), Riskburg also conducts regular outreach to frequently used contractors.*

*Ex. Dangerville tracks substantial improvement over time- if a structure owner gets to 50-percent modified within 10 years, they must bring the structure into compliance.*

**DID YOU KNOW...?**
Substantial improvement only applies to structures in the SFHA (unless the community has adopted a higher standard that says all properties are tracked this way), BUT the modification can be a home improvement project (e.g., bathroom remodel) or damage caused by any disaster – not just flooding.

After a disaster, FPAs or their designees conduct substantial damage assessments to determine if any properties are more than 50-percent damaged. The disaster may be individual, such as a house fire, or communal—widespread flooding after a hurricane.

**COMMUNITY CONNECTION**
FPAs often work with their town and city councils to set standards higher than required by the NFIP. This helps their communities to be more resilient over time – for instance with a 2-foot freeboard requirement, 40-percent damaged triggers substantial damage, etc. Often when one community finds a method that works, their neighbors want to try something similar.

**12. Does your community have a coordinated process to determine substantial damage and to permit repair and improvement?** This is an area where communities can prepare in advance to implement a well-coordinated process to tag substantially damaged properties and to work with the permit office to ensure no development occurs without a permit so that codes are followed. This is also an opportunity to coordinate with planning on how to include risk reduction activities in the plan.

**Does the municipality conduct substantial damage assessments in the SFHA? Does your community have a plan for who will conduct substantial damage assessments and a procedure for assessment?**

*Ex. Dangerville previously allowed home-owner-hired contractors to assess property damage after a large storm. Dangerville's FPA found that the contractors were not uniform in their assessments. This was confusing to homeowners and ultimately limited the official's ability to enforce the SD/SI requirements.*

**RESOURCE ALERT!**

In addition to the Desk Reference, FEMA also has trainings on how to develop an SI/SD administrative procedure, and a Substantial Damage Estimator (SDE) Tool that includes training. The SDE Tool allows assessors to plug in information before a disaster to expedite information sharing and SI/SD designations afterwards. The tool can be used to pre-populate door placards and letters.

**Records of structures in the SFHA must be kept in perpetuity. Make sure you are storing them in a safe area (not in a potentially flooded basement) and consider making them digital and regularly back them up.**



**13. Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures? Does your municipality require Elevation Certificates? If yes, how is it documented and which office/agency/department is responsible?**

*Ex. Riskburg's FPA keeps all the data for structures in the SFHA easily accessible to staff. The Code Enforcement Officers conduct multiple inspections of construction to make sure all floodplain requirements are being met – including elevation above the BFE.*

*Ex. Dangerville is a Community Rating System (CRS) class 7 community. As part of CRS, Dangerville is required to maintain ECs. Dangerville hired a CRS coordinator (separate from the FPA) to make sure ECs were up to date and also look for new opportunities to reduce risk and gain CRS points.*

**14. How does the municipality enforce the floodplain ordinance sections? Does enforcement include monitoring compliance and taking remedial action to correct potential violations? How does the municipality address SI/SD violations?**

*Ex. Dangerville set up a permitting office tent next to the neighborhood damaged by a tornado. Residents and contractors coming in and out of the damage area could stop by the permitting tent for information and/or expedited processing of permits. Because the neighborhood overlapped with the SFHA, the FPA staffed the tent too.*



Each state/commonwealth is required to track how well communities participating in the NFIP are monitoring development and/or changes in/to the SFHA. FEMA then assesses how well the state is administering their NFIP program oversight. At the community level, state and federal partners may reach out to conduct tours of the SFHA, review permitting documentation, etc. When FEMA and/or the State NFIP Coordinator conduct these reviews of community compliance with the NFIP it is often called a Community Assistance Visit and/or Community Assistance Contact. If something is found to be out of compliance with the NFIP, the state and/or FEMA will document it and then work with the community to identify corrective actions to rectify the issue.

**15. Has your municipality had a Community Assistance Visit? If so, are there any corrective actions remaining to complete (the process?), or have the actions been completed and remedied to the greatest extent possible? How does your community track open and closed actions, and when closed, what was the activity that led to closure?**

FEMA encourages communities to exceed the requirements identified in the NFIP for land use, development, permitting, and enforcement. Examples include:

- Higher freeboard (e.g., 24 inches above the BFE instead of at the BFE or BFE plus 18 inches)
- Prohibition of production or storage of chemicals in the SFHA
- Prohibition of fill in the floodplain
- Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in the SFHA
- Prohibition of certain types of residential housing (manufactured homes) in the SFHA
- Floodplain ordinances that prohibit any new residential or nonresidential structures in the SFHA

**16. Does your municipality have higher ordinance standards than the NFIP? Has the municipality considered adopting regulations that extend beyond the minimum requirements? Please describe the higher standards and where they are documented.**

*Ex. Dangerville does not have a mapped floodway but has decided not to allow any development that increases the BFE. This is a higher standard than the NFIP, which would allow up to 1 foot of incremental increase and is hard to monitor.*

**Local Officials from municipalities participating in the NFIP are eligible for state and FEMA trainings on floodplain management.**

**17. Are any local officials/departments in your community interested in a training? What topics relate most to your community?**

*Ex. Riskburg hired three new code enforcement officers. To help them get up to speed on floodplain management, the county sent the officers to the L273 Introduction to Floodplain Management course. The officers were then asked to review Riskburg's documentation to make sure everything was still in compliance.*





**ACTION OPPORTUNITY!**
How you manage development in or near the floodplain directly impacts your community's level of risk. How are you using your floodplain management activities to reduce risk in your community?

# COMMUNITY WORKSHEET

## FLOODPLAIN MANAGEMENT

| | |
|---|---|
| 9. Does your municipality issue permits for all proposed development in the SFHA? What office/ position is responsible? | Yes, Planning Office. |
| 10. Does your municipality require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres? If so, what department or office is responsible? | Yes, Planning Office. |
| 11. How does your community identify substantially improved structures? When do they intervene? | Building permit and community concerns upon notification and inspection. |
| 12. Does your community have a coordinated process to determine substantial damage and to permit repair and improvement? Does the municipality conduct substantial damage assessments in the SFHA? Does your community have a plan for who will conduct substantial damage assessments and a procedure for assessment? | Yes. Yes. Yes. |
| 13. Does your municipality require Elevation Certificates for new or substantially improved structures? If yes, how is it documented and which office/agency/department is responsible? | Yes. Documentation is stored in the planning office. |
| 14. How does the municipality enforce the floodplain ordinance sections? How does the municipality address SI/SD violations? | Upon inspection and review. Conduct site visits. Penalities enforced by ordinance. |
| 15. Has your municipality had a Community Assistance Visit? If so, were any corrective actions required? | Yes and a few things needed address missing elevation cert. |
| 16. Does your municipality have or is considering higher ordinance standards than the NFIP? Please describe the higher standards and where they are documented. | No |
| 17. Are any local officials/departments in your community interested in a training? What topics relate most to your community? | Yes. Floodplain Management. |

Floodplain management has many parts. If you were unsure or answered no to any of these questions, how would you put a plan together to address them? Are there other partners/resources needed to be successful in that action?

## FLOOD INSURANCE

One of the benefits of participating in the NFIP is access to flood insurance. Flooding is the costliest and most common natural disaster in the U.S., claiming lives, inflicting financial losses on households and businesses, and straining the government agencies that provide flood response and relief. Flooding occurs from many types of events – and in some parts of our Region, sunny day flooding is occurring from the impacts of sea level rise, high tides, and subsidence. Flood Insurance rates may vary by flood zone, elevation difference, building/occupancy type, construction date, and coverage limits/deductibles.

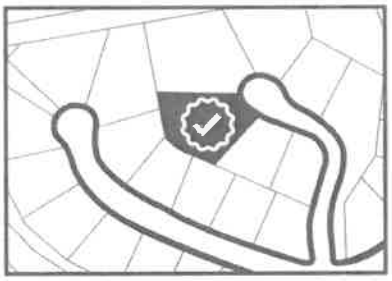
After a flood, it can be difficult for a community (residents and businesses) to recover. In fact, 90 percent of businesses fail within a year if they do not reopen within the first 5 days following a disaster. Access to flood insurance can help decrease the financial impact.



### 18. How does the municipality educate community members about the availability and value of flood insurance?

*Ex. Riskburg maps a buffer area around the SFHA and encourages structure owners in the buffer area to consider buying flood insurance because "water doesn't follow the lines on a map."*

When the FIRM is updated (for a watershed-wide study, specific section, or LOMC), the known risk for some property owners may change, and their insurance options may change too. For example, someone newly mapped into the SFHA may be required to obtain flood insurance when applying for a mortgage. Someone mapped out of the SFHA may be eligible for a reduced rate flood insurance policy.



### 19. Does the municipality inform community property owners about changes to the FIRM that would impact their insurance rates?

*Ex. Dangerville recently conducted a culvert analysis and submitted data to update one map panel. They found 30 homes would be at lower risk than previously identified. Once mapped out of the SFHA, Dangerville officials notified residents of the need to contact their insurance agents and to maintain flood insurance at reduced rates.*

Flood insurance coverage and what is eligible can be confusing. The NFIP, for instance, offers an Increased Cost of Compliance (ICC) insurance rider (up to $30,000) for mitigation activities that are required by the municipal ordinance if the structure is substantially damaged. This will bring a building built in the SFHA before publication of the community's first FIRM into compliance with local regulations, reducing future damages and lowering flood insurance rates.

### 20. How does the municipality provide general assistance to community members regarding flood insurance issues?

*Ex. After a large flood damaged 20 homes in Riskburg, code enforcement officers were tasked to conduct outreach and see if any homeowners were interested in elevating their homes. 10 homeowners signed up. Riskburg was able to help the homeowners decrease their costs through combining FEMA grants, ICC, state grants, and the homeowner's insurance payouts.*

**COMMUNICATIONS ALERT!**

If you are looking to share your messages about flood insurance broadly, it may help to consider the professional and trade groups impacted - for instance, real estate brokers, bankers, and others involved in the insurance process. Some communities convene these groups to make sure they are informed about the most up-to-date FEMA maps and guidance.

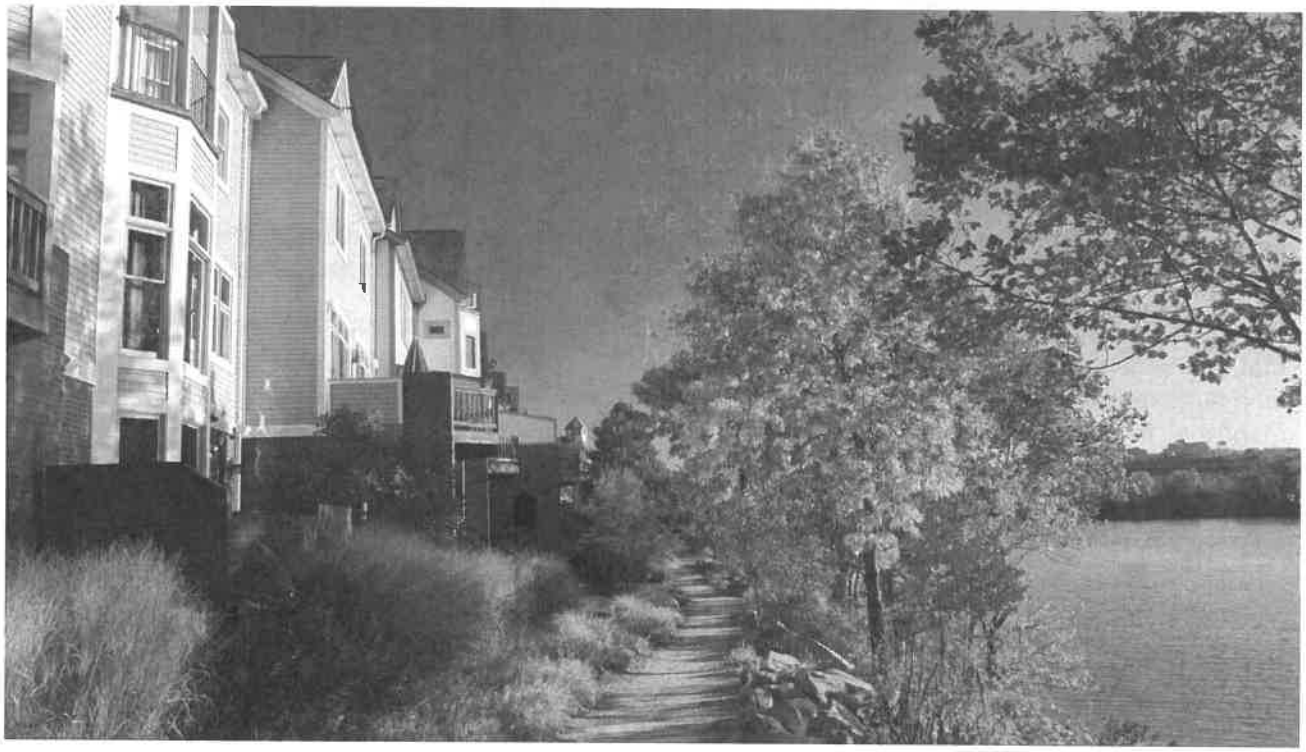
**When considering the municipality's overall risk to flooding, it is important to track structures in the SFHA (including those with repetitive loss) and identify a strategy to reduce future loss. Many communities maintain this strategy in their hazard mitigation plan as part of the mitigation strategy and regularly check in on implementation of each action.**

## 21. Does the municipality keep track of the number of residential and non-residential structures in the SFHA? How many structures are in the SFHA in your community?

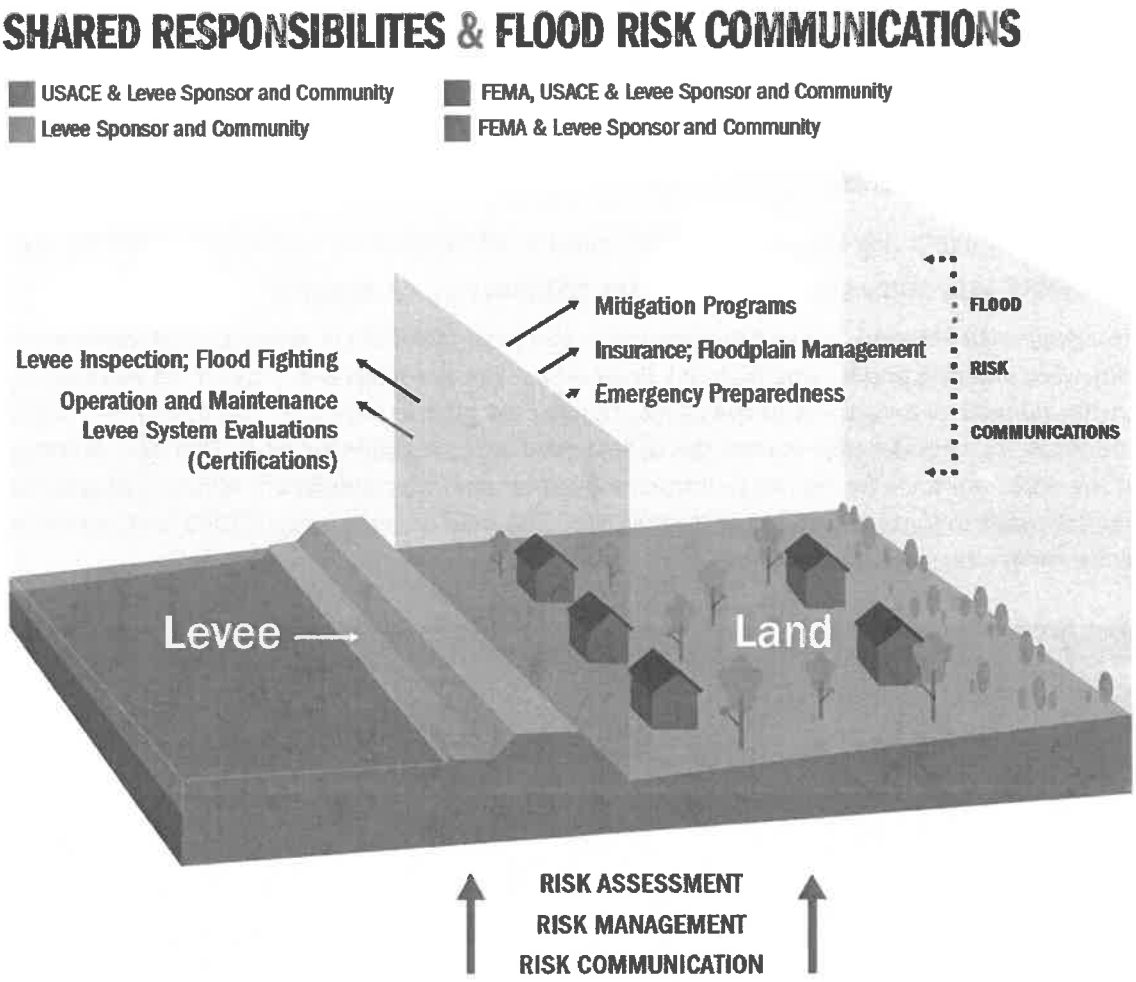
*Ex. Dangerville Planners marked the telephone poles along the SFHA edges so that residents knew when they were entering and leaving high-risk flood areas. The markings also helped the planners collect data on the number of structures in the SFHA. Dangerville planners tracked residential and non-residential structures for consideration in their risk assessment and mitigation strategy. They also reported this data to the state annually for the state hazard mitigation plan and mitigation actions. Dangerville analyzed flood damage to these structures and considered potential damage costs in their cost-benefit analysis for which mitigation actions to prioritize.*

**RESOURCE ALERT!**

The U.S. Army Corps of Engineers (USACE), in partnership with FEMA, tracks the nation's levees in the National Levee Database (NLD) https://levees.sec.usace.army.mil/#/



Levees may reduce the risk of flooding and protect structures, giving them a significant reduction in insurance rates. Although levees may reduce the risk of flooding, that reduction depends on the levee's condition and height. FEMA does not design, certify, own, operate, maintain, or inspect levee systems. FEMA does identify, analyze, and map the flood hazards associated with levees, as well as depict accreditation on FIRMs for those levee systems for which the appropriate certification documents have been submitted.




Levees that are known to USACE can be found in the NLD. This includes USACE-built levees, state and local levees, and some private levees. This site also tracks whether the levee has been accredited by FEMA.

While owners with structures behind an accredited levee are not required to buy flood insurance, it is important that they understand the risks to being near a levee and the potential for flooding after high water events (such as a large rainstorm or hurricane) when water levels exceed the levee's design height. FPAs and emergency managers in communities with levees should regularly conduct outreach and educate residents on their remaining risk.

## 22. Does the municipality have any levees or levee systems in its jurisdiction?

*Ex. Riskburg does routine operation and maintenance to the levees in its jurisdiction year-round. Riskburg looks at inspection reports from USACE periodically to ensure proper maintenance continues throughout the year. FEMA, USACE, and Riskburg engineers monitor the NLD to make sure any changes are updated and check for any technical assistance requests. Riskburg follows a similar process reviewing state inspections to meet state requirements as well.*

Most levees designed and built by USACE have agreements with the local municipalities (non-federal sponsors) to operate and maintain the levee. To assist the municipalities in this and to ensure that the levees operate correctly, the USACE has periodic inspections which review the functioning of the levee and recommend fixes, as needed. For flood insurance purposes, FEMA requires a review of the levee to ensure that it has adequate freeboard (top of the levee must be 3 feet above the BFE) and that the levee system operates as designed. If the levee does not meet the requirements, the "Protected by Levee" status on the FIRM is removed and the areas behind the levee will have a mandatory flood insurance purchase requirement.

Currently, FEMA lists Accredited Levees (those that meet the criteria to operate effectively), Provisionally Accredited (those that are in the process of submitting their documentation), and non-Accredited levees. You can find the status of your levee in the NLD.

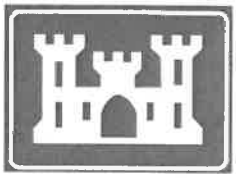
### 23. Is the levee or levee system accredited by FEMA?

*Ex. Dangerville officials encouraged residents to maintain flood insurance after the levee was re-certified. While they are "Protected by Levee" on the FIRM, there is still risk. When levees do fail, they often fail catastrophically, and the damage may be more significant than it would have been without a levee.*

### 24. Is the levee or levee system a Provisionally Accredited Levee (PAL)?

*Ex. Dangerville's new FPA checks their FIRM to determine whether a PAL note is present. The FPA cross checks the map panel and the NLD, and looks at the expiration date for any PAL note. If it is expired, the FPA must work to find/ develop a re-certification package. An engineering firm is then able to certify that the levee meets regulations. If FEMA agrees with the certification, the levee will be accredited.*

The non-federal sponsor of the levee is responsible for the operation and maintenance of their levee as well as funding that ongoing work. Non-federal sponsors participating in the USACE Rehabilitation and Inspection Program benefit from the periodic inspections, technical assistance, and USACE financial support if their levee is damaged as a result of flooding.



### 25. Is the levee or levee system part of the USACE Rehabilitation and Inspection Program (RIP)?

*Ex. Riskburg's engineers check the NLD to see if the levees are active in the RIP. If not, the FPA must work to determine why not and what must be addressed to be reinstated in the program. The engineers work with the mitigation planners to consider ways to improve the levees and reduce risk nearby. Riskburg also provides the public with regular outreach to ensure the public is aware of the risks behind the levee.*

When thinking about large-scale structures that may impact your community's risk, please also consider dams. How are you collecting data about dams in your community and ranking them for risk? Risk might be ranked by likelihood of dam failure, number of people and critical infrastructure that may be impacted by a dam breach, etc. Each agency you work with may have different designations too, from Major Dams to High Hazard Dams, etc.

If you haven't reached out yet, your state's Dam Safety Officer (DSO) may have helpful information about your dams and those up and downstream from you.

If you have a dam improvement project, have you considered applying for a FEMA High Hazard Potential Dam grant?

## 26. Does your community have any Major Dams or High Hazard Dams, and if so, have you applied for FEMA's High Hazard Potential Dam grant?

*Ex. Riskburg sends a list of dams and their classification (high hazard, major, and otherwise) to the state DSO annually. The DSO coordinates with the State Hazard Mitigation Officer (SHMO) to ensure that dam risk information is captured in Riskburg's local HMP (via amendment or during the next HMP update). The SHMO also adds Riskburg's data into the state HMP when applicable. The DSO and SHMO follow up with Riskburg engineers on any changes and check on any need for technical assistance. Last year, Riskburg used a High Hazard Potential Dam grant to fund a mitigation project to modify the dam. The modification included landscaping that aligned with the comprehensive plan goals for the area.*

**ACTION OPPORTUNITY!**

Insurance coverage can be complicated – what are your local officials, insurance agents, real estate brokers, and other leaders in your community doing to make sure home and business owners understand what is available to them?



# COMMUNITY WORKSHEET

## FLOOD INSURANCE

| | |
|---|---|
| **18.** How does the municipality educate community members about the availability and value of flood insurance? | Through fairs, newspaper, website and in person visits. |
| **19.** Does the municipality inform community property owners about changes to the FIRM that would impact their insurance rates? | Yes |
| **20.** How does the municipality provide general assistance to community members regarding insurance issues? | Provide data where needed |
| **21.** Does the municipality keep track of the number of residential and non-residential structures in the SFHA? How many structures are in the SFHA in your community? | Yes. 419. |
| **22.** Does the municipality have any levees or levee systems in its jurisdiction? | No. |
| **23.** Is the levee or levee system certified and accredited? | N/A |
| **24.** Is the levee or levee system a Provisionally Accredited Levee (PAL)? | N/A |
| **25.** Is the levee or levee system part of the USACE Rehabilitation and Inspection Program? | N/A |
| **26.** Does your community have any Major Dams or High Hazard Dams, and if so, have you applied for FEMA's High Hazard Potential Dam grant? | Yes and No |

Flood risk communication to the public is vital for a community to be truly resilient. Understanding what, where, and how a disaster may affect your residents is the key. If you were unsure or answered no to any of these questions, how would you put a plan together to address them? Are there other partners/resources needed to be successful in that action?

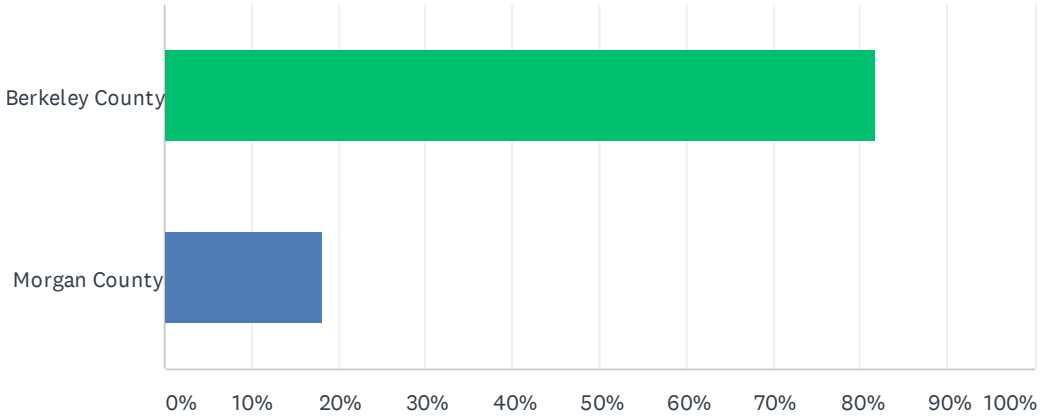
### NEXT STEPS

- What are your short- and long-term action items?
- If you need help identifying trainings or other resources, consider contacting your State Hazard Mitigation Officer or State NFIP Coordinator.

## Appendix C-18 Region 9 HMP Public Survey

# Q1 Please select the jurisdiction you live in.

Answered: 889 Skipped: 5




| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Berkeley County | 81.89% | 728 |
| Morgan County | 18.11% | 161 |
| TOTAL | | 889 |

# Q2 Please enter your zip code.

Answered: 865 Skipped: 29

| # | RESPONSES | DATE |
|---|---|---|
| 1 | 25411 | 7/15/2021 8:43 AM |
| 2 | 25434 | 7/7/2021 8:03 AM |
| 3 | 25427 | 7/6/2021 4:37 PM |
| 4 | 25411 | 7/6/2021 3:09 PM |
| 5 | 25401 | 7/6/2021 12:21 PM |
| 6 | 25404 | 7/6/2021 12:10 PM |
| 7 | 25403 | 7/6/2021 6:34 AM |
| 8 | 25427 | 7/5/2021 8:18 AM |
| 9 | 25434 | 7/2/2021 6:36 PM |
| 10 | 25411 | 7/1/2021 7:08 PM |
| 11 | 25413 | 7/1/2021 2:54 PM |
| 12 | 25411 | 7/1/2021 9:22 AM |
| 13 | 25413 | 6/30/2021 6:46 PM |
| 14 | 25427 | 6/30/2021 3:19 PM |
| 15 | 25428 | 6/30/2021 2:05 PM |
| 16 | 25401 | 6/30/2021 12:50 PM |
| 17 | 25401 | 6/29/2021 7:33 PM |
| 18 | 25419 | 6/29/2021 7:23 PM |
| 19 | 25427 | 6/29/2021 7:13 PM |
| 20 | 25405 | 6/29/2021 10:44 AM |
| 21 | 25403 | 6/29/2021 10:26 AM |
| 22 | 25427 | 6/29/2021 10:10 AM |
| 23 | 25401 | 6/28/2021 2:02 PM |
| 24 | 25434 | 6/28/2021 11:54 AM |
| 25 | 25411 | 6/28/2021 9:26 AM |
| 26 | 25401 | 6/27/2021 3:19 PM |
| 27 | 25419 | 6/27/2021 9:15 AM |
| 28 | 25411 | 6/27/2021 4:25 AM |
| 29 | 25419 | 6/26/2021 11:59 PM |
| 30 | 25404 | 6/26/2021 2:38 PM |
| 31 | 25422 | 6/26/2021 2:27 PM |
| 32 | 25411 | 6/26/2021 7:31 AM |
| 33 | 25434 | 6/25/2021 7:46 PM |

| | | |
|---|---|---|
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| 36 | 25411 | 6/25/2021 2:55 PM |
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|---|---|---|
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| 134 | 25411 | 6/20/2021 5:04 PM |
| 135 | 25419 | 6/20/2021 4:55 PM |
| 136 | 25411 | 6/20/2021 4:43 PM |
| 137 | 25427 | 6/20/2021 4:36 PM |
| 138 | 25427 | 6/20/2021 4:28 PM |
| 139 | 25404 | 6/20/2021 4:08 PM |
| 140 | 25403 | 6/20/2021 3:59 PM |
| 141 | 25427 | 6/20/2021 3:48 PM |
| 142 | 25413 | 6/20/2021 3:06 PM |
| 143 | 25443 | 6/20/2021 3:02 PM |
| 144 | 25419 | 6/20/2021 2:31 PM |
| 145 | 25427 | 6/20/2021 2:27 PM |
| 146 | 25411 | 6/20/2021 2:07 PM |
| 147 | 25428 | 6/20/2021 1:00 PM |

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|---|---|---|
| 148 | 25404 | 6/20/2021 11:49 AM |
| 149 | 25420 | 6/20/2021 11:32 AM |
| 150 | 25427 | 6/20/2021 10:03 AM |
| 151 | 25403 | 6/20/2021 8:28 AM |
| 152 | 25403 | 6/20/2021 8:00 AM |
| 153 | 25403 | 6/20/2021 7:57 AM |
| 154 | 25419 | 6/20/2021 7:46 AM |
| 155 | 25404 | 6/20/2021 6:23 AM |
| 156 | 25419 | 6/20/2021 12:49 AM |
| 157 | 25427 | 6/19/2021 10:51 PM |
| 158 | 25404 | 6/19/2021 10:22 PM |
| 159 | 25401 | 6/19/2021 8:10 PM |
| 160 | 25412 | 6/19/2021 7:58 PM |
| 161 | 25404 | 6/19/2021 7:23 PM |
| 162 | 25405 | 6/19/2021 6:52 PM |
| 163 | 25413 | 6/19/2021 5:08 PM |
| 164 | 25405 | 6/19/2021 4:02 PM |
| 165 | 25411 | 6/19/2021 3:53 PM |
| 166 | 25405 | 6/19/2021 3:03 PM |
| 167 | 25401 | 6/19/2021 2:53 PM |
| 168 | 25413 | 6/19/2021 1:49 PM |
| 169 | 25403 | 6/19/2021 1:42 PM |
| 170 | 25405 | 6/19/2021 1:33 PM |
| 171 | 25420 | 6/19/2021 1:08 PM |
| 172 | 25403 | 6/19/2021 12:55 PM |
| 173 | 25427 | 6/19/2021 12:43 PM |
| 174 | 25428 | 6/19/2021 12:42 PM |
| 175 | 25403 | 6/19/2021 12:38 PM |
| 176 | 25428 | 6/19/2021 12:29 PM |
| 177 | 25403 | 6/19/2021 12:17 PM |
| 178 | 25404 | 6/19/2021 11:47 AM |
| 179 | 25403 | 6/19/2021 11:46 AM |
| 180 | 25404 | 6/19/2021 11:34 AM |
| 181 | 25419 | 6/19/2021 11:27 AM |
| 182 | 25401 | 6/19/2021 10:52 AM |
| 183 | 25427 | 6/19/2021 10:36 AM |
| 184 | 25413 | 6/19/2021 10:35 AM |
| 185 | 25401 | 6/19/2021 10:31 AM |

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| 186 | 25413 | 6/19/2021 10:17 AM |
| 187 | 25428 | 6/19/2021 10:09 AM |
| 188 | 25403 | 6/19/2021 10:04 AM |
| 189 | 25428 | 6/19/2021 10:00 AM |
| 190 | 25405 | 6/19/2021 9:47 AM |
| 191 | 25403 | 6/19/2021 9:46 AM |
| 192 | 25427 | 6/19/2021 9:41 AM |
| 193 | 25419 | 6/19/2021 9:33 AM |
| 194 | 25427 | 6/19/2021 9:32 AM |
| 195 | 25403 | 6/19/2021 9:31 AM |
| 196 | 25404 | 6/19/2021 9:31 AM |
| 197 | 25427 | 6/19/2021 9:19 AM |
| 198 | 25428 | 6/19/2021 9:01 AM |
| 199 | 25427 | 6/19/2021 8:57 AM |
| 200 | 25404 | 6/19/2021 8:43 AM |
| 201 | 25401 | 6/19/2021 8:41 AM |
| 202 | 25404 | 6/19/2021 8:12 AM |
| 203 | 25401 | 6/19/2021 8:09 AM |
| 204 | 25428 | 6/19/2021 8:02 AM |
| 205 | 25422 | 6/19/2021 7:57 AM |
| 206 | 25413 | 6/19/2021 7:38 AM |
| 207 | 25413 | 6/19/2021 7:34 AM |
| 208 | 25427 | 6/19/2021 7:27 AM |
| 209 | 25427 | 6/19/2021 7:14 AM |
| 210 | 25403 | 6/19/2021 7:09 AM |
| 211 | 25428 | 6/19/2021 7:01 AM |
| 212 | 25403 | 6/19/2021 6:58 AM |
| 213 | 25427 | 6/19/2021 6:49 AM |
| 214 | 25401 | 6/19/2021 6:11 AM |
| 215 | 25427 | 6/19/2021 6:10 AM |
| 216 | 25404 | 6/19/2021 5:58 AM |
| 217 | 25427 | 6/19/2021 4:43 AM |
| 218 | 25427 | 6/19/2021 3:41 AM |
| 219 | 25411 | 6/19/2021 1:02 AM |
| 220 | 25401 | 6/19/2021 12:56 AM |
| 221 | 25405 | 6/19/2021 12:41 AM |
| 222 | 25427 | 6/18/2021 11:17 PM |
| 223 | 25405 | 6/18/2021 11:14 PM |

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| 224 | 25404 | 6/18/2021 11:12 PM |
| 225 | 25405 | 6/18/2021 11:06 PM |
| 226 | 25427 | 6/18/2021 11:02 PM |
| 227 | 25411 | 6/18/2021 10:57 PM |
| 228 | 25427 | 6/18/2021 10:50 PM |
| 229 | 25403 | 6/18/2021 10:47 PM |
| 230 | 25403 | 6/18/2021 10:29 PM |
| 231 | 25428 | 6/18/2021 10:01 PM |
| 232 | 25427 | 6/18/2021 9:55 PM |
| 233 | 25404 | 6/18/2021 9:47 PM |
| 234 | 25428 | 6/18/2021 9:44 PM |
| 235 | 25427 | 6/18/2021 9:43 PM |
| 236 | 25401 | 6/18/2021 9:37 PM |
| 237 | 25405 | 6/18/2021 9:31 PM |
| 238 | 25427 | 6/18/2021 9:27 PM |
| 239 | 25419 | 6/18/2021 9:27 PM |
| 240 | 25430 | 6/18/2021 9:23 PM |
| 241 | 25428 | 6/18/2021 9:21 PM |
| 242 | 25428 | 6/18/2021 9:18 PM |
| 243 | 25428 | 6/18/2021 9:06 PM |
| 244 | 25428 | 6/18/2021 9:01 PM |
| 245 | 25419 | 6/18/2021 8:58 PM |
| 246 | 25402 | 6/18/2021 8:52 PM |
| 247 | 25427 | 6/18/2021 8:52 PM |
| 248 | 25411 | 6/18/2021 8:42 PM |
| 249 | 25413 | 6/18/2021 8:28 PM |
| 250 | 25403 | 6/18/2021 8:25 PM |
| 251 | 25427 | 6/18/2021 8:24 PM |
| 252 | 25427 | 6/18/2021 8:21 PM |
| 253 | 25427 | 6/18/2021 8:21 PM |
| 254 | 25427 | 6/18/2021 8:14 PM |
| 255 | 25404 | 6/18/2021 8:03 PM |
| 256 | 25401 | 6/18/2021 7:58 PM |
| 257 | 25401 | 6/18/2021 7:56 PM |
| 258 | 25404 | 6/18/2021 7:54 PM |
| 259 | 25403 | 6/18/2021 7:54 PM |
| 260 | 25403 | 6/18/2021 7:42 PM |
| 261 | 25419 | 6/18/2021 7:40 PM |

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| 262 | 25404 | 6/18/2021 7:39 PM |
| 263 | 25428 | 6/18/2021 7:38 PM |
| 264 | 25420 | 6/18/2021 7:36 PM |
| 265 | 25427 | 6/18/2021 7:35 PM |
| 266 | 25404 | 6/18/2021 7:26 PM |
| 267 | 25413 | 6/18/2021 7:21 PM |
| 268 | 25403 | 6/18/2021 7:09 PM |
| 269 | 25419 | 6/18/2021 7:06 PM |
| 270 | 25403 | 6/18/2021 7:01 PM |
| 271 | 25413 | 6/18/2021 6:59 PM |
| 272 | 25428 | 6/18/2021 6:55 PM |
| 273 | 25428 | 6/18/2021 6:53 PM |
| 274 | 25413 | 6/18/2021 6:48 PM |
| 275 | 25427 | 6/18/2021 6:44 PM |
| 276 | 25405 | 6/18/2021 6:44 PM |
| 277 | 25404 | 6/18/2021 6:43 PM |
| 278 | 25401 | 6/18/2021 6:42 PM |
| 279 | 25427 | 6/18/2021 6:41 PM |
| 280 | 25413 | 6/18/2021 6:40 PM |
| 281 | 25401 | 6/18/2021 6:38 PM |
| 282 | 25403 | 6/18/2021 6:37 PM |
| 283 | 25404 | 6/18/2021 6:36 PM |
| 284 | 25403 | 6/18/2021 6:35 PM |
| 285 | 25420 | 6/18/2021 6:30 PM |
| 286 | 25430 | 6/18/2021 6:14 PM |
| 287 | 25404 | 6/18/2021 6:09 PM |
| 288 | 25427 | 6/18/2021 6:09 PM |
| 289 | 25419 | 6/18/2021 6:09 PM |
| 290 | 25427 | 6/18/2021 6:02 PM |
| 291 | 25405 | 6/18/2021 6:00 PM |
| 292 | 25404 | 6/18/2021 5:59 PM |
| 293 | 25401 | 6/18/2021 5:59 PM |
| 294 | 25419 | 6/18/2021 5:57 PM |
| 295 | 25405-2511 | 6/18/2021 5:57 PM |
| 296 | 25405 | 6/18/2021 5:55 PM |
| 297 | 25413 | 6/18/2021 5:54 PM |
| 298 | 25403 | 6/18/2021 5:52 PM |
| 299 | 25428 | 6/18/2021 5:52 PM |

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| 300 | 25413 | 6/18/2021 5:50 PM |
| 301 | 25427 | 6/18/2021 5:49 PM |
| 302 | 25428 | 6/18/2021 5:47 PM |
| 303 | 25401 | 6/18/2021 5:46 PM |
| 304 | 25428 | 6/18/2021 5:44 PM |
| 305 | 25405 | 6/18/2021 5:43 PM |
| 306 | 25401 | 6/18/2021 5:42 PM |
| 307 | 25404 | 6/18/2021 5:41 PM |
| 308 | 25419 | 6/18/2021 5:40 PM |
| 309 | 25405 | 6/18/2021 5:38 PM |
| 310 | 25427 | 6/18/2021 5:35 PM |
| 311 | 25401 | 6/18/2021 5:34 PM |
| 312 | 25420 | 6/18/2021 5:34 PM |
| 313 | 25405 | 6/18/2021 5:33 PM |
| 314 | 25427 | 6/18/2021 5:32 PM |
| 315 | 25427 | 6/18/2021 5:26 PM |
| 316 | 25430 | 6/18/2021 5:23 PM |
| 317 | 25405 | 6/18/2021 5:22 PM |
| 318 | 25405 | 6/18/2021 5:20 PM |
| 319 | 25428 | 6/18/2021 5:19 PM |
| 320 | 25428 | 6/18/2021 5:18 PM |
| 321 | 25427 | 6/18/2021 5:16 PM |
| 322 | 25404 | 6/18/2021 5:13 PM |
| 323 | 25404 | 6/18/2021 5:11 PM |
| 324 | 25402 | 6/18/2021 5:08 PM |
| 325 | 25401 | 6/18/2021 5:07 PM |
| 326 | 25419 | 6/18/2021 5:05 PM |
| 327 | 25401 | 6/18/2021 5:04 PM |
| 328 | 25404 | 6/18/2021 5:01 PM |
| 329 | 25403 | 6/18/2021 4:59 PM |
| 330 | 25402 | 6/18/2021 4:59 PM |
| 331 | 25403 | 6/18/2021 4:59 PM |
| 332 | 25405 | 6/18/2021 4:58 PM |
| 333 | 25404 | 6/18/2021 4:58 PM |
| 334 | 25413 | 6/18/2021 4:53 PM |
| 335 | 25401 | 6/18/2021 4:52 PM |
| 336 | 25404 | 6/18/2021 4:52 PM |
| 337 | 25405 | 6/18/2021 4:48 PM |

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|---|---|---|
| 338 | 25419 | 6/18/2021 4:47 PM |
| 339 | 25420 | 6/18/2021 4:47 PM |
| 340 | 25419 | 6/18/2021 4:45 PM |
| 341 | 25427 | 6/18/2021 4:44 PM |
| 342 | 25403 | 6/18/2021 4:42 PM |
| 343 | 25427 | 6/18/2021 4:42 PM |
| 344 | 25404 | 6/18/2021 4:40 PM |
| 345 | 25403 | 6/18/2021 4:36 PM |
| 346 | 25404 | 6/18/2021 4:36 PM |
| 347 | 25404 | 6/18/2021 4:35 PM |
| 348 | 36428 | 6/18/2021 4:33 PM |
| 349 | 25401 | 6/18/2021 4:33 PM |
| 350 | 25419 | 6/18/2021 4:31 PM |
| 351 | 25403 | 6/18/2021 4:31 PM |
| 352 | 25402 | 6/18/2021 4:31 PM |
| 353 | 25401 | 6/18/2021 4:31 PM |
| 354 | 25404 | 6/18/2021 4:28 PM |
| 355 | 25428 | 6/18/2021 4:25 PM |
| 356 | 25401 | 6/18/2021 4:25 PM |
| 357 | 25404 | 6/18/2021 4:24 PM |
| 358 | 25428 | 6/18/2021 4:23 PM |
| 359 | 25427 | 6/18/2021 4:22 PM |
| 360 | 25405 | 6/18/2021 4:20 PM |
| 361 | 25419 | 6/18/2021 4:20 PM |
| 362 | 25419 | 6/18/2021 4:19 PM |
| 363 | 25413 | 6/18/2021 4:19 PM |
| 364 | 25404 | 6/18/2021 4:18 PM |
| 365 | 25404 | 6/18/2021 4:17 PM |
| 366 | 25401 | 6/18/2021 4:17 PM |
| 367 | 25405 | 6/18/2021 4:17 PM |
| 368 | 25405 | 6/18/2021 4:16 PM |
| 369 | 25420 | 6/18/2021 4:16 PM |
| 370 | 25413 | 6/18/2021 4:12 PM |
| 371 | 25419 | 6/18/2021 4:11 PM |
| 372 | 25405 | 6/18/2021 4:10 PM |
| 373 | 25428 | 6/18/2021 4:10 PM |
| 374 | 25427 | 6/18/2021 4:09 PM |
| 375 | 25401 | 6/18/2021 4:08 PM |

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|---|---|---|
| 376 | 25404 | 6/18/2021 4:06 PM |
| 377 | 25405 | 6/18/2021 4:03 PM |
| 378 | 25405 | 6/18/2021 4:03 PM |
| 379 | 25427 | 6/18/2021 4:03 PM |
| 380 | 25404 | 6/18/2021 4:02 PM |
| 381 | 25413 | 6/18/2021 4:01 PM |
| 382 | 25428 | 6/18/2021 4:00 PM |
| 383 | 25403 | 6/18/2021 4:00 PM |
| 384 | 25427 | 6/18/2021 3:59 PM |
| 385 | 25401 | 6/18/2021 3:58 PM |
| 386 | 25403 | 6/18/2021 3:57 PM |
| 387 | 25405 | 6/18/2021 3:57 PM |
| 388 | 25427 | 6/18/2021 3:56 PM |
| 389 | 25428 | 6/18/2021 3:55 PM |
| 390 | 25428 | 6/18/2021 3:54 PM |
| 391 | 25427 | 6/18/2021 3:53 PM |
| 392 | 25427 | 6/18/2021 3:53 PM |
| 393 | 25413 | 6/18/2021 3:53 PM |
| 394 | 25413 | 6/18/2021 3:53 PM |
| 395 | 25405 | 6/18/2021 3:51 PM |
| 396 | 25411 | 6/18/2021 3:50 PM |
| 397 | 25427 | 6/18/2021 3:50 PM |
| 398 | 25404 | 6/18/2021 3:50 PM |
| 399 | 25403 | 6/18/2021 3:50 PM |
| 400 | 25419 | 6/18/2021 3:49 PM |
| 401 | 25404 | 6/18/2021 3:48 PM |
| 402 | 25428 | 6/18/2021 3:48 PM |
| 403 | 25405 | 6/18/2021 3:48 PM |
| 404 | 25403 | 6/18/2021 3:47 PM |
| 405 | 25427 | 6/18/2021 3:47 PM |
| 406 | 25403 | 6/18/2021 3:47 PM |
| 407 | 25427 | 6/18/2021 3:46 PM |
| 408 | 25401 | 6/18/2021 3:46 PM |
| 409 | 25403 | 6/18/2021 3:46 PM |
| 410 | 25401 | 6/18/2021 3:44 PM |
| 411 | 25401 | 6/18/2021 3:44 PM |
| 412 | 25419 | 6/18/2021 3:44 PM |
| 413 | 25403 | 6/18/2021 3:44 PM |

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| 414 | 25427 | 6/18/2021 3:43 PM |
| 415 | 25413 | 6/18/2021 3:42 PM |
| 416 | 25403 | 6/18/2021 3:42 PM |
| 417 | 25401 | 6/18/2021 3:42 PM |
| 418 | 25401 | 6/18/2021 3:42 PM |
| 419 | 25427 | 6/18/2021 3:42 PM |
| 420 | 25427 | 6/18/2021 3:42 PM |
| 421 | 25427 | 6/18/2021 3:42 PM |
| 422 | 25428 | 6/18/2021 3:41 PM |
| 423 | 25405 | 6/18/2021 3:40 PM |
| 424 | 25413 | 6/18/2021 3:39 PM |
| 425 | 25401 | 6/18/2021 3:39 PM |
| 426 | 25428 | 6/18/2021 3:39 PM |
| 427 | 25427 | 6/18/2021 3:38 PM |
| 428 | 25401 | 6/18/2021 3:38 PM |
| 429 | 25420 | 6/18/2021 3:37 PM |
| 430 | 25427 | 6/18/2021 3:37 PM |
| 431 | 25401 | 6/18/2021 3:36 PM |
| 432 | 25428 | 6/18/2021 3:36 PM |
| 433 | 25427 | 6/18/2021 3:36 PM |
| 434 | 25404 | 6/18/2021 3:34 PM |
| 435 | 25428 | 6/18/2021 3:34 PM |
| 436 | 25427 | 6/18/2021 3:34 PM |
| 437 | 25420 | 6/18/2021 3:34 PM |
| 438 | 25413 | 6/18/2021 3:34 PM |
| 439 | 25405 | 6/18/2021 3:33 PM |
| 440 | 25427 | 6/18/2021 3:32 PM |
| 441 | 25413 | 6/18/2021 3:32 PM |
| 442 | 25413 | 6/18/2021 3:31 PM |
| 443 | 25401 | 6/18/2021 3:31 PM |
| 444 | 25403 | 6/18/2021 3:31 PM |
| 445 | 25403 | 6/18/2021 3:30 PM |
| 446 | 25428 | 6/18/2021 3:30 PM |
| 447 | 25413 | 6/18/2021 3:30 PM |
| 448 | 25430-2650 | 6/18/2021 3:30 PM |
| 449 | 25428 | 6/18/2021 3:29 PM |
| 450 | 25427 | 6/18/2021 3:29 PM |
| 451 | 25427 | 6/18/2021 3:29 PM |

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| 452 | 25403 | 6/18/2021 3:29 PM |
| 453 | 25401 | 6/18/2021 3:28 PM |
| 454 | 25429 | 6/18/2021 3:28 PM |
| 455 | 25427 | 6/18/2021 3:27 PM |
| 456 | 25413 | 6/18/2021 3:26 PM |
| 457 | 25403 | 6/18/2021 3:25 PM |
| 458 | 25428 | 6/18/2021 3:25 PM |
| 459 | 25427 | 6/18/2021 3:25 PM |
| 460 | 25428 | 6/18/2021 3:25 PM |
| 461 | 25405 | 6/18/2021 3:25 PM |
| 462 | 25401 | 6/18/2021 3:24 PM |
| 463 | 25413 | 6/18/2021 3:24 PM |
| 464 | 25404 | 6/18/2021 3:24 PM |
| 465 | 25401 | 6/18/2021 3:24 PM |
| 466 | 25404 | 6/18/2021 3:23 PM |
| 467 | 25404 | 6/18/2021 3:23 PM |
| 468 | 25405 | 6/18/2021 3:22 PM |
| 469 | 25403 | 6/18/2021 3:22 PM |
| 470 | 25427 | 6/18/2021 3:22 PM |
| 471 | 25419 | 6/18/2021 3:22 PM |
| 472 | 25419 | 6/18/2021 3:22 PM |
| 473 | 25419 | 6/18/2021 3:21 PM |
| 474 | 25427 | 6/18/2021 3:21 PM |
| 475 | 25404 | 6/18/2021 3:21 PM |
| 476 | 25411 | 6/18/2021 3:21 PM |
| 477 | 25404 | 6/18/2021 3:21 PM |
| 478 | 25404 | 6/18/2021 3:21 PM |
| 479 | 25428 | 6/18/2021 3:20 PM |
| 480 | 25427 | 6/18/2021 3:20 PM |
| 481 | 25528 | 6/18/2021 3:20 PM |
| 482 | 26428 | 6/18/2021 3:20 PM |
| 483 | 25427 | 6/18/2021 3:19 PM |
| 484 | 25405 | 6/18/2021 3:18 PM |
| 485 | 25401 | 6/18/2021 3:18 PM |
| 486 | 25405 | 6/18/2021 3:17 PM |
| 487 | 25427 | 6/18/2021 3:17 PM |
| 488 | 25403 | 6/18/2021 3:17 PM |
| 489 | 25405 | 6/18/2021 3:17 PM |

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| 490 | 25403 | 6/18/2021 3:17 PM |
| 491 | 25403 | 6/18/2021 3:16 PM |
| 492 | 25405 | 6/18/2021 3:16 PM |
| 493 | 25404 | 6/18/2021 3:16 PM |
| 494 | 25403 | 6/18/2021 3:15 PM |
| 495 | 25419 | 6/18/2021 3:15 PM |
| 496 | 25427 | 6/18/2021 3:15 PM |
| 497 | 25401 | 6/18/2021 3:15 PM |
| 498 | 25405 | 6/18/2021 3:14 PM |
| 499 | 25403 | 6/18/2021 3:14 PM |
| 500 | 25420 | 6/18/2021 3:14 PM |
| 501 | 25401 | 6/18/2021 3:14 PM |
| 502 | 25404 | 6/18/2021 3:14 PM |
| 503 | 25405 | 6/18/2021 3:14 PM |
| 504 | 25411 | 6/18/2021 3:13 PM |
| 505 | 25404 | 6/18/2021 3:13 PM |
| 506 | 25428 | 6/18/2021 3:13 PM |
| 507 | 25405 | 6/18/2021 3:13 PM |
| 508 | 25401 | 6/18/2021 3:13 PM |
| 509 | 25413 | 6/18/2021 3:13 PM |
| 510 | 25427 | 6/18/2021 3:12 PM |
| 511 | 25404 | 6/18/2021 3:12 PM |
| 512 | 25404 | 6/18/2021 3:12 PM |
| 513 | 25419 | 6/18/2021 3:12 PM |
| 514 | 25427 | 6/18/2021 3:12 PM |
| 515 | 25403 | 6/18/2021 3:12 PM |
| 516 | 25401 | 6/18/2021 3:12 PM |
| 517 | 25427 | 6/18/2021 3:12 PM |
| 518 | 25405 | 6/18/2021 3:11 PM |
| 519 | 25403 | 6/18/2021 3:11 PM |
| 520 | 25420 | 6/18/2021 3:11 PM |
| 521 | 25403 | 6/18/2021 3:11 PM |
| 522 | 25403 | 6/18/2021 3:11 PM |
| 523 | 25405 | 6/18/2021 3:11 PM |
| 524 | 25405 | 6/18/2021 3:11 PM |
| 525 | 25427 | 6/18/2021 3:11 PM |
| 526 | 25427 | 6/18/2021 3:11 PM |
| 527 | 25405 | 6/18/2021 3:10 PM |

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| 528 | 25401 | 6/18/2021 3:10 PM |
| 529 | 25427 | 6/18/2021 3:10 PM |
| 530 | 25419 | 6/18/2021 3:10 PM |
| 531 | 25403 | 6/18/2021 3:10 PM |
| 532 | 25427 | 6/18/2021 3:10 PM |
| 533 | 25403 | 6/18/2021 3:10 PM |
| 534 | 25404 | 6/18/2021 3:09 PM |
| 535 | 25428 | 6/18/2021 3:09 PM |
| 536 | 25403 | 6/18/2021 3:09 PM |
| 537 | 25404 | 6/18/2021 3:09 PM |
| 538 | 25404 | 6/18/2021 3:09 PM |
| 539 | 25401 | 6/18/2021 3:08 PM |
| 540 | 25428 | 6/18/2021 3:08 PM |
| 541 | 25403 | 6/18/2021 3:08 PM |
| 542 | 25404 | 6/18/2021 3:08 PM |
| 543 | 26405 | 6/18/2021 3:08 PM |
| 544 | 25427 | 6/18/2021 3:08 PM |
| 545 | 25427 | 6/18/2021 3:08 PM |
| 546 | 26413 | 6/18/2021 3:08 PM |
| 547 | 25428 | 6/18/2021 3:08 PM |
| 548 | 25419 | 6/18/2021 3:08 PM |
| 549 | 25419 | 6/18/2021 3:08 PM |
| 550 | 25401 | 6/18/2021 3:08 PM |
| 551 | 25413 | 6/18/2021 3:08 PM |
| 552 | 25402 | 6/18/2021 3:08 PM |
| 553 | 25420 | 6/18/2021 3:08 PM |
| 554 | 25403 | 6/18/2021 3:08 PM |
| 555 | 25427 | 6/18/2021 3:08 PM |
| 556 | 25428 | 6/18/2021 3:07 PM |
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| 558 | 25403 | 6/18/2021 3:07 PM |
| 559 | 25404 | 6/18/2021 3:07 PM |
| 560 | 25405 | 6/18/2021 3:07 PM |
| 561 | 25413 | 6/18/2021 3:07 PM |
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| 563 | 25405 | 6/18/2021 3:07 PM |
| 564 | 25404 | 6/18/2021 3:07 PM |
| 565 | 25427 | 6/18/2021 3:07 PM |

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|---|---|---|
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| 570 | 25413 | 6/18/2021 3:07 PM |
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| 576 | 25404 | 6/18/2021 3:07 PM |
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| 583 | 25405 | 6/18/2021 3:06 PM |
| 584 | 25413 | 6/18/2021 3:06 PM |
| 585 | 25404 | 6/18/2021 3:06 PM |
| 586 | 25403 | 6/18/2021 3:06 PM |
| 587 | 25403 | 6/18/2021 3:06 PM |
| 588 | 25401 | 6/18/2021 3:06 PM |
| 589 | 25404 | 6/18/2021 3:06 PM |
| 590 | 25403 | 6/18/2021 3:06 PM |
| 591 | 25420 | 6/18/2021 3:06 PM |
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| 603 | 25404 | 6/18/2021 3:06 PM |

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|---|---|---|
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| 641 | 25401 | 6/18/2021 3:04 PM |

| | | |
|---|---|---|
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| | | |
|---|---|---|
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| 690 | 25427 | 6/17/2021 10:27 AM |
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| 693 | 25413 | 6/17/2021 2:37 AM |
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| 695 | 25411 | 6/16/2021 11:29 PM |
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| 717 | 25411 | 6/16/2021 3:10 PM |

| | | |
|---|---|---|
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| 720 | 25411 | 6/16/2021 2:47 PM |
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| 723 | 25411 | 6/16/2021 2:21 PM |
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| 725 | 25411 | 6/16/2021 1:48 PM |
| 726 | 25411 | 6/16/2021 1:46 PM |
| 727 | 25411 | 6/16/2021 1:43 PM |
| 728 | 25411 | 6/16/2021 1:38 PM |
| 729 | 25411 | 6/16/2021 1:38 PM |
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| 731 | 25411 | 6/16/2021 1:35 PM |
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| 734 | 25411 | 6/16/2021 12:00 PM |
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| 736 | 25411 | 6/16/2021 11:44 AM |
| 737 | 25411 | 6/16/2021 11:40 AM |
| 738 | 25428 | 6/16/2021 11:26 AM |
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| 740 | 25427 | 6/16/2021 11:22 AM |
| 741 | 25401 | 6/16/2021 11:17 AM |
| 742 | 25422 | 6/16/2021 11:14 AM |
| 743 | 26434 | 6/16/2021 10:58 AM |
| 744 | 25405 | 6/16/2021 10:56 AM |
| 745 | 25411 | 6/16/2021 10:37 AM |
| 746 | 25411 | 6/16/2021 10:08 AM |
| 747 | 25401 | 6/16/2021 10:00 AM |
| 748 | 25401 | 6/16/2021 9:41 AM |
| 749 | 25428 | 6/16/2021 9:41 AM |
| 750 | 25404 | 6/16/2021 9:29 AM |
| 751 | 25411 | 6/16/2021 9:19 AM |
| 752 | 25427 | 6/16/2021 9:12 AM |
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| 755 | 25427 | 6/16/2021 8:51 AM |

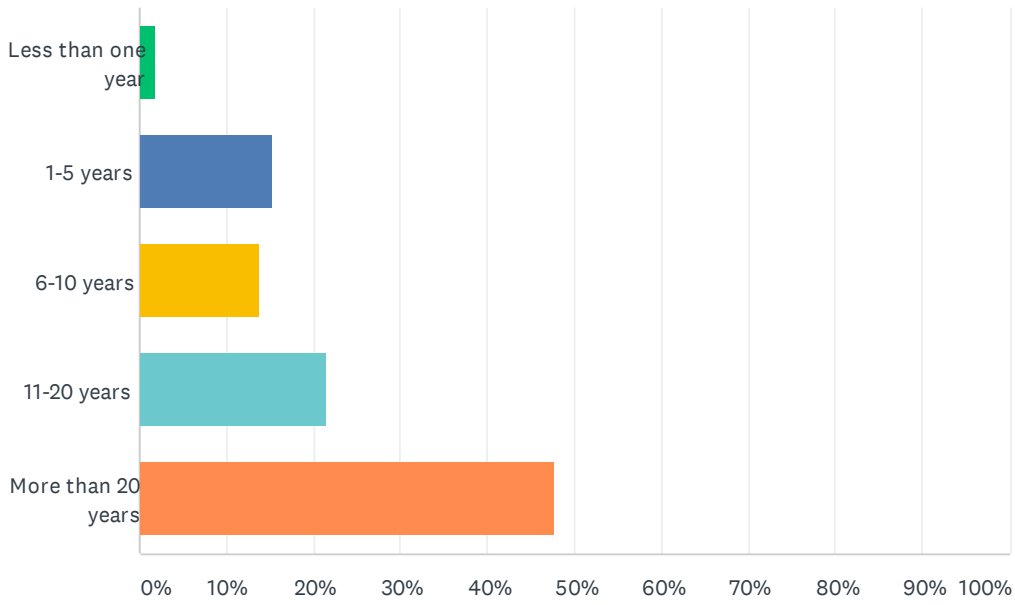
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|---|---|---|
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| 763 | 25401 | 6/16/2021 8:17 AM |
| 764 | 25427 | 6/16/2021 8:16 AM |
| 765 | 25413 | 6/16/2021 8:12 AM |
| 766 | 25411 | 6/16/2021 8:07 AM |
| 767 | 25411 | 6/16/2021 8:06 AM |
| 768 | 25401 | 6/16/2021 8:04 AM |
| 769 | 25405 | 6/16/2021 8:03 AM |
| 770 | 25411 | 6/16/2021 8:00 AM |
| 771 | 25401 | 6/16/2021 7:54 AM |
| 772 | 25419 | 6/16/2021 7:48 AM |
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| 774 | 25427 | 6/16/2021 7:43 AM |
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| 780 | 25403 | 6/16/2021 6:27 AM |
| 781 | 25420 | 6/16/2021 6:24 AM |
| 782 | 25427 | 6/16/2021 6:20 AM |
| 783 | 25403 | 6/16/2021 6:19 AM |
| 784 | 25411 | 6/16/2021 6:12 AM |
| 785 | 25405 | 6/16/2021 6:10 AM |
| 786 | 25405 | 6/16/2021 6:00 AM |
| 787 | 25427 | 6/16/2021 5:33 AM |
| 788 | 25411 | 6/16/2021 4:47 AM |
| 789 | 25403 | 6/16/2021 4:19 AM |
| 790 | 25434 | 6/16/2021 3:50 AM |
| 791 | 25403 | 6/16/2021 1:30 AM |
| 792 | 25401 | 6/16/2021 1:01 AM |
| 793 | 25405 | 6/15/2021 11:32 PM |

| | | |
|---|---|---|
| 794 | 25420 | 6/15/2021 10:56 PM |
| 795 | 25401 | 6/15/2021 10:50 PM |
| 796 | 25434 | 6/15/2021 10:45 PM |
| 797 | 25427 | 6/15/2021 10:40 PM |
| 798 | 25404 | 6/15/2021 10:30 PM |
| 799 | 25411 | 6/15/2021 10:20 PM |
| 800 | 25428 | 6/15/2021 10:17 PM |
| 801 | 25428 | 6/15/2021 10:17 PM |
| 802 | 25427 | 6/15/2021 10:17 PM |
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| 807 | 25434 | 6/15/2021 9:32 PM |
| 808 | 25428 | 6/15/2021 9:31 PM |
| 809 | 25420 | 6/15/2021 9:28 PM |
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| 815 | 25427 | 6/15/2021 8:50 PM |
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| 819 | 25427 | 6/15/2021 8:37 PM |
| 820 | 25428 | 6/15/2021 8:34 PM |
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| 823 | 25403 | 6/15/2021 8:11 PM |
| 824 | 25427 | 6/15/2021 8:02 PM |
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| 826 | 25405 | 6/15/2021 7:50 PM |
| 827 | 25427 | 6/15/2021 7:47 PM |
| 828 | 25422 | 6/15/2021 7:47 PM |
| 829 | 25419 | 6/15/2021 7:35 PM |
| 830 | 25428 | 6/15/2021 7:35 PM |
| 831 | 25411 | 6/15/2021 7:31 PM |

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|---|---|---|
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| 833 | 25422 | 6/15/2021 7:23 PM |
| 834 | 25411 | 6/15/2021 7:19 PM |
| 835 | 25411 | 6/15/2021 7:11 PM |
| 836 | 25411 | 6/15/2021 7:10 PM |
| 837 | 25413 | 6/15/2021 7:08 PM |
| 838 | 25404 | 6/15/2021 7:07 PM |
| 839 | 25405 | 6/15/2021 7:06 PM |
| 840 | 25404 | 6/15/2021 6:58 PM |
| 841 | 25421 | 6/15/2021 6:57 PM |
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| 845 | 25403 | 6/15/2021 6:35 PM |
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| 856 | 25411 | 6/15/2021 3:40 PM |
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| 860 | 25422 | 6/15/2021 3:08 PM |
| 861 | 25427 | 6/15/2021 3:07 PM |
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| 863 | 25430 | 6/15/2021 3:00 PM |
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| 865 | 25434 | 6/15/2021 10:52 AM |

# Q3 How long have you resided in the community?

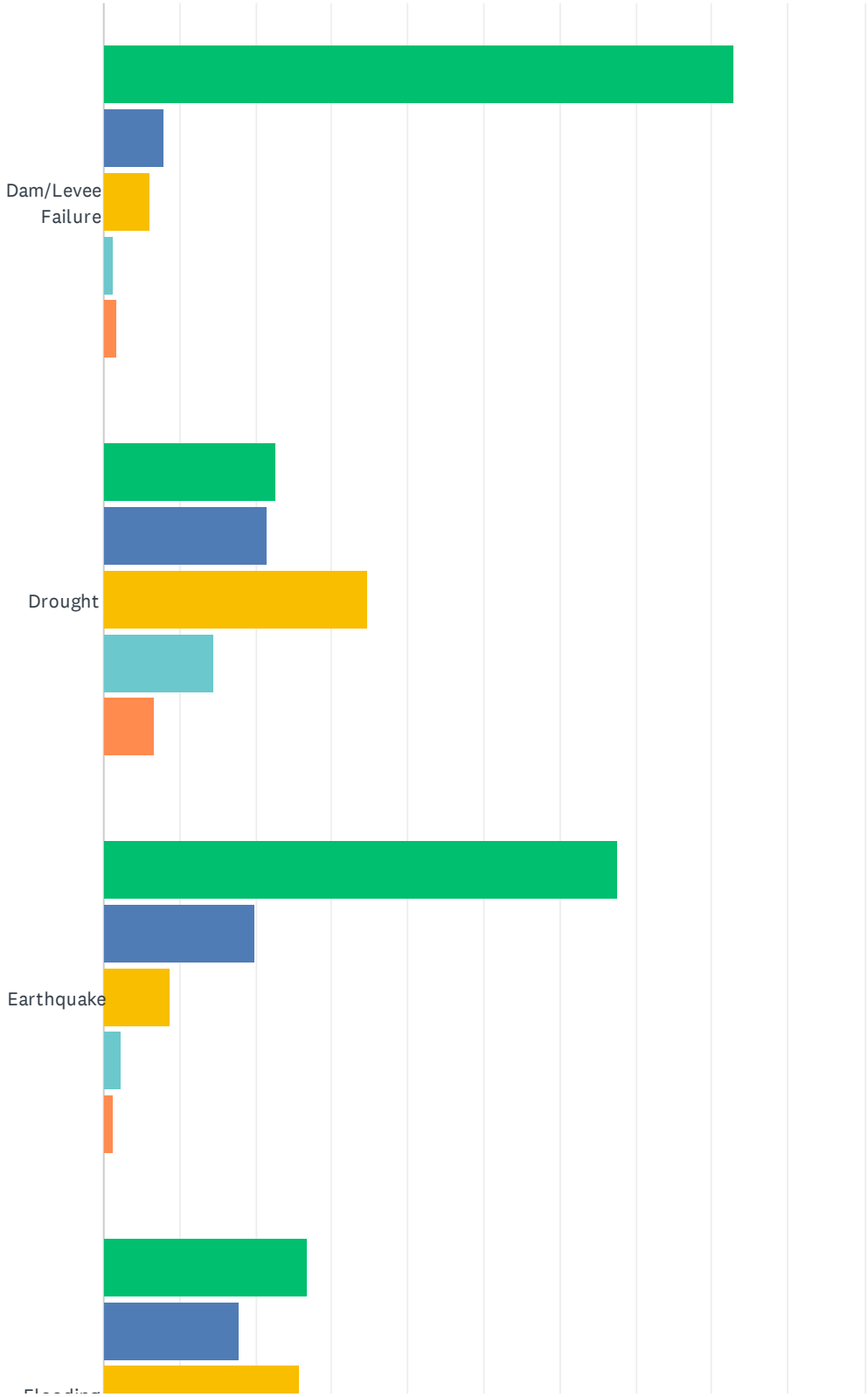
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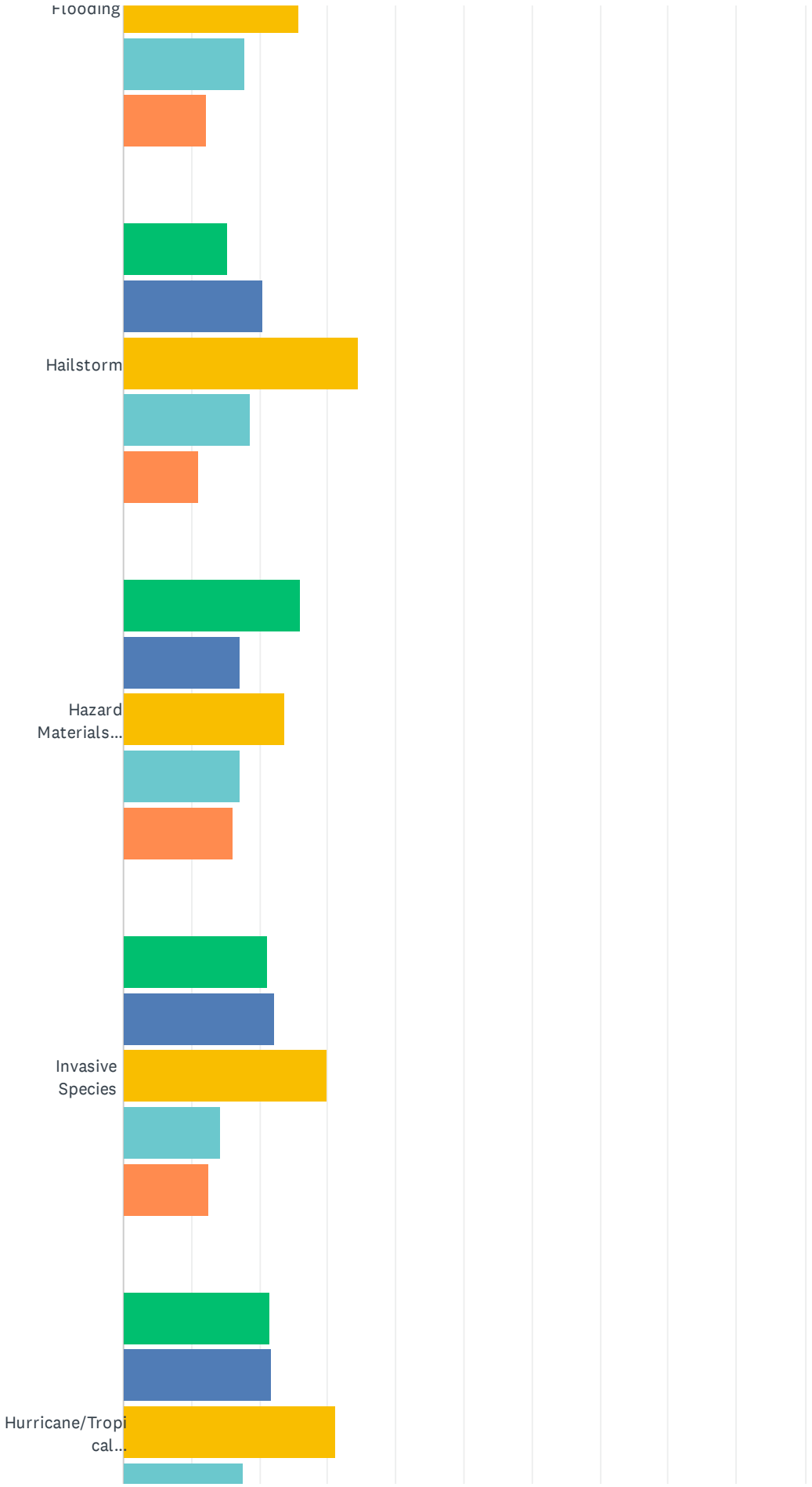


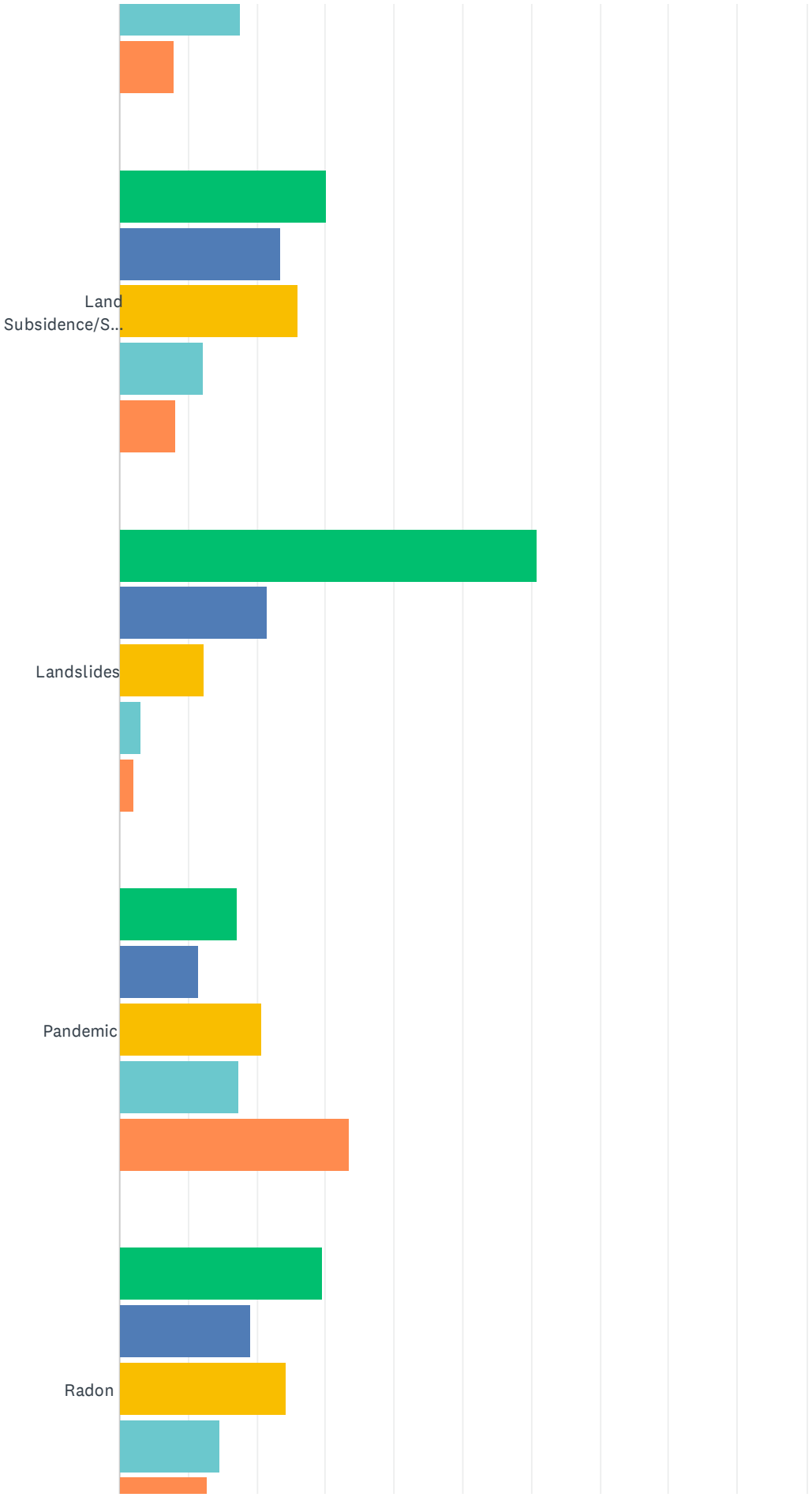

| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Less than one year | 1.91% | 17 |
| 1-5 years | 15.28% | 136 |
| 6-10 years | 13.71% | 122 |
| 11-20 years | 21.46% | 191 |
| More than 20 years | 47.64% | 424 |
| TOTAL | | 890 |

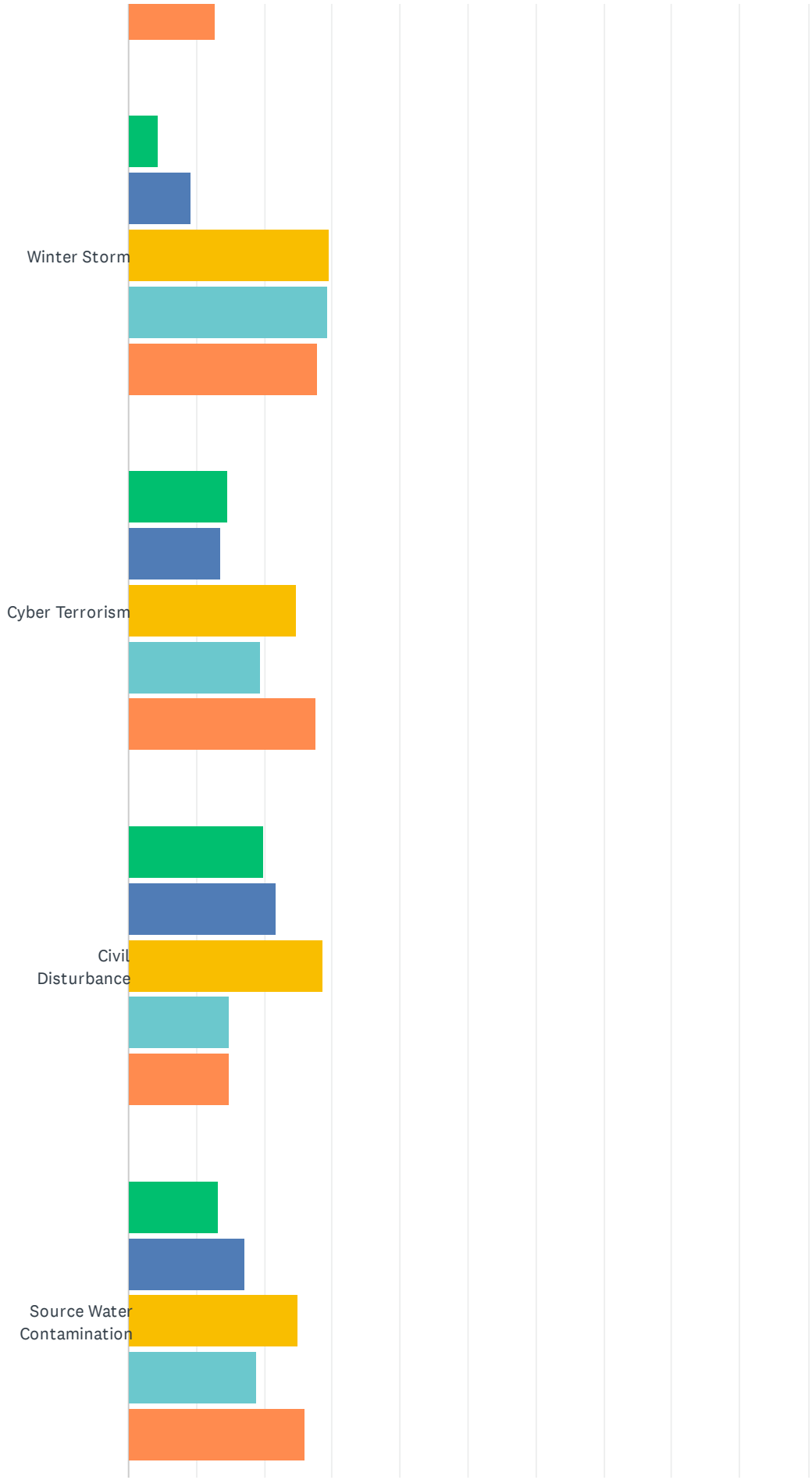
# Q4 Please rate each of the following hazards on a scale of 1 (low) to 5 (high) indicating the level of threat you feel each presents to your neighborhood?

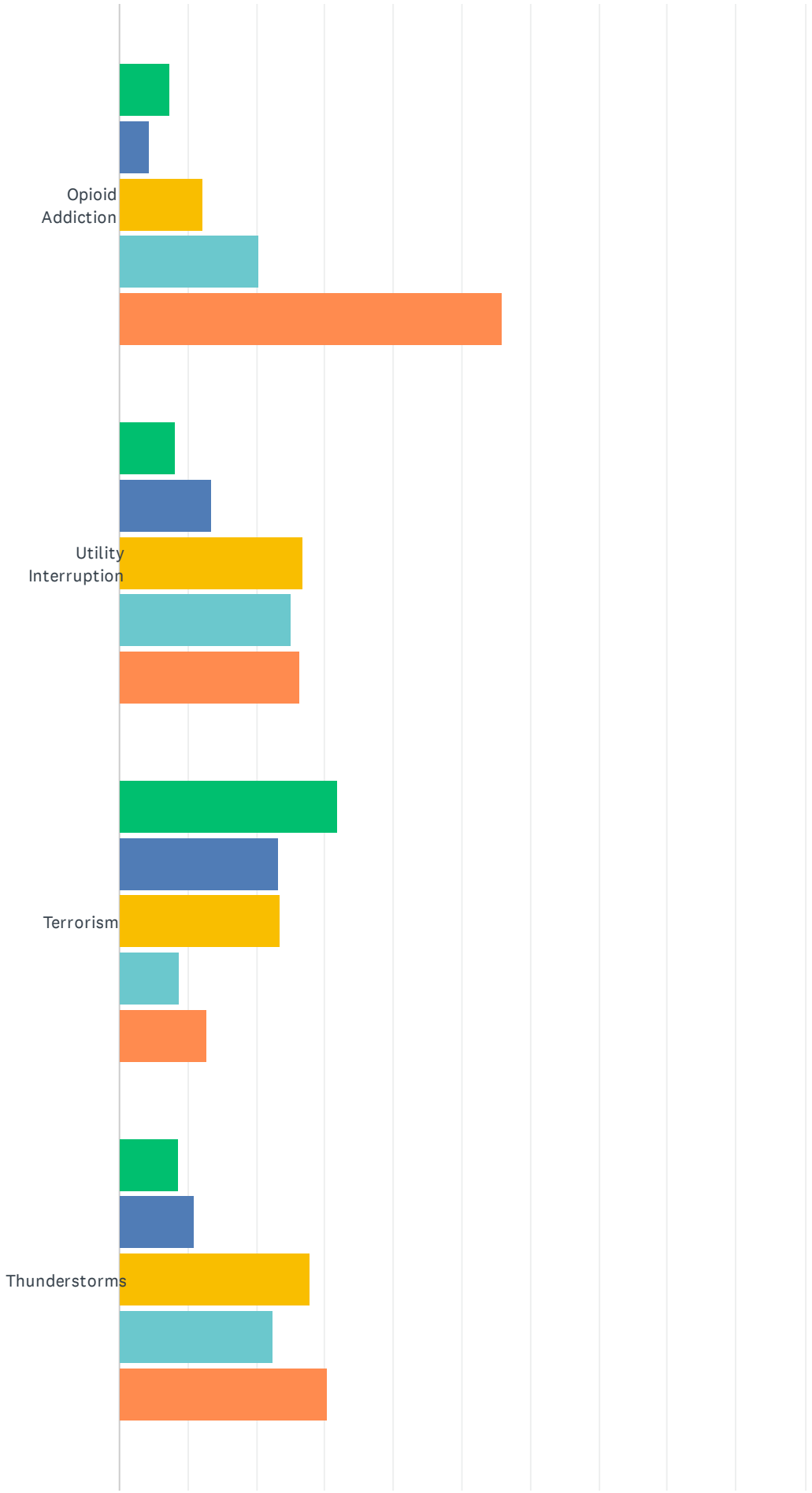
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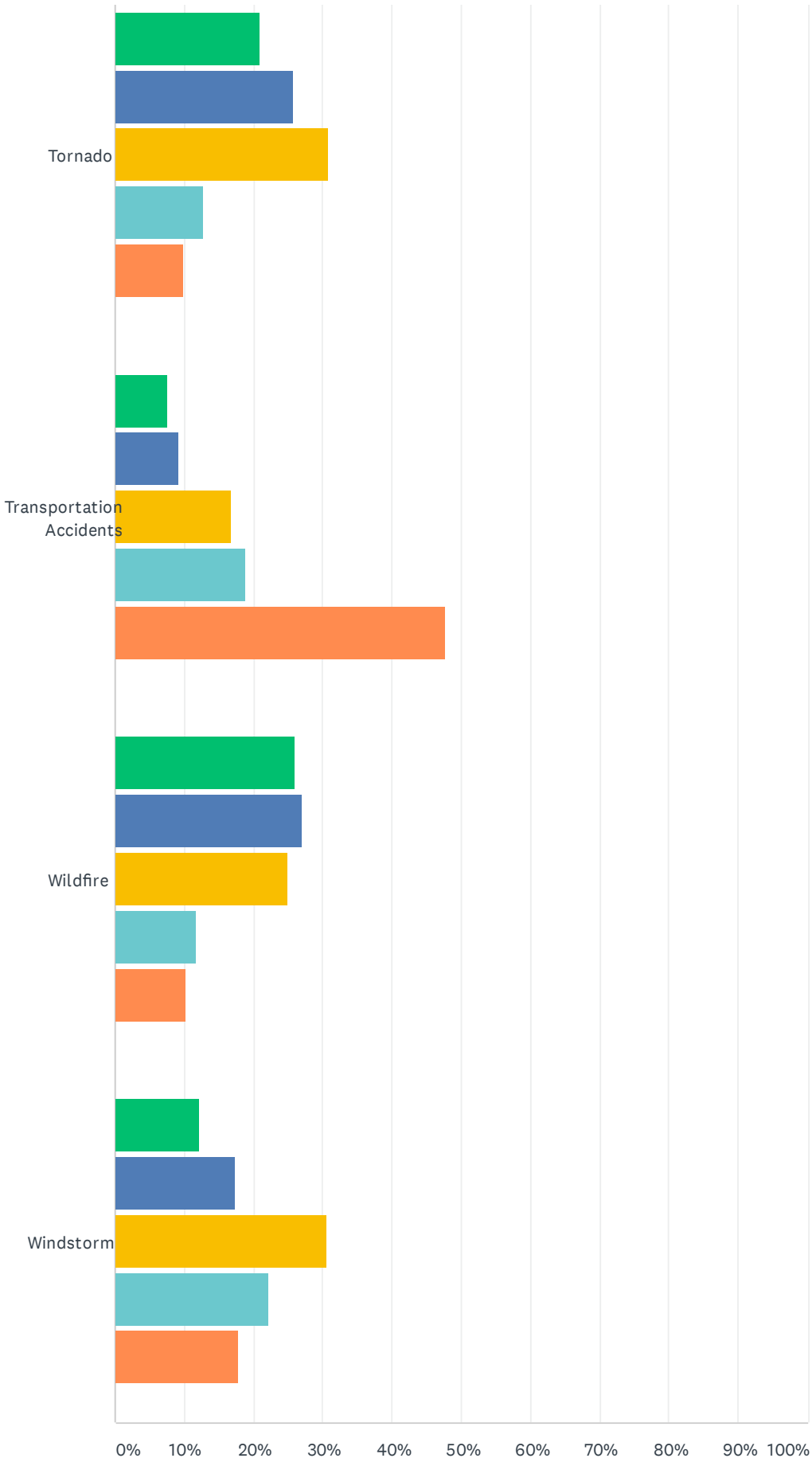



Flooding
Hailstorm
Hazard Materials...
Invasive Species
Hurricane/Tropical...


Land Subsidence/S...
Landslides
Pandemic
Radon


Winter Storm
Cyber Terrorism
Civil Disturbance
Source Water Contamination


Opioid Addiction
Utility Interruption
Terrorism
Thunderstorms


Tornado
Transportation Accidents
Wildfire
Windstorm
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%

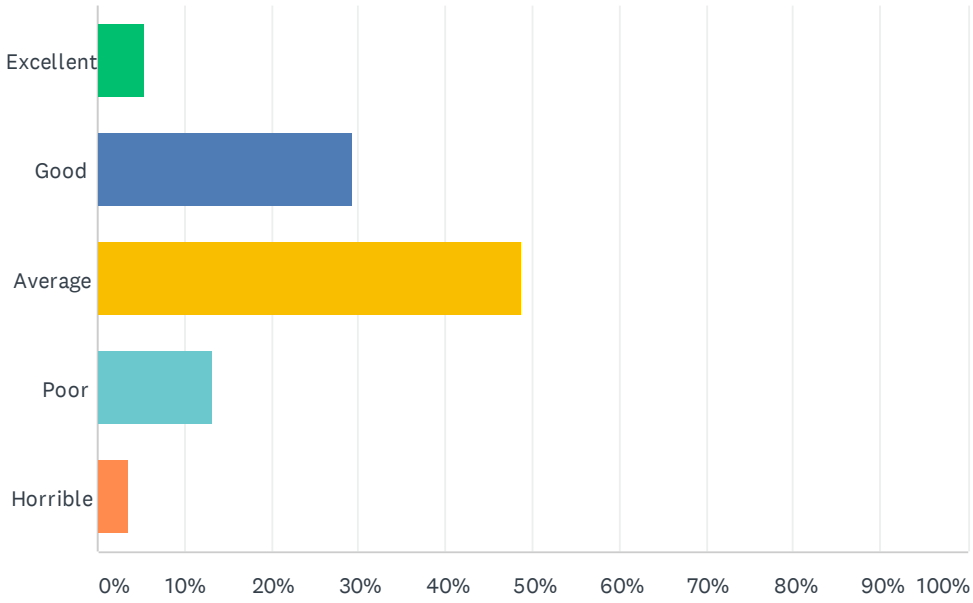

1
2
3
4
5

| | 1 | 2 | 3 | 4 | 5 | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| Dam/Levee Failure | 82.90%<br>732 | 8.04%<br>71 | 6.12%<br>54 | 1.36%<br>12 | 1.59%<br>14 | 883 | 1.31 |
| Drought | 22.60%<br>200 | 21.58%<br>191 | 34.69%<br>307 | 14.35%<br>127 | 6.78%<br>60 | 885 | 2.61 |
| Earthquake | 67.50%<br>596 | 19.93%<br>176 | 8.83%<br>78 | 2.38%<br>21 | 1.36%<br>12 | 883 | 1.50 |
| Flooding | 26.69%<br>237 | 17.79%<br>158 | 25.79%<br>229 | 17.68%<br>157 | 12.05%<br>107 | 888 | 2.71 |
| Hailstorm | 15.26%<br>134 | 20.50%<br>180 | 34.51%<br>303 | 18.68%<br>164 | 11.05%<br>97 | 878 | 2.90 |
| Hazard Materials Release | 25.90%<br>229 | 17.19%<br>152 | 23.64%<br>209 | 17.19%<br>152 | 16.06%<br>142 | 884 | 2.80 |
| Invasive Species | 21.11%<br>186 | 22.25%<br>196 | 29.85%<br>263 | 14.30%<br>126 | 12.49%<br>110 | 881 | 2.75 |
| Hurricane/Tropical Storm/Nor'easter | 21.53%<br>191 | 21.76%<br>193 | 31.23%<br>277 | 17.59%<br>156 | 7.89%<br>70 | 887 | 2.69 |
| Land Subsidence/Sinkholes | 30.17%<br>267 | 23.50%<br>208 | 25.88%<br>229 | 12.20%<br>108 | 8.25%<br>73 | 885 | 2.45 |
| Landslides | 60.90%<br>539 | 21.47%<br>190 | 12.43%<br>110 | 3.16%<br>28 | 2.03%<br>18 | 885 | 1.64 |
| Pandemic | 17.06%<br>151 | 11.41%<br>101 | 20.68%<br>183 | 17.29%<br>153 | 33.56%<br>297 | 885 | 3.39 |
| Radon | 29.48%<br>260 | 18.93%<br>167 | 24.26%<br>214 | 14.63%<br>129 | 12.70%<br>112 | 882 | 2.62 |
| Winter Storm | 4.40%<br>39 | 9.13%<br>81 | 29.43%<br>261 | 29.20%<br>259 | 27.85%<br>247 | 887 | 3.67 |
| Cyber Terrorism | 14.59%<br>129 | 13.57%<br>120 | 24.66%<br>218 | 19.46%<br>172 | 27.71%<br>245 | 884 | 3.32 |
| Civil Disturbance | 19.91%<br>176 | 21.83%<br>193 | 28.62%<br>253 | 14.82%<br>131 | 14.82%<br>131 | 884 | 2.83 |
| Source Water Contamination | 13.08%<br>116 | 17.25%<br>153 | 24.92%<br>221 | 18.83%<br>167 | 25.93%<br>230 | 887 | 3.27 |
| Opioid Addiction | 7.42%<br>66 | 4.39%<br>39 | 12.04%<br>107 | 20.36%<br>181 | 55.79%<br>496 | 889 | 4.13 |
| Utility Interruption | 8.24%<br>73 | 13.43%<br>119 | 26.86%<br>238 | 25.06%<br>222 | 26.41%<br>234 | 886 | 3.48 |
| Terrorism | 31.70%<br>279 | 23.18%<br>204 | 23.52%<br>207 | 8.75%<br>77 | 12.84%<br>113 | 880 | 2.48 |
| Thunderstorms | 8.60%<br>76 | 10.86%<br>96 | 27.83%<br>246 | 22.29%<br>197 | 30.43%<br>269 | 884 | 3.55 |
| Tornado | 20.95%<br>185 | 25.82%<br>228 | 30.80%<br>272 | 12.68%<br>112 | 9.74%<br>86 | 883 | 2.64 |
| Transportation Accidents | 7.54%<br>67 | 9.11%<br>81 | 16.76%<br>149 | 18.90%<br>168 | 47.69%<br>424 | 889 | 3.90 |
| Wildfire | 26.02%<br>230 | 26.92%<br>238 | 25.00%<br>221 | 11.76%<br>104 | 10.29%<br>91 | 884 | 2.53 |
| Windstorm | 12.23% | 17.44% | 30.46% | 22.08% | 17.78% | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 108 | 154 | 269 | 195 | 157 | 883 | 3.16 |

# Q5 Think back to a recent hazard occurrence (any from question #4). How would you rate your community's ability to handle the hazard event?

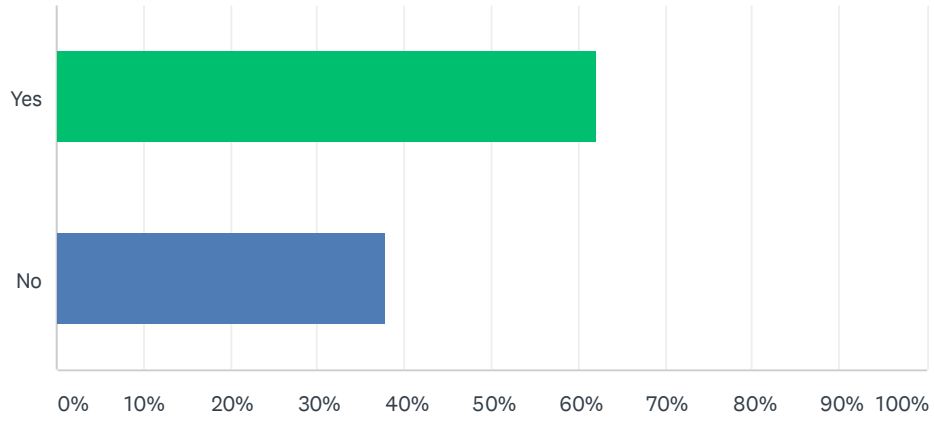
Answered: 892 Skipped: 2




| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Excellent | 5.38% | 48 |
| Good | 29.26% | 261 |
| Average | 48.65% | 434 |
| Poor | 13.12% | 117 |
| Horrible | 3.59% | 32 |
| TOTAL | | 892 |

# Q6 During this event, did you receive information or warnings from your local public officials/emergency management officials?

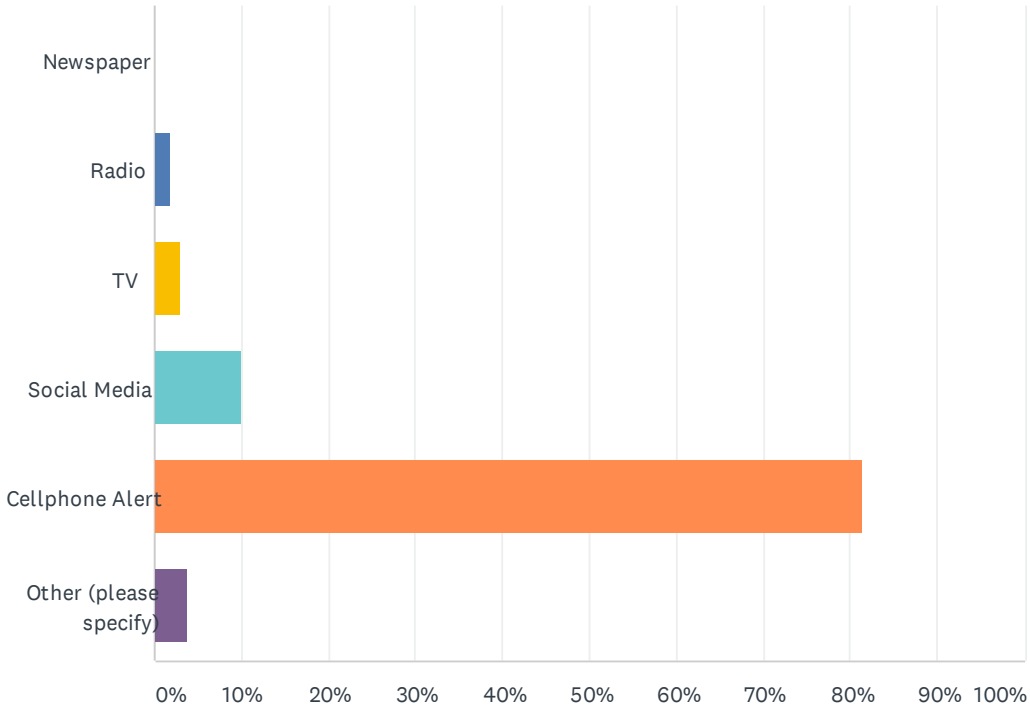
Answered: 887 Skipped: 7




| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Yes | 62.23% | 552 |
| No | 37.77% | 335 |
| TOTAL | | 887 |

# Q7 What is the most effective way for your community to alert/advise you during a hazard event?

Answered: 892 Skipped: 2



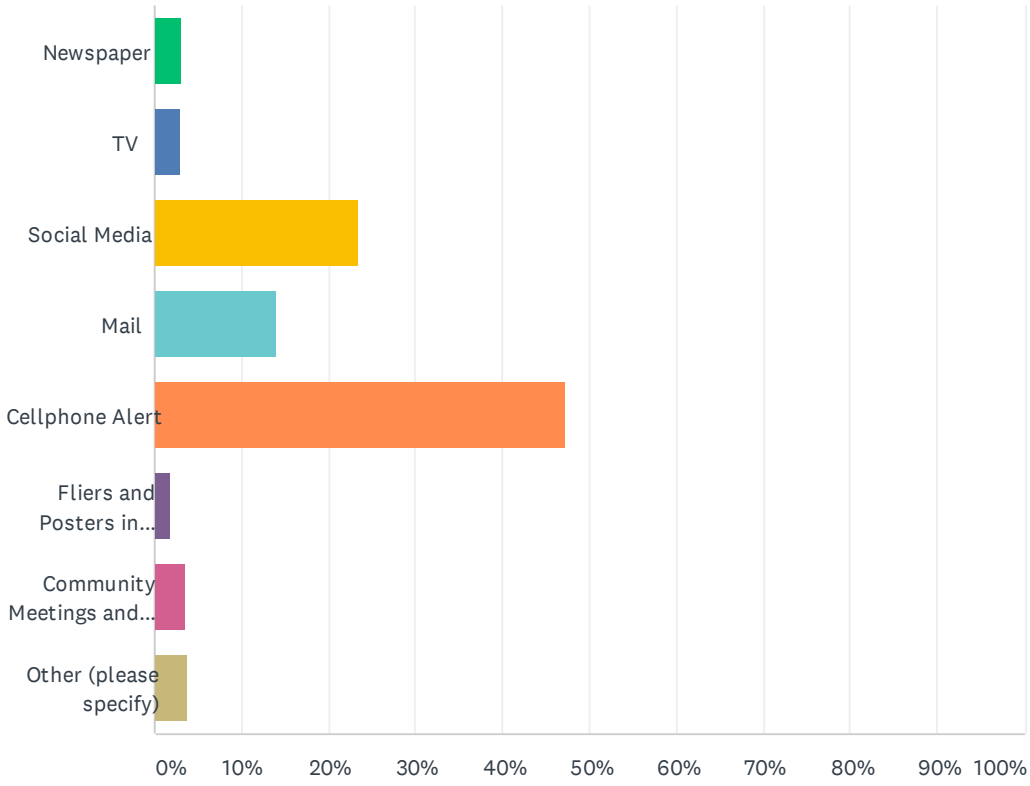

| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Newspaper | 0.00% | 0 |
| Radio | 1.79% | 16 |
| TV | 3.03% | 27 |
| Social Media | 10.09% | 90 |
| Cellphone Alert | 81.28% | 725 |
| Other (please specify) | 3.81% | 34 |
| TOTAL | | 892 |

| # | OTHER (PLEASE SPECIFY) | DATE |
|---|---|---|
| 1 | Email | 7/6/2021 6:34 AM |
| 2 | NO LOCA TV STATION...WHY IS WDVM COVERING THE BELTWAY? | 6/29/2021 7:23 PM |
| 3 | Post office boxes | 6/25/2021 7:46 PM |
| 4 | All of the above! | 6/22/2021 4:37 PM |
| 5 | US Mail | 6/22/2021 2:50 PM |
| 6 | All above | 6/22/2021 8:07 AM |
| 7 | Home phone | 6/19/2021 3:53 PM |

| | | |
|---|---|---|
| 8 | Siren | 6/19/2021 3:03 PM |
| 9 | All the above | 6/19/2021 1:08 PM |
| 10 | email, because not everybody uses social media | 6/19/2021 9:33 AM |
| 11 | all of the above | 6/19/2021 8:12 AM |
| 12 | Fema notification | 6/18/2021 6:53 PM |
| 13 | Fire Sirens | 6/18/2021 6:42 PM |
| 14 | Email | 6/18/2021 4:12 PM |
| 15 | Mulitple ways | 6/18/2021 4:09 PM |
| 16 | All the above due to age ranges | 6/18/2021 3:54 PM |
| 17 | All of the above | 6/18/2021 3:53 PM |
| 18 | both cellphone and radio | 6/18/2021 3:46 PM |
| 19 | ALL of the above, esp cell phone alert | 6/18/2021 3:31 PM |
| 20 | ALL of the above, esp cell phone alert | 6/18/2021 3:31 PM |
| 21 | Swift911 | 6/18/2021 3:18 PM |
| 22 | email | 6/18/2021 3:14 PM |
| 23 | I | 6/18/2021 3:06 PM |
| 24 | Phone contact if possible. | 6/18/2021 1:04 PM |
| 25 | You actually need a comprehensive strategic communication plan. Not everyone reads the newspaper. Not everyone uses newspaper. Not everyone uses a cell phone. This was a dismal failure during the pandemic. Not to mention political meddling in mixed messages along the way. But communication and outreach was an absolute failure for planning, execution, and effect. Highly recommend you conduct and publish a lessons learned package for the public comment. | 6/18/2021 10:47 AM |
| 26 | radio as well as cell phone together | 6/18/2021 9:27 AM |
| 27 | Word of mouth text or msg | 6/17/2021 10:09 PM |
| 28 | Fire House Siren | 6/17/2021 12:55 PM |
| 29 | NOAA WEATHER RADIO | 6/17/2021 2:37 AM |
| 30 | All of the above would reach more people | 6/16/2021 5:37 PM |
| 31 | CELLPHONE ALERT AND SOCIAL MEDIA AND TV | 6/16/2021 1:43 PM |
| 32 | Whistle | 6/16/2021 10:58 AM |
| 33 | door to door | 6/16/2021 9:41 AM |
| 34 | Siren needs to be installed at fire hall | 6/15/2021 7:47 PM |

# Q8 What are the most effective ways for you to receive information about how to make your home and neighborhood more hazard resistant?

Answered: 888 Skipped: 6



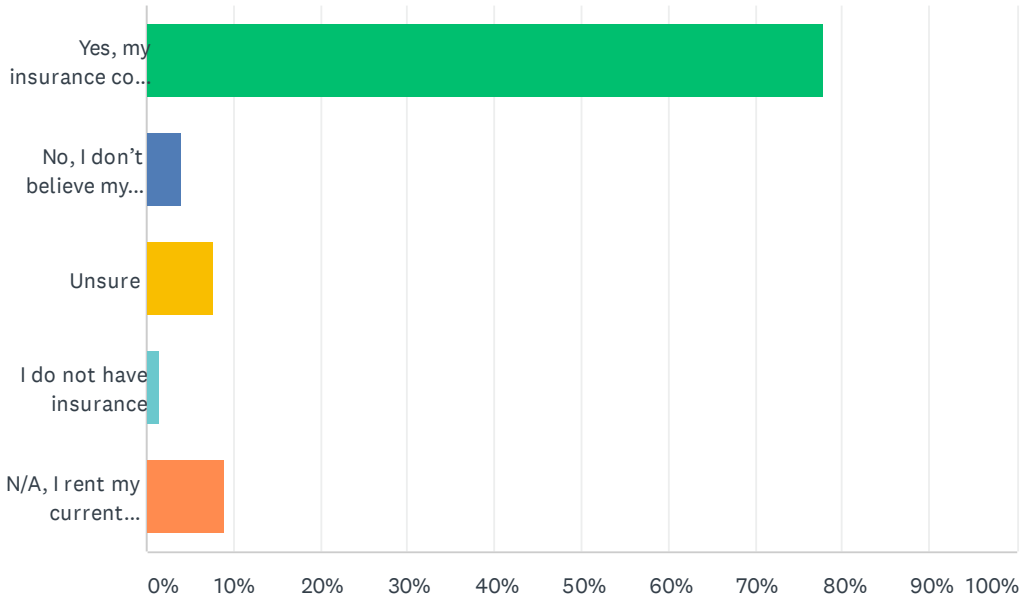

| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Newspaper | 3.04% | 27 |
| TV | 2.93% | 26 |
| Social Media | 23.42% | 208 |
| Mail | 13.96% | 124 |
| Cellphone Alert | 47.30% | 420 |
| Fliers and Posters in Public Locations | 1.91% | 17 |
| Community Meetings and Events | 3.60% | 32 |
| Other (please specify) | 3.83% | 34 |
| TOTAL | | 888 |

| # | OTHER (PLEASE SPECIFY) | DATE |
|---|---|---|
| 1 | Email | 7/6/2021 6:34 AM |
| 2 | No | 6/25/2021 11:57 AM |
| 3 | All the above | 6/23/2021 8:32 AM |

| | | |
|---|---|---|
| 4 | All of the above! | 6/22/2021 4:19 PM |
| 5 | All of above | 6/22/2021 8:07 AM |
| 6 | Email | 6/20/2021 2:31 PM |
| 7 | All the above | 6/19/2021 1:08 PM |
| 8 | Mail letter in the mail | 6/19/2021 11:46 AM |
| 9 | all of the above | 6/19/2021 8:12 AM |
| 10 | all of the above | 6/19/2021 6:58 AM |
| 11 | email | 6/18/2021 9:21 PM |
| 12 | Online newspapers | 6/18/2021 7:35 PM |
| 13 | All of the above. | 6/18/2021 6:44 PM |
| 14 | E-Mail | 6/18/2021 6:38 PM |
| 15 | Police to be better equipped. More technology. More training. | 6/18/2021 5:42 PM |
| 16 | Educate people to not be so dependent. We are responsible for our families. | 6/18/2021 5:08 PM |
| 17 | all of the above | 6/18/2021 4:09 PM |
| 18 | All of the above | 6/18/2021 3:53 PM |
| 19 | Website | 6/18/2021 3:44 PM |
| 20 | Education and truthful news | 6/18/2021 3:30 PM |
| 21 | research | 6/18/2021 3:26 PM |
| 22 | Email | 6/18/2021 3:22 PM |
| 23 | If they work .. major event those don’t work | 6/18/2021 3:17 PM |
| 24 | email | 6/18/2021 3:14 PM |
| 25 | Internet Listserv from Arlington VA OEM I subscribe to | 6/18/2021 3:14 PM |
| 26 | Cell phone, social media and community meetigs | 6/18/2021 3:10 PM |
| 27 | Email | 6/18/2021 3:05 PM |
| 28 | See my earlier comment regarding the pandemic. Too many mixed messages, lack of support from stakeholders and leaders. You really need to develop a comprehensive strategic communication and social marketing plan for future pandemics or disease outbreaks. I am available to speak on the subject at any time. | 6/18/2021 10:47 AM |
| 29 | radio | 6/18/2021 9:27 AM |
| 30 | All of the above would reach more people | 6/16/2021 5:37 PM |
| 31 | email | 6/16/2021 8:16 AM |
| 32 | Email | 6/15/2021 9:10 PM |
| 33 | Email | 6/15/2021 8:17 PM |
| 34 | all the above. | 6/15/2021 5:32 PM |

# Q9 If you are a homeowner, do you have adequate basic homeowner's insurance to cover the hazards that could impact your home?

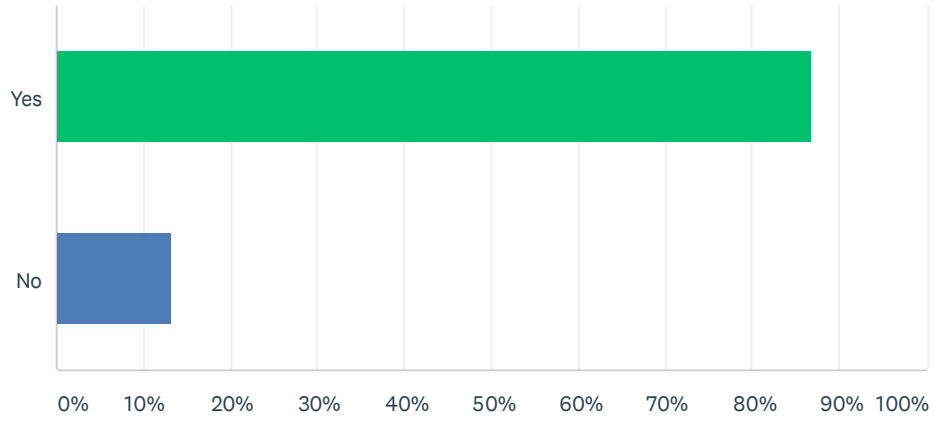
Answered: 886 Skipped: 8




| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Yes, my insurance cover should be adequate | 77.77% | 689 |
| No, I don't believe my insurance coverage would be adequate | 4.06% | 36 |
| Unsure | 7.67% | 68 |
| I do not have insurance | 1.47% | 13 |
| N/A, I rent my current residence | 9.03% | 80 |
| TOTAL | | 886 |

# Q10 Do you know that most homeowner insurance policies do not cover flooding or minor subsidence (sinkholes)?

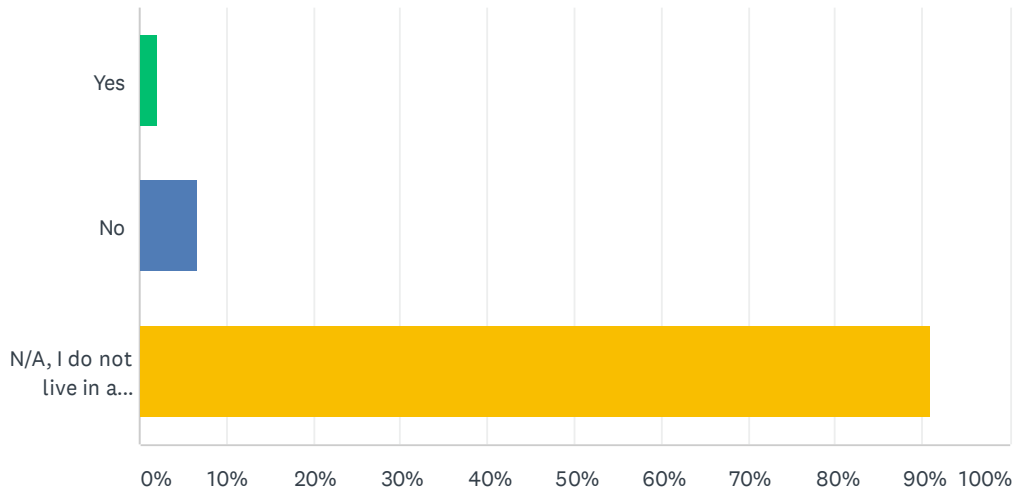
Answered: 887 Skipped: 7




| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Yes | 86.81% | 770 |
| No | 13.19% | 117 |
| TOTAL | | 887 |

# Q11 If you live in a floodplain, do you carry flood insurance?

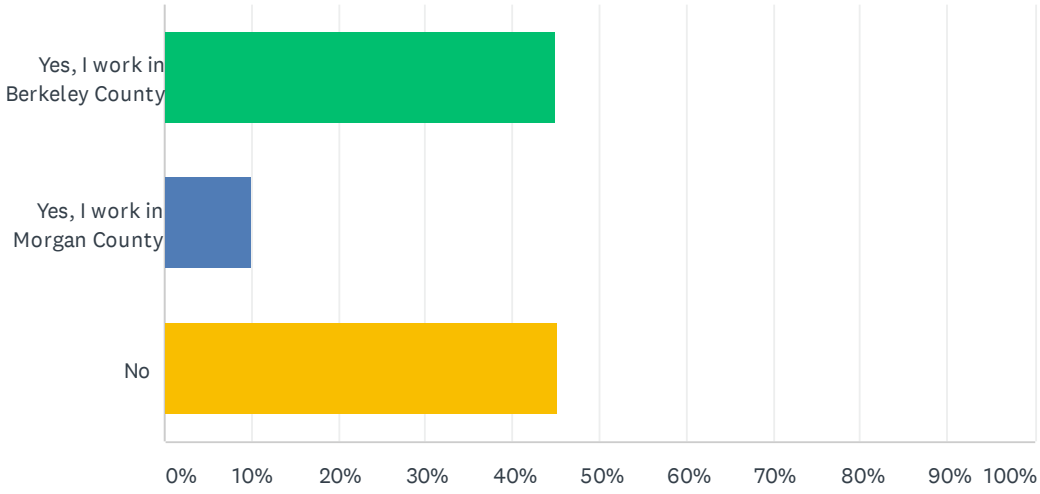
Answered: 887 Skipped: 7




| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Yes | 2.14% | 19 |
| No | 6.76% | 60 |
| N/A, I do not live in a floodplain | 91.09% | 808 |
| TOTAL | | 887 |

# Q12 Do you work in Berkeley or Morgan County?

Answered: 889 Skipped: 5




| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Yes, I work in Berkeley County | 44.88% | 399 |
| Yes, I work in Morgan County | 10.01% | 89 |
| No | 45.11% | 401 |
| TOTAL | | 889 |

# Q13 Please provide the zip code of where you work.

Answered: 458 Skipped: 436

| # | RESPONSES | DATE |
|---|---|---|
| 1 | 25411 | 7/15/2021 8:43 AM |
| 2 | 25434 | 7/6/2021 5:26 PM |
| 3 | 25427 | 7/6/2021 4:37 PM |
| 4 | 25411 | 7/6/2021 3:09 PM |
| 5 | 25401 | 7/6/2021 12:10 PM |
| 6 | 25403 | 7/6/2021 6:35 AM |
| 7 | 25401 | 7/5/2021 8:18 AM |
| 8 | 25411 | 7/1/2021 9:22 AM |
| 9 | 25413 | 6/30/2021 6:46 PM |
| 10 | 25401 | 6/30/2021 12:50 PM |
| 11 | 25405 | 6/29/2021 7:34 PM |
| 12 | 25403 | 6/29/2021 7:13 PM |
| 13 | 25403 | 6/29/2021 10:26 AM |
| 14 | 25405 | 6/29/2021 10:10 AM |
| 15 | 25401 | 6/28/2021 3:00 PM |
| 16 | 25411 | 6/28/2021 9:27 AM |
| 17 | 25401 | 6/27/2021 3:18 PM |
| 18 | 25419 | 6/27/2021 9:16 AM |
| 19 | 25401 | 6/26/2021 2:39 PM |
| 20 | 25411 | 6/25/2021 5:29 PM |
| 21 | 25411 | 6/25/2021 2:55 PM |
| 22 | 25411 | 6/25/2021 6:55 AM |
| 23 | 25411 | 6/25/2021 6:54 AM |
| 24 | 25427 | 6/24/2021 8:56 PM |
| 25 | 25401 | 6/24/2021 3:14 PM |
| 26 | 25403 | 6/24/2021 2:40 PM |
| 27 | 25411 | 6/24/2021 2:03 PM |
| 28 | 25403 | 6/24/2021 1:23 PM |
| 29 | 25405 | 6/24/2021 12:14 PM |
| 30 | 25401 | 6/23/2021 7:31 PM |
| 31 | 25411 | 6/23/2021 6:53 PM |
| 32 | 25411 | 6/23/2021 3:40 PM |
| 33 | 25401 | 6/23/2021 3:32 PM |

| | | |
|---|---|---|
| 34 | 25401 | 6/23/2021 2:08 PM |
| 35 | 25411 | 6/23/2021 11:46 AM |
| 36 | 25411 | 6/23/2021 8:32 AM |
| 37 | 25403 | 6/23/2021 7:43 AM |
| 38 | 25404 | 6/22/2021 9:55 PM |
| 39 | 25420 | 6/22/2021 6:53 PM |
| 40 | 25411 | 6/22/2021 3:50 PM |
| 41 | 25411 | 6/22/2021 2:50 PM |
| 42 | 25401 | 6/22/2021 1:06 PM |
| 43 | 25403 | 6/22/2021 12:56 PM |
| 44 | 25434 | 6/22/2021 12:03 PM |
| 45 | 25401 | 6/22/2021 10:58 AM |
| 46 | 25403 | 6/22/2021 10:25 AM |
| 47 | 25428 | 6/22/2021 10:11 AM |
| 48 | 25405 | 6/22/2021 9:42 AM |
| 49 | 25427 | 6/22/2021 9:33 AM |
| 50 | 25401 | 6/22/2021 9:12 AM |
| 51 | 25401 | 6/22/2021 8:55 AM |
| 52 | 25401 | 6/22/2021 8:24 AM |
| 53 | 25401 | 6/22/2021 8:17 AM |
| 54 | 25411 | 6/21/2021 10:50 PM |
| 55 | 25401 | 6/21/2021 10:24 PM |
| 56 | 25411 | 6/21/2021 8:39 PM |
| 57 | 25401 | 6/21/2021 7:47 PM |
| 58 | 25427 | 6/21/2021 7:02 PM |
| 59 | 25411 | 6/21/2021 3:51 PM |
| 60 | 25401 | 6/21/2021 3:34 PM |
| 61 | 25414 | 6/21/2021 1:58 PM |
| 62 | 25428 | 6/21/2021 1:08 PM |
| 63 | 25427 | 6/21/2021 9:26 AM |
| 64 | 25411 | 6/21/2021 8:55 AM |
| 65 | 25428 | 6/21/2021 8:43 AM |
| 66 | 25413 | 6/21/2021 8:35 AM |
| 67 | 25411 | 6/21/2021 8:19 AM |
| 68 | 25411 | 6/21/2021 8:12 AM |
| 69 | 25419 | 6/21/2021 6:54 AM |
| 70 | 25427 | 6/21/2021 6:49 AM |
| 71 | 25405 | 6/20/2021 7:33 PM |

| | | |
|---|---|---|
| 72 | 25402 | 6/20/2021 6:17 PM |
| 73 | 25420 | 6/20/2021 6:01 PM |
| 74 | 25404 | 6/20/2021 5:44 PM |
| 75 | 25401 | 6/20/2021 5:12 PM |
| 76 | 25411 | 6/20/2021 5:04 PM |
| 77 | 25419 | 6/20/2021 4:56 PM |
| 78 | 25404 | 6/20/2021 4:08 PM |
| 79 | 25405 | 6/20/2021 4:00 PM |
| 80 | 25401 | 6/20/2021 2:28 PM |
| 81 | 25403 | 6/20/2021 2:07 PM |
| 82 | 25401 | 6/20/2021 8:28 AM |
| 83 | 25401 | 6/20/2021 8:01 AM |
| 84 | 25403 | 6/20/2021 7:57 AM |
| 85 | 25404 | 6/20/2021 6:23 AM |
| 86 | 25401 | 6/19/2021 6:53 PM |
| 87 | 25405 | 6/19/2021 5:09 PM |
| 88 | 25428 | 6/19/2021 1:49 PM |
| 89 | 25401 | 6/19/2021 12:55 PM |
| 90 | 25404 | 6/19/2021 12:43 PM |
| 91 | 25428 | 6/19/2021 12:43 PM |
| 92 | 25403 | 6/19/2021 12:38 PM |
| 93 | 25404 | 6/19/2021 12:17 PM |
| 94 | 25405 | 6/19/2021 10:09 AM |
| 95 | 25403 | 6/19/2021 10:04 AM |
| 96 | 25427 | 6/19/2021 9:41 AM |
| 97 | 25401 | 6/19/2021 9:33 AM |
| 98 | 25403 | 6/19/2021 9:31 AM |
| 99 | 25410 | 6/19/2021 9:19 AM |
| 100 | 25413 | 6/19/2021 9:02 AM |
| 101 | 25428 | 6/19/2021 8:02 AM |
| 102 | 25415 | 6/19/2021 7:39 AM |
| 103 | 25404 | 6/19/2021 7:27 AM |
| 104 | 25427 | 6/19/2021 7:15 AM |
| 105 | 25428 | 6/19/2021 7:01 AM |
| 106 | 25427 | 6/19/2021 6:49 AM |
| 107 | 25401 | 6/19/2021 6:12 AM |
| 108 | 25438 | 6/19/2021 3:41 AM |
| 109 | 25427 | 6/18/2021 11:18 PM |

| | | |
|---|---|---|
| 110 | 25401 | 6/18/2021 11:13 PM |
| 111 | 25405 | 6/18/2021 10:48 PM |
| 112 | 25403 | 6/18/2021 10:29 PM |
| 113 | 25427 | 6/18/2021 9:56 PM |
| 114 | 25404 | 6/18/2021 9:47 PM |
| 115 | 25401 | 6/18/2021 9:44 PM |
| 116 | 25405 | 6/18/2021 9:38 PM |
| 117 | 25428 | 6/18/2021 9:27 PM |
| 118 | 25430 | 6/18/2021 9:24 PM |
| 119 | 25428 | 6/18/2021 9:06 PM |
| 120 | 25427 | 6/18/2021 8:58 PM |
| 121 | 25405 | 6/18/2021 8:52 PM |
| 122 | 25412 | 6/18/2021 8:42 PM |
| 123 | 25405 | 6/18/2021 8:22 PM |
| 124 | 25403 | 6/18/2021 8:22 PM |
| 125 | 25404 | 6/18/2021 8:15 PM |
| 126 | 25405 | 6/18/2021 7:57 PM |
| 127 | 25401 | 6/18/2021 7:06 PM |
| 128 | 25401 | 6/18/2021 6:59 PM |
| 129 | 25401 | 6/18/2021 6:49 PM |
| 130 | 25404 | 6/18/2021 6:44 PM |
| 131 | 25413 | 6/18/2021 6:41 PM |
| 132 | 25430 | 6/18/2021 6:14 PM |
| 133 | 25443 | 6/18/2021 6:10 PM |
| 134 | 25401 | 6/18/2021 6:10 PM |
| 135 | 25404 | 6/18/2021 6:09 PM |
| 136 | 25411 | 6/18/2021 6:03 PM |
| 137 | 25403 | 6/18/2021 6:00 PM |
| 138 | 25404 | 6/18/2021 5:59 PM |
| 139 | 25419 | 6/18/2021 5:58 PM |
| 140 | 25405 | 6/18/2021 5:55 PM |
| 141 | 25404 | 6/18/2021 5:53 PM |
| 142 | 25420 | 6/18/2021 5:49 PM |
| 143 | 25401 | 6/18/2021 5:46 PM |
| 144 | 25401 | 6/18/2021 5:46 PM |
| 145 | 25405 | 6/18/2021 5:43 PM |
| 146 | 25401 | 6/18/2021 5:43 PM |
| 147 | 25401 | 6/18/2021 5:40 PM |

| | | |
|---|---|---|
| 148 | 25402 | 6/18/2021 5:33 PM |
| 149 | 25430 | 6/18/2021 5:23 PM |
| 150 | 25405 | 6/18/2021 5:22 PM |
| 151 | 25405 | 6/18/2021 5:11 PM |
| 152 | 26404 | 6/18/2021 5:09 PM |
| 153 | 25405 | 6/18/2021 5:05 PM |
| 154 | 25404 | 6/18/2021 5:02 PM |
| 155 | 25403 | 6/18/2021 5:00 PM |
| 156 | 25403 | 6/18/2021 4:59 PM |
| 157 | 25401 | 6/18/2021 4:58 PM |
| 158 | 25413 | 6/18/2021 4:53 PM |
| 159 | 25403 | 6/18/2021 4:53 PM |
| 160 | 25405 | 6/18/2021 4:49 PM |
| 161 | 25427 | 6/18/2021 4:44 PM |
| 162 | 25401 | 6/18/2021 4:44 PM |
| 163 | 25404 | 6/18/2021 4:42 PM |
| 164 | 25404 | 6/18/2021 4:40 PM |
| 165 | 25405 | 6/18/2021 4:36 PM |
| 166 | 25403 | 6/18/2021 4:35 PM |
| 167 | 25404 | 6/18/2021 4:31 PM |
| 168 | 25401 | 6/18/2021 4:28 PM |
| 169 | 25428 | 6/18/2021 4:25 PM |
| 170 | 25404 | 6/18/2021 4:25 PM |
| 171 | 25405 | 6/18/2021 4:20 PM |
| 172 | 25419 | 6/18/2021 4:20 PM |
| 173 | 25428 | 6/18/2021 4:20 PM |
| 174 | 25405 | 6/18/2021 4:18 PM |
| 175 | 25405 | 6/18/2021 4:17 PM |
| 176 | 25405 | 6/18/2021 4:17 PM |
| 177 | 25405 | 6/18/2021 4:17 PM |
| 178 | 25420 | 6/18/2021 4:16 PM |
| 179 | 25401 | 6/18/2021 4:11 PM |
| 180 | 25428 | 6/18/2021 4:10 PM |
| 181 | 25401 | 6/18/2021 4:10 PM |
| 182 | 25403 | 6/18/2021 4:04 PM |
| 183 | 25403 | 6/18/2021 4:00 PM |
| 184 | 25401 | 6/18/2021 3:58 PM |
| 185 | 25401 | 6/18/2021 3:57 PM |

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|---|---|---|
| 186 | 25419 | 6/18/2021 3:55 PM |
| 187 | 25405 | 6/18/2021 3:51 PM |
| 188 | 25427 | 6/18/2021 3:51 PM |
| 189 | 25401 | 6/18/2021 3:51 PM |
| 190 | 25427 | 6/18/2021 3:51 PM |
| 191 | 25404 | 6/18/2021 3:48 PM |
| 192 | 25428 | 6/18/2021 3:48 PM |
| 193 | 25401 | 6/18/2021 3:48 PM |
| 194 | 25427 | 6/18/2021 3:48 PM |
| 195 | 25401 | 6/18/2021 3:47 PM |
| 196 | 25401 | 6/18/2021 3:46 PM |
| 197 | 25401 | 6/18/2021 3:45 PM |
| 198 | 25401 | 6/18/2021 3:44 PM |
| 199 | 25419 | 6/18/2021 3:44 PM |
| 200 | 25403 | 6/18/2021 3:44 PM |
| 201 | 25428 | 6/18/2021 3:43 PM |
| 202 | 25413 | 6/18/2021 3:43 PM |
| 203 | 25401 | 6/18/2021 3:43 PM |
| 204 | 25401 | 6/18/2021 3:42 PM |
| 205 | 25401 | 6/18/2021 3:42 PM |
| 206 | 25427 | 6/18/2021 3:42 PM |
| 207 | 25420 | 6/18/2021 3:40 PM |
| 208 | 25428 | 6/18/2021 3:40 PM |
| 209 | 25428 | 6/18/2021 3:38 PM |
| 210 | 25401 | 6/18/2021 3:38 PM |
| 211 | 25401 | 6/18/2021 3:37 PM |
| 212 | 25428 | 6/18/2021 3:36 PM |
| 213 | 25427 | 6/18/2021 3:36 PM |
| 214 | 25401 | 6/18/2021 3:34 PM |
| 215 | 25427 | 6/18/2021 3:34 PM |
| 216 | 25405 | 6/18/2021 3:34 PM |
| 217 | 25401 | 6/18/2021 3:33 PM |
| 218 | 25430 | 6/18/2021 3:30 PM |
| 219 | 25428 | 6/18/2021 3:30 PM |
| 220 | 25427 | 6/18/2021 3:30 PM |
| 221 | 25403 | 6/18/2021 3:29 PM |
| 222 | 25428 | 6/18/2021 3:28 PM |
| 223 | 25491 | 6/18/2021 3:28 PM |

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|---|---|---|
| 224 | 25404 | 6/18/2021 3:25 PM |
| 225 | 25405 | 6/18/2021 3:23 PM |
| 226 | 25428 | 6/18/2021 3:22 PM |
| 227 | 25401 | 6/18/2021 3:22 PM |
| 228 | 25401 | 6/18/2021 3:21 PM |
| 229 | 25411 | 6/18/2021 3:21 PM |
| 230 | 25404 | 6/18/2021 3:21 PM |
| 231 | 25428 | 6/18/2021 3:20 PM |
| 232 | 25430 | 6/18/2021 3:18 PM |
| 233 | 25401 | 6/18/2021 3:18 PM |
| 234 | 25405 | 6/18/2021 3:18 PM |
| 235 | 25404 | 6/18/2021 3:18 PM |
| 236 | 25401 | 6/18/2021 3:17 PM |
| 237 | 25405 | 6/18/2021 3:16 PM |
| 238 | 25401 | 6/18/2021 3:16 PM |
| 239 | 25403 | 6/18/2021 3:16 PM |
| 240 | 25405 | 6/18/2021 3:15 PM |
| 241 | 25401 | 6/18/2021 3:14 PM |
| 242 | 25411 | 6/18/2021 3:14 PM |
| 243 | 25428 | 6/18/2021 3:13 PM |
| 244 | 25405 | 6/18/2021 3:13 PM |
| 245 | 25401 | 6/18/2021 3:13 PM |
| 246 | 25428 | 6/18/2021 3:13 PM |
| 247 | 25428 | 6/18/2021 3:12 PM |
| 248 | 25404 | 6/18/2021 3:12 PM |
| 249 | 25402 | 6/18/2021 3:12 PM |
| 250 | 25427 | 6/18/2021 3:12 PM |
| 251 | 25427 | 6/18/2021 3:12 PM |
| 252 | 25401 | 6/18/2021 3:11 PM |
| 253 | 25411 | 6/18/2021 3:11 PM |
| 254 | 25401 | 6/18/2021 3:11 PM |
| 255 | 25401 | 6/18/2021 3:11 PM |
| 256 | 25428 | 6/18/2021 3:10 PM |
| 257 | 25403 | 6/18/2021 3:10 PM |
| 258 | 22601 | 6/18/2021 3:10 PM |
| 259 | 25405 | 6/18/2021 3:09 PM |
| 260 | 25401 | 6/18/2021 3:09 PM |
| 261 | 25401 | 6/18/2021 3:09 PM |

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|---|---|---|
| 262 | 255288 | 6/18/2021 3:09 PM |
| 263 | 25404 | 6/18/2021 3:09 PM |
| 264 | 25401 | 6/18/2021 3:09 PM |
| 265 | 25403 | 6/18/2021 3:09 PM |
| 266 | 25427 | 6/18/2021 3:09 PM |
| 267 | 25401 | 6/18/2021 3:08 PM |
| 268 | 25401 | 6/18/2021 3:08 PM |
| 269 | 25305 | 6/18/2021 3:08 PM |
| 270 | 25427 | 6/18/2021 3:08 PM |
| 271 | 25428 | 6/18/2021 3:08 PM |
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| 275 | 25428 | 6/18/2021 3:08 PM |
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| 280 | 25430 | 6/18/2021 3:07 PM |
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| 282 | 25404 | 6/18/2021 3:07 PM |
| 283 | 25403 | 6/18/2021 3:07 PM |
| 284 | 25405 | 6/18/2021 3:07 PM |
| 285 | 25401 | 6/18/2021 3:06 PM |
| 286 | 25404 | 6/18/2021 3:06 PM |
| 287 | 25401 | 6/18/2021 3:06 PM |
| 288 | 25403 | 6/18/2021 3:06 PM |
| 289 | 25405 | 6/18/2021 3:06 PM |
| 290 | 25405 | 6/18/2021 3:06 PM |
| 291 | 25405 | 6/18/2021 3:06 PM |
| 292 | 25401 | 6/18/2021 3:06 PM |
| 293 | 25428 | 6/18/2021 3:06 PM |
| 294 | 25405 | 6/18/2021 3:06 PM |
| 295 | 25401 | 6/18/2021 3:06 PM |
| 296 | 25430 | 6/18/2021 3:06 PM |
| 297 | 25405 | 6/18/2021 3:06 PM |
| 298 | 25427 | 6/18/2021 3:06 PM |
| 299 | 25401 | 6/18/2021 3:06 PM |

| | | |
|---|---|---|
| 300 | 25401 | 6/18/2021 3:06 PM |
| 301 | 25401 | 6/18/2021 3:06 PM |
| 302 | 25405 | 6/18/2021 3:06 PM |
| 303 | 25401 | 6/18/2021 3:06 PM |
| 304 | 25401 | 6/18/2021 3:05 PM |
| 305 | 25404 | 6/18/2021 3:05 PM |
| 306 | 25403 | 6/18/2021 3:05 PM |
| 307 | 25428 | 6/18/2021 3:05 PM |
| 308 | 25401 | 6/18/2021 3:05 PM |
| 309 | 25401 | 6/18/2021 3:05 PM |
| 310 | 25405 | 6/18/2021 3:05 PM |
| 311 | 25401 | 6/18/2021 3:05 PM |
| 312 | 25405 | 6/18/2021 3:05 PM |
| 313 | 25405 | 6/18/2021 3:05 PM |
| 314 | 25404 | 6/18/2021 3:05 PM |
| 315 | 25413 | 6/18/2021 3:05 PM |
| 316 | 25403 | 6/18/2021 3:05 PM |
| 317 | 25401 | 6/18/2021 3:04 PM |
| 318 | 25430 | 6/18/2021 3:04 PM |
| 319 | 25401 | 6/18/2021 3:04 PM |
| 320 | 25404 | 6/18/2021 3:04 PM |
| 321 | 25401 | 6/18/2021 3:04 PM |
| 322 | 25403 | 6/18/2021 3:04 PM |
| 323 | 25401 | 6/18/2021 3:03 PM |
| 324 | 25428 | 6/18/2021 12:34 PM |
| 325 | 25411 | 6/18/2021 11:47 AM |
| 326 | 25405 | 6/18/2021 10:48 AM |
| 327 | 25401 | 6/18/2021 9:27 AM |
| 328 | 25405 | 6/18/2021 8:02 AM |
| 329 | 25404 | 6/18/2021 1:49 AM |
| 330 | 25411 | 6/17/2021 9:37 PM |
| 331 | 25401 | 6/17/2021 9:15 PM |
| 332 | 25411 | 6/17/2021 8:24 PM |
| 333 | 25401 | 6/17/2021 5:47 PM |
| 334 | 25401 | 6/17/2021 4:47 PM |
| 335 | 25411 | 6/17/2021 4:42 PM |
| 336 | 25411 | 6/17/2021 3:58 PM |
| 337 | 25434 | 6/17/2021 2:44 PM |

| | | |
|---|---|---|
| 338 | 25411 | 6/17/2021 1:24 PM |
| 339 | 25411 | 6/17/2021 1:02 PM |
| 340 | 25422 | 6/17/2021 12:55 PM |
| 341 | 25411 | 6/17/2021 12:02 PM |
| 342 | 25401 | 6/17/2021 10:27 AM |
| 343 | 25420 | 6/17/2021 5:46 AM |
| 344 | 25411 | 6/16/2021 11:29 PM |
| 345 | 25411 | 6/16/2021 10:59 PM |
| 346 | 25428 | 6/16/2021 10:34 PM |
| 347 | 25427 | 6/16/2021 8:55 PM |
| 348 | 25405 | 6/16/2021 7:49 PM |
| 349 | 25411 | 6/16/2021 7:17 PM |
| 350 | 25411 | 6/16/2021 6:45 PM |
| 351 | 25403 | 6/16/2021 6:42 PM |
| 352 | 25411 | 6/16/2021 5:37 PM |
| 353 | 25411 | 6/16/2021 5:06 PM |
| 354 | 25411 | 6/16/2021 4:44 PM |
| 355 | 25411 | 6/16/2021 4:33 PM |
| 356 | 25401 | 6/16/2021 4:16 PM |
| 357 | 25411 | 6/16/2021 3:43 PM |
| 358 | 25427 | 6/16/2021 3:33 PM |
| 359 | 25411 | 6/16/2021 3:16 PM |
| 360 | 25411 | 6/16/2021 3:11 PM |
| 361 | 25405 | 6/16/2021 2:49 PM |
| 362 | 25411 | 6/16/2021 2:48 PM |
| 363 | 25411 | 6/16/2021 2:48 PM |
| 364 | 25411 | 6/16/2021 2:25 PM |
| 365 | 25411 | 6/16/2021 2:21 PM |
| 366 | 25411 | 6/16/2021 1:59 PM |
| 367 | 25411 | 6/16/2021 1:49 PM |
| 368 | 25411 | 6/16/2021 1:49 PM |
| 369 | 25411 | 6/16/2021 1:47 PM |
| 370 | 25411 | 6/16/2021 1:43 PM |
| 371 | 25411 | 6/16/2021 1:38 PM |
| 372 | 25411 | 6/16/2021 1:38 PM |
| 373 | 25411 | 6/16/2021 1:35 PM |
| 374 | 25405 | 6/16/2021 1:29 PM |
| 375 | 25401 | 6/16/2021 12:16 PM |

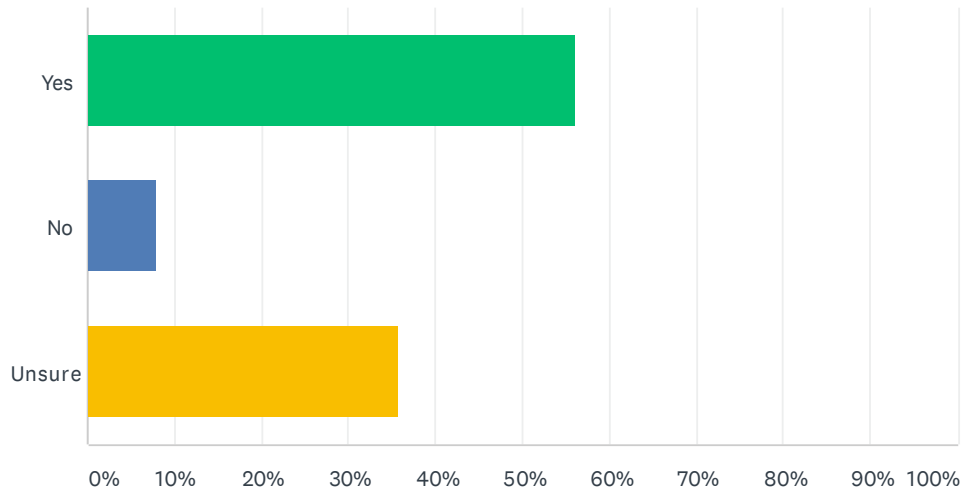
| | | |
|---|---|---|
| 376 | 25401 | 6/16/2021 12:01 PM |
| 377 | 25411 | 6/16/2021 11:58 AM |
| 378 | 25411 | 6/16/2021 11:45 AM |
| 379 | 25401 | 6/16/2021 11:26 AM |
| 380 | 25411 | 6/16/2021 10:37 AM |
| 381 | 25411 | 6/16/2021 10:08 AM |
| 382 | 25401 | 6/16/2021 10:00 AM |
| 383 | 25401 | 6/16/2021 9:41 AM |
| 384 | 25401 | 6/16/2021 9:30 AM |
| 385 | 25411 | 6/16/2021 9:19 AM |
| 386 | 25402 | 6/16/2021 9:13 AM |
| 387 | 25411 | 6/16/2021 9:08 AM |
| 388 | 25411 | 6/16/2021 9:07 AM |
| 389 | 25401 | 6/16/2021 8:52 AM |
| 390 | 25411 | 6/16/2021 8:48 AM |
| 391 | 25401 | 6/16/2021 8:40 AM |
| 392 | 25401 | 6/16/2021 8:29 AM |
| 393 | 25401 | 6/16/2021 8:25 AM |
| 394 | 25401 | 6/16/2021 8:21 AM |
| 395 | 25401 | 6/16/2021 8:18 AM |
| 396 | 25427 | 6/16/2021 8:17 AM |
| 397 | 25401 | 6/16/2021 8:13 AM |
| 398 | 25401 | 6/16/2021 8:06 AM |
| 399 | 25401 | 6/16/2021 8:05 AM |
| 400 | 25401 | 6/16/2021 8:03 AM |
| 401 | 25411 | 6/16/2021 8:00 AM |
| 402 | 25401 | 6/16/2021 7:55 AM |
| 403 | 25401 | 6/16/2021 7:49 AM |
| 404 | 25401 | 6/16/2021 7:43 AM |
| 405 | 25401 | 6/16/2021 7:43 AM |
| 406 | 25411 | 6/16/2021 7:43 AM |
| 407 | 25411 | 6/16/2021 7:38 AM |
| 408 | 25401 | 6/16/2021 7:26 AM |
| 409 | 25428 | 6/16/2021 7:06 AM |
| 410 | 25411 | 6/16/2021 6:56 AM |
| 411 | 25427 | 6/16/2021 6:28 AM |
| 412 | All over the county | 6/16/2021 6:24 AM |
| 413 | 25427 | 6/16/2021 6:20 AM |

| | | |
|---|---|---|
| 414 | 25411 | 6/16/2021 6:13 AM |
| 415 | 25406/5 | 6/16/2021 6:11 AM |
| 416 | 25405 | 6/16/2021 6:00 AM |
| 417 | 25411 | 6/16/2021 4:47 AM |
| 418 | 25401 | 6/16/2021 4:19 AM |
| 419 | 25401 | 6/16/2021 3:52 AM |
| 420 | 25401 | 6/16/2021 1:30 AM |
| 421 | 25401 | 6/16/2021 1:02 AM |
| 422 | 25405 | 6/15/2021 11:32 PM |
| 423 | 25403 | 6/15/2021 10:57 PM |
| 424 | 25411 | 6/15/2021 10:40 PM |
| 425 | 25404 | 6/15/2021 10:17 PM |
| 426 | 25434 | 6/15/2021 9:33 PM |
| 427 | 25403 | 6/15/2021 9:31 PM |
| 428 | 25401 | 6/15/2021 9:05 PM |
| 429 | 25401 | 6/15/2021 9:03 PM |
| 430 | 25419 | 6/15/2021 8:48 PM |
| 431 | 26411 | 6/15/2021 8:13 PM |
| 432 | 25403 | 6/15/2021 8:12 PM |
| 433 | 25405 | 6/15/2021 8:02 PM |
| 434 | 25401 | 6/15/2021 7:59 PM |
| 435 | 25492 | 6/15/2021 7:47 PM |
| 436 | 25404 | 6/15/2021 7:35 PM |
| 437 | 25413 | 6/15/2021 7:35 PM |
| 438 | 25411 | 6/15/2021 7:24 PM |
| 439 | 25401 | 6/15/2021 7:12 PM |
| 440 | 25402 | 6/15/2021 7:06 PM |
| 441 | 25401 | 6/15/2021 6:57 PM |
| 442 | 25401 | 6/15/2021 6:40 PM |
| 443 | 25403 | 6/15/2021 6:39 PM |
| 444 | 25413 | 6/15/2021 6:39 PM |
| 445 | 25401 | 6/15/2021 6:36 PM |
| 446 | 25401 | 6/15/2021 4:52 PM |
| 447 | 25411 | 6/15/2021 4:19 PM |
| 448 | 25411 | 6/15/2021 3:59 PM |
| 449 | 25401 | 6/15/2021 3:51 PM |
| 450 | 25402 | 6/15/2021 3:42 PM |
| 451 | 25401 | 6/15/2021 3:41 PM |

| | | |
|---|---|---|
| 452 | 25401 | 6/15/2021 3:36 PM |
| 453 | 25401 | 6/15/2021 3:28 PM |
| 454 | 25411 | 6/15/2021 3:10 PM |
| 455 | 25401 | 6/15/2021 3:07 PM |
| 456 | 25427 | 6/15/2021 3:01 PM |
| 457 | 25404 | 6/15/2021 3:00 PM |
| 458 | 21740 | 6/15/2021 2:22 PM |

# Q14 Does your employer have a plan for disaster recovery in place?

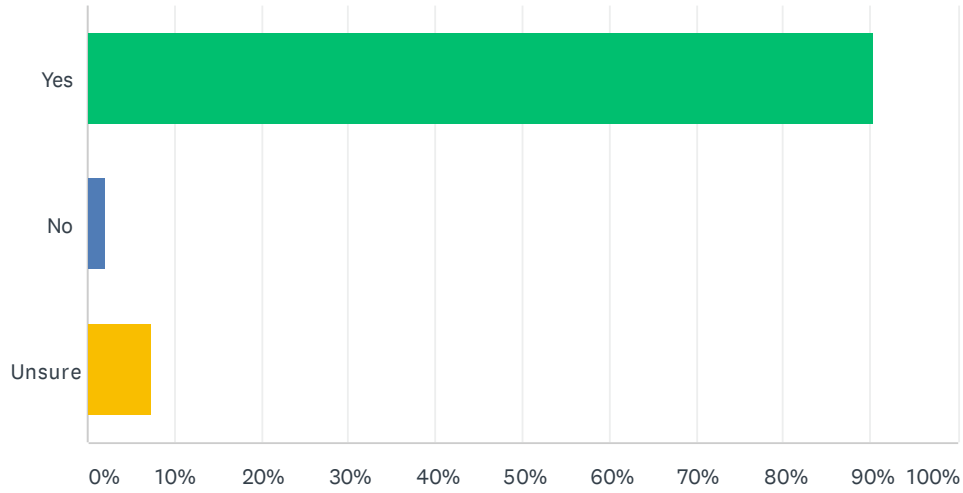
Answered: 460 Skipped: 434




| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Yes | 56.09% | 258 |
| No | 8.04% | 37 |
| Unsure | 35.87% | 165 |
| TOTAL | | 460 |

# Q15 Does your employer have a means of getting in touch with you following a disaster?

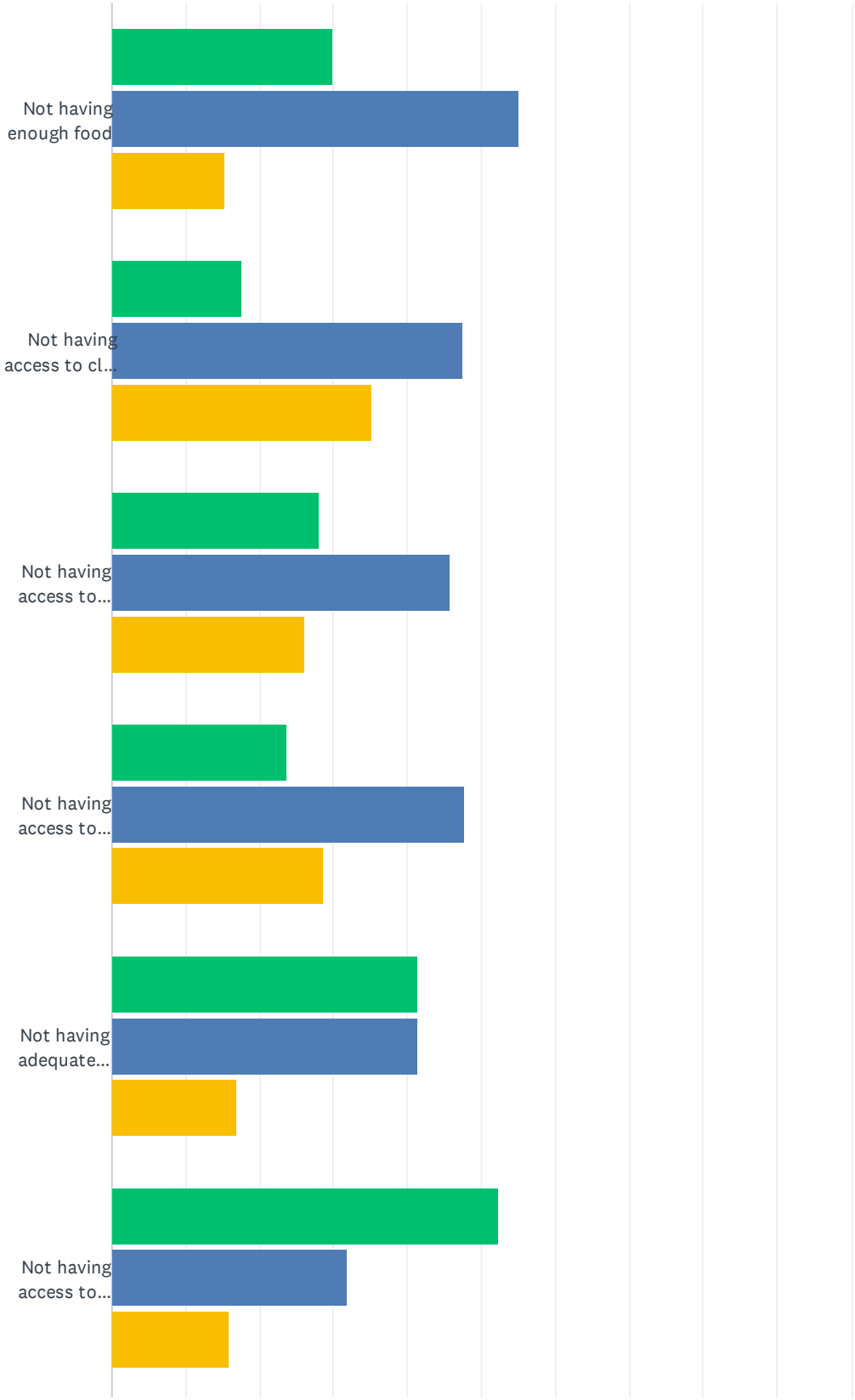
Answered: 459 Skipped: 435

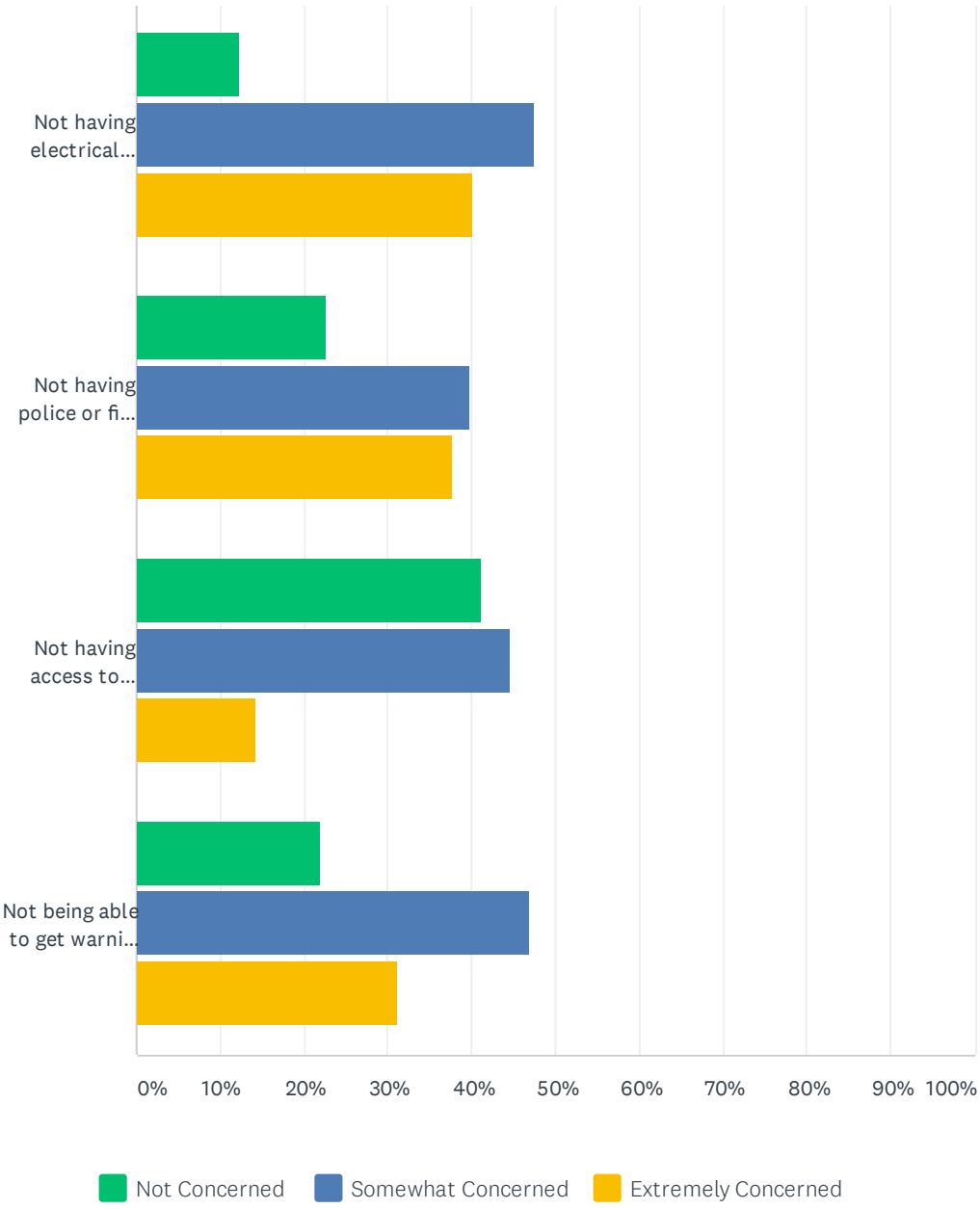



| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Yes | 90.41% | 415 |
| No | 2.18% | 10 |
| Unsure | 7.41% | 34 |
| TOTAL | | 459 |

# Q16 How concerned are you about the following effects of natural hazards?

Answered: 816 Skipped: 78

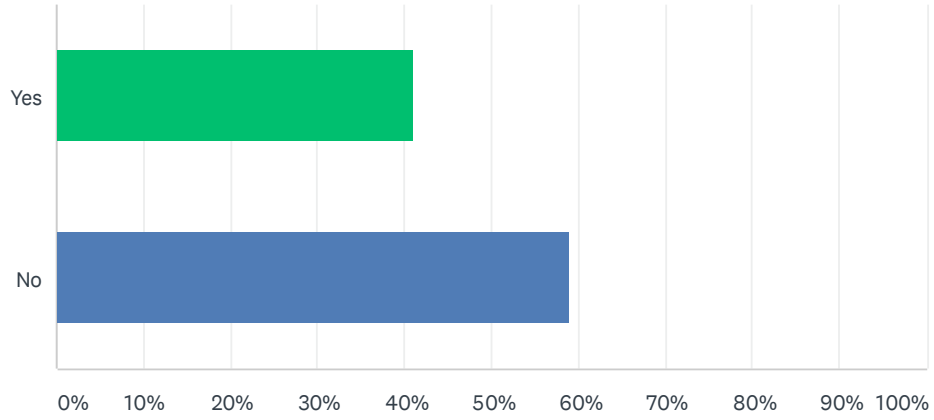



Not having electrical...
Not having police or fi...
Not having access to...
Not being able to get warni...
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Not Concerned
Somewhat Concerned
Extremely Concerned

| | NOT CONCERNED | SOMEWHAT CONCERNED | EXTREMELY CONCERNED | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|
| Not having enough food | 29.82%<br>243 | 54.97%<br>448 | 15.21%<br>124 | 815 | 1.85 |
| Not having access to clean water | 17.49%<br>142 | 47.41%<br>385 | 35.10%<br>285 | 812 | 2.18 |
| Not having access to required medicine | 27.96%<br>227 | 45.81%<br>372 | 26.23%<br>213 | 812 | 1.98 |
| Not having access to medical services | 23.59%<br>192 | 47.67%<br>388 | 28.75%<br>234 | 814 | 2.05 |
| Not having adequate shelter | 41.52%<br>338 | 41.52%<br>338 | 16.95%<br>138 | 814 | 1.75 |
| Not having access to transportation in the event of evacuation | 52.40%<br>426 | 31.73%<br>258 | 15.87%<br>129 | 813 | 1.63 |
| Not having electrical power for an extended time | 12.38%<br>101 | 47.55%<br>388 | 40.07%<br>327 | 816 | 2.28 |
| Not having police or fire protection | 22.51%<br>183 | 39.85%<br>324 | 37.64%<br>306 | 813 | 2.15 |
| Not having access to community services | 41.21%<br>335 | 44.53%<br>362 | 14.27%<br>116 | 813 | 1.73 |
| Not being able to get warning messages or other information regarding the hazard | 21.99%<br>179 | 46.93%<br>382 | 31.08%<br>253 | 814 | 2.09 |

# Q17 Do you have an emergency/disaster response kit?

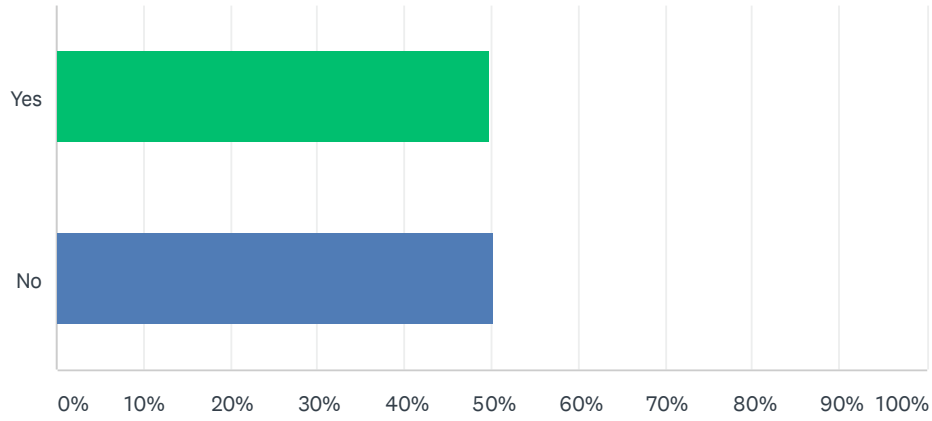
Answered: 813 Skipped: 81




| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Yes | 41.08% | 334 |
| No | 58.92% | 479 |
| TOTAL | | 813 |

# Q18 Would you like information on how to assemble an emergency/disaster response kit?

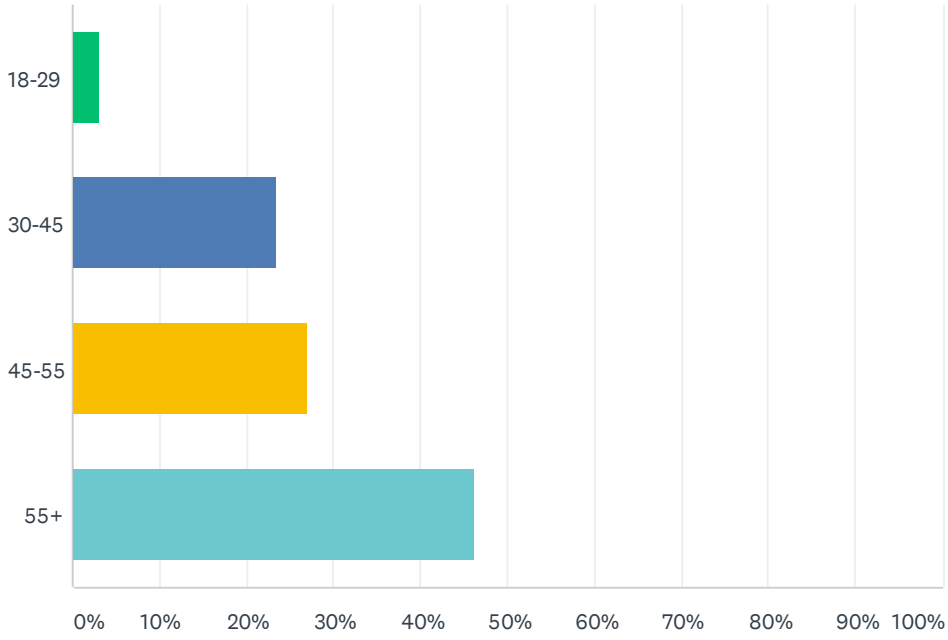
Answered: 809 Skipped: 85




| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Yes | 49.81% | 403 |
| No | 50.19% | 406 |
| TOTAL | | 809 |

# Q19 Please indicate your age.

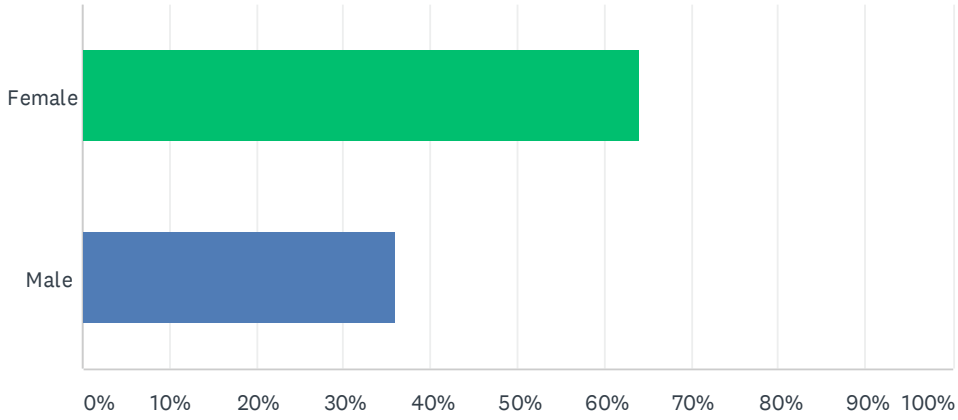
Answered: 816 Skipped: 78




| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| 18-29 | 3.19% | 26 |
| 30-45 | 23.53% | 192 |
| 45-55 | 26.96% | 220 |
| 55+ | 46.32% | 378 |
| TOTAL | | 816 |

# Q20 Gender

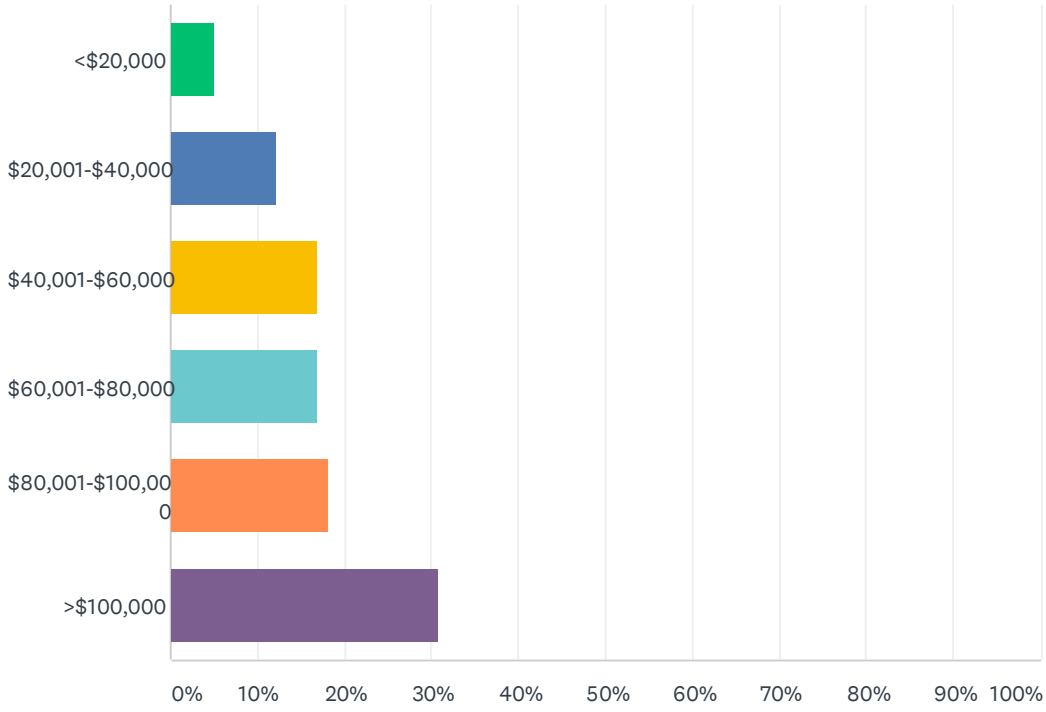
Answered: 810 Skipped: 84




| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Female | 63.95% | 518 |
| Male | 36.05% | 292 |
| TOTAL | | 810 |

# Q21 Please indicate your household income.

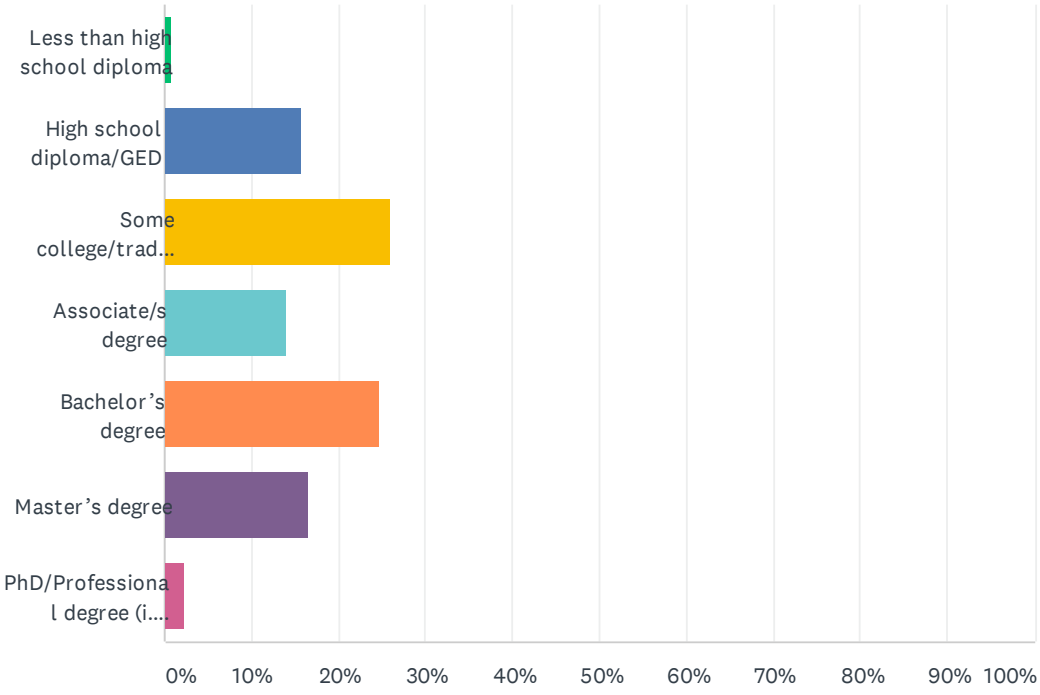
Answered: 763 Skipped: 131




| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| <$20,000 | 5.11% | 39 |
| $20,001-$40,000 | 12.06% | 92 |
| $40,001-$60,000 | 17.04% | 130 |
| $60,001-$80,000 | 16.91% | 129 |
| $80,001-$100,000 | 18.22% | 139 |
| >$100,000 | 30.67% | 234 |
| TOTAL | | 763 |

# Q22 Please indicate your level of education.

Answered: 803 Skipped: 91




| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Less than high school diploma | 0.87% | 7 |
| High school diploma/GED | 15.69% | 126 |
| Some college/trade school | 25.90% | 208 |
| Associate/s degree | 14.07% | 113 |
| Bachelor's degree | 24.66% | 198 |
| Master's degree | 16.56% | 133 |
| PhD/Professional degree (i.e. JD, MD) | 2.24% | 18 |
| TOTAL | | 803 |

# Q23 What is one action your community could take to reduce the long-term impact of disasters to the community?

Answered: 406 Skipped: 488

| # | RESPONSES | DATE |
|---|---|---|
| 1 | Help fix the areas of residents where it floods, groups get together and help them, some families could really use manpower help to fix areas of flooding, I myself could use help in that. | 7/15/2021 8:52 AM |
| 2 | Have a paid fire/rescue service that is guaranteed to respond and able to service on their arrival. Paid EMS that is currently established is great now need the fire to be the same way. | 7/7/2021 8:09 AM |
| 3 | Reduce carbon emissions. | 7/6/2021 6:40 AM |
| 4 | set up trash dumpster for paw paw residents | 7/2/2021 6:45 PM |
| 5 | plant more trees | 7/1/2021 7:13 PM |
| 6 | Continued discussion and long-term funding by each level of government. | 7/1/2021 2:57 PM |
| 7 | Ease of Information | 7/1/2021 9:24 AM |
| 8 | Fix the roads an emergency will create a massive jam just like it does every time there is an accident on 9 west. | 6/30/2021 7:02 PM |
| 9 | Better roads and storm water management at county cost not off the public | 6/30/2021 6:49 PM |
| 10 | Road maintenance | 6/30/2021 3:23 PM |
| 11 | this survey and a basic plan | 6/30/2021 2:14 PM |
| 12 | Provide broadband to everyone. And hire more paid fire fighters. | 6/30/2021 12:52 PM |
| 13 | WHERE ARE SHELTERS? | 6/29/2021 7:26 PM |
| 14 | Community preparation plan being mailed to all homes. | 6/29/2021 7:13 PM |
| 15 | Publish preparedness plans both at county/community level with detailed agency-internal plans and community-facing resources available at different levels of emergency. | 6/29/2021 10:28 AM |
| 16 | better roads | 6/29/2021 10:11 AM |
| 17 | Protect our electrical grid. | 6/28/2021 2:05 PM |
| 18 | community notification system and CERT team | 6/28/2021 1:24 PM |
| 19 | Check in center either in person or via website so that people can contact this site to check on loved ones or ask to be checked in on. | 6/28/2021 9:30 AM |
| 20 | More information to citizens | 6/27/2021 3:23 PM |
| 21 | Fix/upgrade roads | 6/27/2021 4:29 AM |
| 22 | Be better prepared | 6/27/2021 12:00 AM |
| 23 | The Elderly being well informed as most things are done over social media these days and some may not be tech savvy | 6/26/2021 2:42 PM |
| 24 | Warnings and preperation | 6/25/2021 7:48 PM |
| 25 | I really don't know. | 6/25/2021 2:26 PM |
| 26 | no glamping, strict fire codes regulations | 6/25/2021 12:34 PM |
| 27 | Provide matching funds for snap. Also help start and fund a local orchard | 6/25/2021 12:00 PM |

| | | |
|---|---|---|
| 28 | More transparency. PS THE LEAST THING IM WORRIED ABOUT: SOMEONE TAKING AWAY MY GUNS YOU IDIOTS. Way to play to your base. I think my reproductive rights are being threatened. That's a REAL threat. Next thing you know the prolife zealots are going to take away things like the morning after pill etc. WHAT ARE YOU GOING TO DO ABOUT THAT?!?! I demand you pass a resolution to protect that!!!! Damn maybe you guys have too much time on your hands. Pathetic machismo. Start wearing a codpiece if you're so afraid of people coming after your "guns." We all know this is about white male privilege. That's what your guns symbolize. My guns are to protect me from the white supremacists you're defending here. | 6/25/2021 9:24 AM |
| 29 | Keep roads open | 6/25/2021 8:44 AM |
| 30 | Preparation and communication | 6/25/2021 7:44 AM |
| 31 | Instruct people , through seminars, mailings, etc., how to be self sufficient in case of emergency. | 6/25/2021 7:32 AM |
| 32 | Public engagement | 6/25/2021 6:56 AM |
| 33 | Better communication of planning | 6/24/2021 11:53 PM |
| 34 | Community planning that is dispersed to the community ( with a utility bill to ensure it is seen?) not just posted online. | 6/24/2021 10:46 PM |
| 35 | Keeping upkeep on roads | 6/24/2021 8:58 PM |
| 36 | Make sure that logistics are regularly updated | 6/24/2021 3:18 PM |
| 37 | Support and educate individual and community resiliency in the event of prolonged utility disruption and supply chain collapse | 6/24/2021 2:10 PM |
| 38 | Infrastructure and road repair. Snow removal and treatment on ALL roads, not just some of the roads. Better communication with residents. | 6/24/2021 12:18 PM |
| 39 | Be prepared Be Proactive not Reactive | 6/24/2021 6:23 AM |
| 40 | Have supplies on hand (food, water) | 6/23/2021 7:44 PM |
| 41 | Fix the Warm Springs Run so it will not flood the schools and towns. | 6/23/2021 6:54 PM |
| 42 | Na | 6/23/2021 3:41 PM |
| 43 | Communities working together to build better infrastructure. | 6/23/2021 2:12 PM |
| 44 | Storm drains & monitor I81 for wreckless drivers | 6/22/2021 10:14 PM |
| 45 | Education | 6/22/2021 9:58 PM |
| 46 | Hiring more civil servants (LE, fire fighters, ambulance services, linemen, excavators, engineers, waste management, road crews, | 6/22/2021 9:35 PM |
| 47 | County providing adequate funding for police/fire/ems and water and sewer upgrades expansion | 6/22/2021 6:58 PM |
| 48 | More of a police presence in more areas. | 6/22/2021 4:39 PM |
| 49 | Better awareness/preparedness, more Law enforcement units and first responder teams, for urban/rural areas- A NEW and bigger hospital! As Berkeley Medical Hospital is frequently on code yellow to red at tines for treatment/bed capacity- ER wait times 4-5 hours, with critical care units full, either turning ambulatory patients away or taking them a distance to another hospital with room ( hopefully) . As well more stare patrol on out interstates - I-81 needs more patrol for speeders and drivers under the influence . I-81 at the WV/VA line has become "an epidemic" of accidents from speeders and unfinished roadway construction. | 6/22/2021 4:37 PM |
| 50 | Increase funding to services, involve community members in decision making | 6/22/2021 3:53 PM |
| 51 | Medicare for all | 6/22/2021 2:53 PM |
| 52 | Have laws to prohibit price gouging when items are in demand due to disaster. | 6/22/2021 1:12 PM |
| 53 | Education and fortification of at risk structures | 6/22/2021 12:21 PM |

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|---|---|---|
| 54 | Planning/communications | 6/22/2021 10:59 AM |
| 55 | Let the first responders, power company, and other utility companies get roads open before you go out | 6/22/2021 9:45 AM |
| 56 | Plan and money to accomplish it | 6/22/2021 8:58 AM |
| 57 | trash clean up | 6/22/2021 8:26 AM |
| 58 | Paid fire dept. Increase salary of law enforcement. | 6/21/2021 8:40 PM |
| 59 | Move all electric lines underground | 6/21/2021 4:27 PM |
| 60 | Knowledge and complete preparedness for such an occasion. | 6/21/2021 4:00 PM |
| 61 | Be prepared | 6/21/2021 3:36 PM |
| 62 | communication | 6/21/2021 1:09 PM |
| 63 | Better staffed and funded emergency services: Fire/EMS/Police | 6/21/2021 10:06 AM |
| 64 | Meetings | 6/21/2021 10:02 AM |
| 65 | Stop the gas pipelines | 6/21/2021 9:29 AM |
| 66 | consider alternative routes for transportation in/out of Morgan County and how to ensure food supplies are not disrupted. Increased communication via internet/cellphones/social media for emergencies/disasters | 6/21/2021 8:58 AM |
| 67 | Slow down the building of new subdivisions, till the roads and schools are larger and better. | 6/21/2021 8:48 AM |
| 68 | Educate the public about procedures that are to be taken by citizens. | 6/21/2021 8:37 AM |
| 69 | Better provide an effective police fire and rescue system volunteer departments are all but dead. You need to invest in a truly career fire and rescue system in Berkeley county. | 6/21/2021 8:25 AM |
| 70 | Flood prevention in town. Bypass around town | 6/21/2021 8:14 AM |
| 71 | Better infrastructure (particularly electric grid) protection. Both from physical damage and cyber attacks. | 6/21/2021 7:42 AM |
| 72 | Bigger hospital | 6/21/2021 6:57 AM |
| 73 | Better winter storm maintenance | 6/20/2021 7:36 PM |
| 74 | Local Office of Homeland Security could provide training sessions regarding these possibilities. | 6/20/2021 6:19 PM |
| 75 | Pre-planning workshops and TV news spots, cell phone alerts | 6/20/2021 5:51 PM |
| 76 | Hold the Berkeley county council accountable for funding allotted for such projects. So much money just seems to become lost and untraceable. | 6/20/2021 5:37 PM |
| 77 | Clean up wooded areas. | 6/20/2021 5:29 PM |
| 78 | Assess the type of risks and provide relevant info to residents. We are adjacent to SCWMA. | 6/20/2021 4:31 PM |
| 79 | Timely information | 6/20/2021 4:02 PM |
| 80 | Faster police emergency response | 6/20/2021 3:15 PM |
| 81 | Adequate wide spread alert system and system allowing responses for aid in case of disaster. | 6/20/2021 2:34 PM |
| 82 | Better warnings systems | 6/20/2021 2:30 PM |
| 83 | Enforce statutes already on the books re: fireworks and guns in residential areas. | 6/20/2021 11:37 AM |
| 84 | I’m not sure what plan is in place for natural disasters. Obviously covid rocked everyone’s community and you take orders top down for distribution of vaccines. I liked the drive through clinic since it was open after typical business hours | 6/20/2021 8:04 AM |
| 85 | Limit hi-density housing developments | 6/20/2021 7:48 AM |
| 86 | Have a action plan that is available to everyone. | 6/20/2021 6:27 AM |

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|---|---|---|
| 87 | Less housing developments. Better roads. More reliable internet. | 6/19/2021 10:53 PM |
| 88 | Update the internet service for the Mogan county area | 6/19/2021 8:01 PM |
| 89 | To be more observant of our area and do the best they can to communicate with neighboring communities/counties and emergency services to get updated information and what may happen in the future (looking for signs of future long-term impact disasters/pandemics. | 6/19/2021 5:19 PM |
| 90 | A reverse call system from the town to warn us. We had this when we lived in New Jersey. | 6/19/2021 4:01 PM |
| 91 | The HOA could hold a meeting to address this and make sure everyone has the kit and that each neighbor on both sides is aware of the needs of their other neighbor. | 6/19/2021 3:08 PM |
| 92 | Continuing, open communication through all available methods. | 6/19/2021 2:59 PM |
| 93 | Keeping everyone informed and update information frequently in a manner that is consistent and easily accessible. | 6/19/2021 1:47 PM |
| 94 | Better planning | 6/19/2021 1:09 PM |
| 95 | get community buy-in for any initiatives | 6/19/2021 12:58 PM |
| 96 | Sharing plans so the community knows what's next/how's things will be handled. Many folks are unaware | 6/19/2021 12:46 PM |
| 97 | More emergency planning in case of prolonged electrical outages. | 6/19/2021 12:43 PM |
| 98 | Prepare better | 6/19/2021 12:19 PM |
| 99 | More cell phone alerts. | 6/19/2021 11:48 AM |
| 100 | Get information out ASAP to as many people as possible. Alerts by means of phone, emails, then by radio, newspaper and tv. | 6/19/2021 11:41 AM |
| 101 | Small one lane bridge on Giles Mill Rd needs widening. Stopping at the bottom of the hill leading to it is difficult when snow and ice are present. | 6/19/2021 10:40 AM |
| 102 | Provide information to community residents. | 6/19/2021 10:39 AM |
| 103 | Get rid of or change Berkeley county water/sewer management. The water here is dangerous to public health. | 6/19/2021 10:35 AM |
| 104 | Being proactive in clearing trees which may be blown down and obstruct roads during weather related emergencies. | 6/19/2021 10:12 AM |
| 105 | County Council not having shady executive sessions where they put thieves in office | 6/19/2021 10:07 AM |
| 106 | Yearly updated disaster plans & contingency plans | 6/19/2021 10:01 AM |
| 107 | Better communication about the location of existing hazards and early systems to alert of events | 6/19/2021 9:51 AM |
| 108 | Assemble a reliable group of people with specific skill sets (tree removal, electrical, plows, plumbing etc) that ARE NOT employed by the state to be called upon in an emergency to assist until WV state roads etc can reach the more rural locations | 6/19/2021 9:45 AM |
| 109 | Have more warning (tornado type) sirens at the north end of the county.... we rely on the ones from Williamsport MD, because there are NONE in WV up here! | 6/19/2021 9:36 AM |
| 110 | 24-7 Career Fire, Rescue, Haz-Mat, and EMS. | 6/19/2021 9:35 AM |
| 111 | Roadway expansion. Every time there is a situation on 81 there is gridlock. | 6/19/2021 9:04 AM |
| 112 | Hurry up with the Route 9 bypass the road is dangerous as people drive far too fast | 6/19/2021 8:59 AM |
| 113 | Get the opoid and drug activity gone. Stop drug trafficking, move the drug and homeless out of the middle of the Martinsburg commercial district. Reduce drug crime, convict and jail criminals. | 6/19/2021 8:47 AM |
| 114 | Maintain sufficient food and water stores. | 6/19/2021 8:45 AM |
| 115 | Training citizens, ie....have an Active CERT program and let citizens learn and be involved | 6/19/2021 8:13 AM |

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|---|---|---|
| 116 | Build more access bridges for citizens living in remote areas who depend on a bridge for one way out of their neighborhood. | 6/19/2021 8:01 AM |
| 117 | Put the citizens of your count first not your political go along to get along crap because if u do the right thing for the people of your county than no matter the disaster everyone and everything will work out | 6/19/2021 7:47 AM |
| 118 | Make sure the bypass from Berkeley Springs/Hancock to Martinsburg is funded and GOES THRU. ROUTE 9 is TOO DANGEROUS!!! Also, make sure the satellite Hedgesville Fire Station on Mt. Lake Road becomes a fully functioning fire/ambulance station. MUCH NEEDED. | 6/19/2021 7:19 AM |
| 119 | ? | 6/19/2021 7:04 AM |
| 120 | better communication in a greater variety of ways. Not everyone has internet connection. Not everyone has cell phone, not everyone gets newspaper, etc. | 6/19/2021 7:00 AM |
| 121 | Not sure | 6/19/2021 6:50 AM |
| 122 | Keep tractor trailers out of downtown when accidents happen on the interstate | 6/19/2021 6:16 AM |
| 123 | Communication | 6/19/2021 3:43 AM |
| 124 | Preparedness | 6/19/2021 12:45 AM |
| 125 | keep us informed | 6/18/2021 11:18 PM |
| 126 | Proper planning | 6/18/2021 11:04 PM |
| 127 | Update electrical systems | 6/18/2021 10:49 PM |
| 128 | Establish a formal plan | 6/18/2021 10:03 PM |
| 129 | Communicate | 6/18/2021 9:41 PM |
| 130 | Prep in case of an emergency. | 6/18/2021 9:29 PM |
| 131 | community well battery or solar power | 6/18/2021 9:24 PM |
| 132 | More law enforcement/better pay for law enforcement and first responders. Pay based on this area not the average for West Virginia. | 6/18/2021 9:08 PM |
| 133 | Higher police presence within the roadways. Rarely see any police presence at all, which is comforting that it’s seemingly not needed, but even a nightly drive through of neighborhoods is a deterrent | 6/18/2021 9:00 PM |
| 134 | More LEO and PAID fire/ems. | 6/18/2021 8:59 PM |
| 135 | Reduce speed on interstate 81 and have a designated patrol for 81 to reduce accidents due to speeding and erratic driving | 6/18/2021 8:55 PM |
| 136 | Hand out supplies in advance | 6/18/2021 8:55 PM |
| 137 | Having more paid first responders. The sheriff and fire departments are extremely understaffed. | 6/18/2021 8:24 PM |
| 138 | Organize and train a disaster assistant team to augment the professionals. | 6/18/2021 8:02 PM |
| 139 | Build community resilience through more emphasis on CERT | 6/18/2021 7:59 PM |
| 140 | Upgrade roads. | 6/18/2021 7:44 PM |
| 141 | Roads need to be wider | 6/18/2021 7:42 PM |
| 142 | Using National Guard when needed | 6/18/2021 7:38 PM |
| 143 | Keep community informed. | 6/18/2021 7:28 PM |
| 144 | Reduce high density housing. | 6/18/2021 7:12 PM |
| 145 | Stop allowing builders to continue building new homes without the proper infrastructure in place. The current infrastructure cannot handle it. There is too much traffic and too many traffic accidents. And you can stop replacing traffic lights/stop signs with roundabouts. Nobody | 6/18/2021 7:04 PM |

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|---|---|---|
| | around here knows how to navigate them. I have almost been hit numerous times going thru the circle in Inwood. | |
| 146 | Quit buying all the damn food and freaking out | 6/18/2021 6:57 PM |
| 147 | Ensure our water is safe to consume. See | 6/18/2021 6:51 PM |
| 148 | I81 improvement | 6/18/2021 6:50 PM |
| 149 | Early warning | 6/18/2021 6:44 PM |
| 150 | Look at a second route into the neighborhood. If that bridge goes, all 200+ houses are stuck. | 6/18/2021 6:39 PM |
| 151 | ? | 6/18/2021 6:38 PM |
| 152 | help your neighbors in an emergency | 6/18/2021 6:33 PM |
| 153 | Need an easy west connector between I-81 and Rt 9 that bypasses Martinsburg for evacuation of northern Virginia metro DC that's keeps traffic from bottlenecking coming into Martinsburg. Better roads toward corridor H to move mass evacuation further west. | 6/18/2021 6:22 PM |
| 154 | Invest in clean energy | 6/18/2021 6:11 PM |
| 155 | Maybe by placing emergency/natural disaster kits with the local churches and community centers might be a way to get items rapidly to the people in each community if a disaster hits | 6/18/2021 6:09 PM |
| 156 | Invest in the infrastructure | 6/18/2021 6:07 PM |
| 157 | Complete the storm water drainage project along Rt. 11 (Winchester Ave) and use the “rain tax” to pay off the loan instead of waiting to have enough money. You will never complete any project by always using this lame excuse. | 6/18/2021 6:05 PM |
| 158 | N/A | 6/18/2021 6:04 PM |
| 159 | Buried / underground infrastructure. | 6/18/2021 6:03 PM |
| 160 | I do not have enough information to answer this question. But I’d start with actually completing the road construction that began years ago. | 6/18/2021 6:00 PM |
| 161 | Recovery centers for the drug problem in our county! | 6/18/2021 5:59 PM |
| 162 | Plan, Prepare and get people INVOLVED!!! | 6/18/2021 5:57 PM |
| 163 | I think you do a great job. When we had the mix up of the chlorine chemicals at the sewer plant you did a great job. | 6/18/2021 5:57 PM |
| 164 | Our community needs to stop disturbing land and making natural resources scarce. | 6/18/2021 5:52 PM |
| 165 | More equity law enforcement. | 6/18/2021 5:46 PM |
| 166 | Listen to government entities during an event not people who troll the internet and follow guidance from that entity in recovery process | 6/18/2021 5:45 PM |
| 167 | Work together. Volunteer to assist. | 6/18/2021 5:43 PM |
| 168 | Not sure | 6/18/2021 5:41 PM |
| 169 | Improved infrastructure. Finally push for construction to be completed on 81. | 6/18/2021 5:37 PM |
| 170 | Transparency | 6/18/2021 5:36 PM |
| 171 | Improved infrastructure - ROADS, schools, public water/sewer access etc. | 6/18/2021 5:35 PM |
| 172 | More cops/firemen/medics | 6/18/2021 5:29 PM |
| 173 | Improve and increase emergency response services. | 6/18/2021 5:25 PM |
| 174 | Keep us informed | 6/18/2021 5:19 PM |
| 175 | Improve communications and accessibility. | 6/18/2021 5:19 PM |
| 176 | Education and awareness. For example, pandemic flu training at work had me mentally prepared to cope with the COVID-19 pandemic. | 6/18/2021 5:15 PM |

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|---|---|---|
| 177 | Crack down on the idiots on 81 | 6/18/2021 5:14 PM |
| 178 | Develop an emergency alert system and advise all of it. | 6/18/2021 5:11 PM |
| 179 | Having a plan and being prepared for what could be coming...storms, winds, snow, rains, etc | 6/18/2021 5:05 PM |
| 180 | Have a community response team in place | 6/18/2021 4:55 PM |
| 181 | Better infrastructure and quicker response to events | 6/18/2021 4:53 PM |
| 182 | Work FOR the people instead of lining their pockets. | 6/18/2021 4:41 PM |
| 183 | Real time information | 6/18/2021 4:40 PM |
| 184 | Preparedness | 6/18/2021 4:36 PM |
| 185 | Educate prior to disaster | 6/18/2021 4:35 PM |
| 186 | Na | 6/18/2021 4:33 PM |
| 187 | Educate us about such things. | 6/18/2021 4:33 PM |
| 188 | Keep trees cut out of power lines. | 6/18/2021 4:26 PM |
| 189 | Fully fund and staff fire and EMS stations per NFPA standards. | 6/18/2021 4:25 PM |
| 190 | I would like to see more updates and informational materials about our drinking water. I've been concerned since the 2016 incident with PFAs. I have anxiety about whether our water is truly safe to drink. | 6/18/2021 4:23 PM |
| 191 | Unsure | 6/18/2021 4:23 PM |
| 192 | Make evacuation/emergency plans for our town. I don't really know if Martinsburg has any, I've never heard or read about them. | 6/18/2021 4:23 PM |
| 193 | Upgrade the local hospital. It is not adequate for day to day emergency care, let alone a disaster. | 6/18/2021 4:20 PM |
| 194 | everyone have some emergency/fist aid training | 6/18/2021 4:19 PM |
| 195 | Get rid of some of the present government personel | 6/18/2021 4:18 PM |
| 196 | Have shelters and plans set in place and make people aware of what the plan is. | 6/18/2021 4:16 PM |
| 197 | If evacuation is necessary, do you have a place for animals as required by federal law? | 6/18/2021 4:13 PM |
| 198 | Stop rampant unregulated growth | 6/18/2021 4:07 PM |
| 199 | Limit the number of people entering the county. Too many "row houses" which can lead to lower socio economic impact to community more drugs gangs and poverty. Leading to increase need funding with lower taxation/ income. | 6/18/2021 4:07 PM |
| 200 | Form a website or social media page with tips and all emergency information | 6/18/2021 4:00 PM |
| 201 | More communication | 6/18/2021 3:59 PM |
| 202 | Not panic | 6/18/2021 3:58 PM |
| 203 | Preparedness | 6/18/2021 3:55 PM |
| 204 | Stop making everything about race. Should be speaking to personal responsibility. | 6/18/2021 3:55 PM |
| 205 | Build a disaster relief shelter room underground to support each community in Berkeley County - it would provide clothes/food/clean water in tanks for cooking/ charcoal or wood cook stoves etc - canned foods/dehydrated foods including milk as able to store. Just a dream thought | 6/18/2021 3:55 PM |
| 206 | Use swift reach to its full capacity in notifying the citizens | 6/18/2021 3:53 PM |
| 207 | Prepare ahead of time and have a solid actionable plan. | 6/18/2021 3:53 PM |
| 208 | Make preparations and plans | 6/18/2021 3:52 PM |
| 209 | Community forums | 6/18/2021 3:51 PM |
| 210 | Hire more law enforcement and other first re | 6/18/2021 3:49 PM |

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|---|---|---|
| 211 | Effective alert notification, sirens, and testing | 6/18/2021 3:49 PM |
| 212 | Improving infrastructure, especially roads and above ground power lines. In an emergency situation, the poor quality of the roads could impede emergency services, and evacuations. Above ground power lines are inherently more vunerable than buried lines. | 6/18/2021 3:48 PM |
| 213 | internet services to rural areas | 6/18/2021 3:48 PM |
| 214 | Being proactive in prevention or mitigation of existing issues. | 6/18/2021 3:47 PM |
| 215 | Groundwater protection. | 6/18/2021 3:47 PM |
| 216 | Adequate Roads | 6/18/2021 3:45 PM |
| 217 | 24/7 fire protection with a crew of 3 or more per piece of equipment | 6/18/2021 3:45 PM |
| 218 | Unsure | 6/18/2021 3:44 PM |
| 219 | Be informed | 6/18/2021 3:41 PM |
| 220 | Organized effort to replace/rebuild whatever critical services that are destroyed or damaged quickly (weeks not months) | 6/18/2021 3:38 PM |
| 221 | Food Access services | 6/18/2021 3:37 PM |
| 222 | Make sure emergency response people are trained properly. | 6/18/2021 3:37 PM |
| 223 | Help and support each other | 6/18/2021 3:36 PM |
| 224 | If there is a power outage there should be a cooling station for elderly to go to if they need it. I am 75 and would die without air conditioning. | 6/18/2021 3:36 PM |
| 225 | Communication | 6/18/2021 3:34 PM |
| 226 | Finish I81 repairs QUICKLY. - not over 4 years and daily accidents😩 | 6/18/2021 3:34 PM |
| 227 | Not politicize the emergency. Stockpile food and water. Organize local essential service providers for a community disaster plan. | 6/18/2021 3:34 PM |
| 228 | Find a way to make I81 safer; it is VERY dangerous! | 6/18/2021 3:33 PM |
| 229 | Be truthful, provide clear, concise information and directions | 6/18/2021 3:33 PM |
| 230 | Education on individual preparedness and development of community emergency response teams. | 6/18/2021 3:32 PM |
| 231 | The county should have a more proactive communication plan. Develop and send a monthly newsletter with a different disaster focus (what we need to do to be prepared and who to contact in the event of “x” disaster) every month that gets mailed out with utility bills and is also available online. | 6/18/2021 3:32 PM |
| 232 | More policing. | 6/18/2021 3:31 PM |
| 233 | Training and communications | 6/18/2021 3:30 PM |
| 234 | Know what to do in the event of a disaster | 6/18/2021 3:28 PM |
| 235 | Hire more police | 6/18/2021 3:28 PM |
| 236 | ? | 6/18/2021 3:28 PM |
| 237 | Stop excessive new development of housing. | 6/18/2021 3:26 PM |
| 238 | Not sure | 6/18/2021 3:25 PM |
| 239 | Community meeting/newsletter about emergency town plan and resources | 6/18/2021 3:25 PM |
| 240 | Better roads | 6/18/2021 3:24 PM |
| 241 | Targeted social media posts with a link to a site that covers the questions in this survey and detailed information/action plans | 6/18/2021 3:24 PM |
| 242 | More grocery and general stores in our areas | 6/18/2021 3:23 PM |

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|---|---|---|
| 243 | Better coordination of government, private and nonprofit service to reduce duplication and share resources | 6/18/2021 3:22 PM |
| 244 | Work together to make sure everyone is safe and care for. | 6/18/2021 3:22 PM |
| 245 | Improving education re: vulnerability of people and property. | 6/18/2021 3:21 PM |
| 246 | Be more involved with the citizens. | 6/18/2021 3:20 PM |
| 247 | Stop adding housing developments out water source can support the current population now | 6/18/2021 3:20 PM |
| 248 | No sure | 6/18/2021 3:20 PM |
| 249 | Education | 6/18/2021 3:19 PM |
| 250 | Communication | 6/18/2021 3:19 PM |
| 251 | Improve infrastructure | 6/18/2021 3:19 PM |
| 252 | More outreach to HOAs on how residents can prepare | 6/18/2021 3:19 PM |
| 253 | A clear laid out plan. Practice of Plan with hypothetical practices. Ensure incident command is well laid out and clearly understood. Practice practice practice. | 6/18/2021 3:19 PM |
| 254 | Actually notify the community of evacuations and shelter sites. When the chlorine gas cloud hit town the only way i found out about the evacuation was by listening to the police scanner | 6/18/2021 3:18 PM |
| 255 | Eliminate HOAs and have the county take over basic chores. We are paying property taxes for the county, but the berkeley county is not doing anything.. They do not fix the roads, they do not remove winter snow.. We have to pay HOA to do all this.. Our HOA is useless. We demand that our HOA (mills farm) is dismantled and the county to take over ASAP. | 6/18/2021 3:18 PM |
| 256 | Educate the public | 6/18/2021 3:16 PM |
| 257 | More funding for emergency response personnel | 6/18/2021 3:16 PM |
| 258 | Have an plan and services on hand and available | 6/18/2021 3:16 PM |
| 259 | More first responders | 6/18/2021 3:15 PM |
| 260 | Improvement in communication | 6/18/2021 3:15 PM |
| 261 | Education | 6/18/2021 3:14 PM |
| 262 | Increase solar subsidies to encourage solar power installation. | 6/18/2021 3:14 PM |
| 263 | Prepare ahead. Plan ahead. | 6/18/2021 3:14 PM |
| 264 | Educate the public. | 6/18/2021 3:13 PM |
| 265 | Be on top of emergency situations | 6/18/2021 3:13 PM |
| 266 | Give classes on emergency preparedness. | 6/18/2021 3:13 PM |
| 267 | Properly fund all emergency services | 6/18/2021 3:13 PM |
| 268 | Develop a single source of critical information. | 6/18/2021 3:13 PM |
| 269 | Stay calm | 6/18/2021 3:12 PM |
| 270 | Too many types of disasters to answer | 6/18/2021 3:12 PM |
| 271 | Practice and planning | 6/18/2021 3:12 PM |
| 272 | Training | 6/18/2021 3:12 PM |
| 273 | Be prepared. Our local government services ARE GROSSLY UNPREPARED for a major disaster. | 6/18/2021 3:12 PM |
| 274 | Better weather or hazard warning system or knowledge of such | 6/18/2021 3:11 PM |
| 275 | Reduce amount of new housing as at date we are growing, we will not have services for all residents. | 6/18/2021 3:11 PM |
| 276 | Keep our roads/highways in better shape so that the multiple daily accidents don’t keep | 6/18/2021 3:11 PM |

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| | occurring because of terrible road surfaces | |
| 277 | Public awareness and education. | 6/18/2021 3:11 PM |
| 278 | Road improvements. Route 9 should be 4 lanes with fewer stoplights. We need to be able to travel in the event of an emergency. | 6/18/2021 3:11 PM |
| 279 | Fix the I81 corridor | 6/18/2021 3:10 PM |
| 280 | Get rid of traffic circles | 6/18/2021 3:10 PM |
| 281 | organize neighborhood community groups to get to know neighbors and exchange contact info so neighbors can reach out and support one another | 6/18/2021 3:10 PM |
| 282 | Build more fire and rescue stations in strategic locations. Refrain from wasting tax dollars building separate OEM / FIRE / EMS buildings in the county and house those agencies jointly where applicable. This country grows by the day and the infrastructure is the same as it was 50 years ago. Jefferson county WV has more fire and EMS protection than Berkeley county with half the population. | 6/18/2021 3:10 PM |
| 283 | Better handling of accidents on interstate | 6/18/2021 3:09 PM |
| 284 | Planning of new buildings and structure. Taking into consideration the homes and traffic flow. | 6/18/2021 3:09 PM |
| 285 | Don't forget the secluded communities | 6/18/2021 3:09 PM |
| 286 | Have more resources on hand to help the community. Berkeley county lacks resources | 6/18/2021 3:09 PM |
| 287 | Enforcement of existing laws around the 81 corridor. Finish the construction that is causing accidents and killing people. | 6/18/2021 3:09 PM |
| 288 | Community training on disease planning for families and better communication with residents insure infrastructure can handle growth in Berkeley co | 6/18/2021 3:09 PM |
| 289 | Updated infrastructure to reduce clogging of stop lights and better policing for speed limit adherence on Interstate 81 in construction zones. | 6/18/2021 3:09 PM |
| 290 | None | 6/18/2021 3:08 PM |
| 291 | Increase funding for EMS/ First Responders | 6/18/2021 3:08 PM |
| 292 | I have no idea | 6/18/2021 3:08 PM |
| 293 | No more rain water run off tax | 6/18/2021 3:08 PM |
| 294 | Plain and honest language seems to work best here. | 6/18/2021 3:08 PM |
| 295 | Communication | 6/18/2021 3:08 PM |
| 296 | More trained personnel and support | 6/18/2021 3:08 PM |
| 297 | Have up to date plans in order | 6/18/2021 3:08 PM |
| 298 | Unground electrical lines | 6/18/2021 3:08 PM |
| 299 | Disaster preparedness by individual households. Education/promotion. Kits to purchase. | 6/18/2021 3:08 PM |
| 300 | Ews early warning system syrin | 6/18/2021 3:08 PM |
| 301 | Patrol 81. To many accidents, god forbid if we have a haz mat truck accident | 6/18/2021 3:08 PM |
| 302 | More communication | 6/18/2021 3:07 PM |
| 303 | Deal with the water problem. The 2 drains on my street can’t keep up with runoff and it floods all the time | 6/18/2021 3:07 PM |
| 304 | Clean storm drains | 6/18/2021 3:07 PM |
| 305 | Communication | 6/18/2021 3:07 PM |
| 306 | The infrastructure that Berkeley County currently has does not support the extreme growth within the county. It is evident that we MUST be more proactive! | 6/18/2021 3:07 PM |
| 307 | Education and publish community resources | 6/18/2021 3:07 PM |

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| 308 | Quit having out of state people move in,too crowded for roads. | 6/18/2021 3:07 PM |
| 309 | Communication | 6/18/2021 3:06 PM |
| 310 | Have a highly detailed plan in place and accessible to the public. | 6/18/2021 3:06 PM |
| 311 | Improved infrastructure | 6/18/2021 3:06 PM |
| 312 | Impose stronger regulations on ground water pollution | 6/18/2021 3:06 PM |
| 313 | Communities working together. Action plan for keeping communities safe from outsiders looking to take resources they have not prepared with. | 6/18/2021 3:06 PM |
| 314 | Education | 6/18/2021 3:06 PM |
| 315 | I don’t know. Open to ideas… | 6/18/2021 1:08 PM |
| 316 | Nonsense question. | 6/18/2021 12:37 PM |
| 317 | Stock up on supplies | 6/18/2021 12:10 PM |
| 318 | Proactive measures. For example, collaborate with other counties/states (MD & VA) to share manpower/equipment for power outages, weather events (large snowstorms) to decrease delays in meeting residents return to normal daily life. | 6/18/2021 12:07 PM |
| 319 | Conduct pandemic and disease outbreak exercises — real exercises and add a minimum table top exercises. Then publish the results. Next strategic communication is a must. Well many may think that the message got out during and now after the pandemic, it is mixedAnd especially water down and totally discounted. Sorry to be blunt, but this issue is pretty typical of any post disaster after action report but is paid little to no attention after work. In a pandemic, you really need to get to the heart, mind, and values of the individual to change their behavior at least temporarily. | 6/18/2021 10:53 AM |
| 320 | Better infrastructure. | 6/18/2021 10:20 AM |
| 321 | 1 source to go to not 5 | 6/18/2021 9:32 AM |
| 322 | Better communications. In the event of evacuation, what are the routes? | 6/18/2021 1:50 AM |
| 323 | Improve our roads in Berkeley County to effectively handle traffic during a disaster or allow emergency fire police medical to respond | 6/17/2021 10:29 PM |
| 324 | Improve our roads to handle the current and future growth of the county. Currently it would me very difficult to move traffic in a disaster situation. The population explosion is totally outpacing our road capability to handle traffic for emergency situations. | 6/17/2021 10:18 PM |
| 325 | Flood barriers for natural springs | 6/17/2021 9:39 PM |
| 326 | More Self reliance for basic human essential and having emergency kits to last everyone in the house hood for 2 weeks or more with basic needs such as food water medications and hygiene products | 6/17/2021 9:22 PM |
| 327 | Train people in how to look out for each other and the need of state/local government to take responsibility | 6/17/2021 8:27 PM |
| 328 | Easy information | 6/17/2021 8:26 PM |
| 329 | I live near a concrete plant. There could be evacuation or other plans communicated to us in case of emergencies involving chemicals kept at the plant. | 6/17/2021 7:05 PM |
| 330 | Knowledge | 6/17/2021 5:50 PM |
| 331 | N/A | 6/17/2021 4:01 PM |
| 332 | Better communication | 6/17/2021 2:46 PM |
| 333 | Preparation/education | 6/17/2021 1:26 PM |
| 334 | Engage landowners in critical locations in hazardous planning. E.g., engage landowners on Warm Springs run in retaining more water on their property during flash floods (Ridersville Cycle, Tractor Supply). E.g., engage landowners who could provide access to deep forest areas to create firefighter access roads and water drawl points | 6/17/2021 1:04 PM |

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| 335 | One thing would be to make sure ALL storm drains are clean . Provide an evacuation route IF NEEDED ! | 6/17/2021 12:00 PM |
| 336 | Restore natural systems that have been shown to moderate/mitigate hazard events | 6/17/2021 11:28 AM |
| 337 | Teach self reliance | 6/17/2021 10:31 AM |
| 338 | Better control of population growth - planning new subdivisions and housing | 6/17/2021 5:48 AM |
| 339 | Get on board with the Green New Deal and take Global Warming and it’s consequences seriously | 6/17/2021 1:50 AM |
| 340 | Prepare the community for a disaster. | 6/16/2021 7:53 PM |
| 341 | Explain to people how to make a sawdust (etc) toilet to deal with human waste. Stress tolocals how to keep a supply of food.. | 6/16/2021 7:19 PM |
| 342 | Preparedness for all types of disasters | 6/16/2021 5:39 PM |
| 343 | Addressing traffic flow patterns in Hedgesville (Route 9) | 6/16/2021 4:18 PM |
| 344 | large police presence on I 81.....to me that is by far the biggest danger in so many ways to Berk County | 6/16/2021 3:41 PM |
| 345 | N/a | 6/16/2021 2:51 PM |
| 346 | Community alert system? | 6/16/2021 2:51 PM |
| 347 | I think the effort to do this is a good action on the part of the jurisdiction. | 6/16/2021 2:42 PM |
| 348 | Let community know of designated call center number and place of shelter if they should be displaced. | 6/16/2021 2:02 PM |
| 349 | perhaps designated emergency shelter(s) | 6/16/2021 1:53 PM |
| 350 | CHECK IN SYSTEM FOR EVERY HOUSEHOLD | 6/16/2021 1:46 PM |
| 351 | Mass alert systems | 6/16/2021 1:37 PM |
| 352 | Educate folks to be prepared | 6/16/2021 12:02 PM |
| 353 | Communicating response plans to the community members better | 6/16/2021 11:28 AM |
| 354 | Transparency | 6/16/2021 11:26 AM |
| 355 | Focus on it instead of tiny petty fines for yard | 6/16/2021 11:18 AM |
| 356 | Talk to we the people. | 6/16/2021 11:16 AM |
| 357 | Meetings and have a plan on action. | 6/16/2021 11:00 AM |
| 358 | Invest in better infrastructure, such as electric lines, gas lines and roads. | 6/16/2021 10:59 AM |
| 359 | Unsure | 6/16/2021 10:02 AM |
| 360 | tree trimming | 6/16/2021 9:43 AM |
| 361 | Better storm water management using reforestation and native plantings/rain gardens, permeable paving, etc | 6/16/2021 9:23 AM |
| 362 | Better access to a community alert mechanism. Provide funds for capital improvement projects to critical utilities and organizations. | 6/16/2021 9:16 AM |
| 363 | Better management of roadways | 6/16/2021 8:43 AM |
| 364 | Come together to assist the community instead of trying to "take sides". | 6/16/2021 8:28 AM |
| 365 | Plan better | 6/16/2021 8:22 AM |
| 366 | Continuing to educate the public | 6/16/2021 8:15 AM |
| 367 | Know what to do | 6/16/2021 8:09 AM |
| 368 | none | 6/16/2021 7:58 AM |

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| 369 | Have a preparedness plan for each possible event | 6/16/2021 7:51 AM |
| 370 | Education | 6/16/2021 7:40 AM |
| 371 | To have some sort of backup up power in place for cell towers in the event of power outages. | 6/16/2021 7:29 AM |
| 372 | To have a plan to notify residents of impending disaster and any follow-up information. | 6/16/2021 7:13 AM |
| 373 | Stop building near flood prone areas. | 6/16/2021 6:15 AM |
| 374 | Communicate | 6/16/2021 6:02 AM |
| 375 | Education, Training and drills | 6/16/2021 4:23 AM |
| 376 | have a plan in place and alert everyone, have occasional meetings | 6/16/2021 3:54 AM |
| 377 | Come together and support all Emergency Service organizations and the community | 6/16/2021 1:04 AM |
| 378 | Work with officials to complete construction on I-81. | 6/15/2021 10:22 PM |
| 379 | cellbphone alerts | 6/15/2021 10:19 PM |
| 380 | More grocery stores | 6/15/2021 10:19 PM |
| 381 | Bettering the roads around here, especially for safety. | 6/15/2021 10:19 PM |
| 382 | Reaponse time | 6/15/2021 9:58 PM |
| 383 | Pre-planning | 6/15/2021 9:34 PM |
| 384 | Replace gravel road to pavement | 6/15/2021 9:33 PM |
| 385 | Continue to educate and stress the importance of self reliance and preparedness. | 6/15/2021 9:22 PM |
| 386 | Hire more responders! | 6/15/2021 9:07 PM |
| 387 | Stop building | 6/15/2021 8:52 PM |
| 388 | Quit building so many homes without the infrastructure to handle it. The roads are already crowded and there are accidents constantly and they just keep adding 1000's of houses. Add a disaster to that and the roads become an even deadlier mode of transportation. | 6/15/2021 8:41 PM |
| 389 | Go back to using sirens to warn of impending danger. Not everyone has TV, radio or social media turned ON 24/7. We would not have heard last tornado warning had TV been off. | 6/15/2021 8:39 PM |
| 390 | teacg people how to prepare and check on their neighbors | 6/15/2021 8:15 PM |
| 391 | 98% of the people are too stupid. Bo matter what you tell them they will continue to freak out over the first snow flake | 6/15/2021 8:08 PM |
| 392 | Start a great Cacapon community Association to address problems specific to this small riverfront community with fire drove part ment and police participation. | 6/15/2021 7:53 PM |
| 393 | Finish construction on 81. And complete the bridge in Inwood quickly. What a mess if the mountain needs to evacuate quickly. | 6/15/2021 7:33 PM |
| 394 | Arrest more drug dealers and run the liberals out of the county | 6/15/2021 7:25 PM |
| 395 | Modernize infrastructure. | 6/15/2021 7:13 PM |
| 396 | Treat/diminish opioid consumption | 6/15/2021 7:10 PM |
| 397 | Improve communication. Don't rely on word of mouth. | 6/15/2021 7:08 PM |
| 398 | education about fire hazard - during a draught and we now have very frequent breezes and winds. | 6/15/2021 5:36 PM |
| 399 | Working together better and learning how to be better prepared so that if a disaster does come people aren't panicking, over buying etc | 6/15/2021 4:55 PM |
| 400 | Establish SOG's for disaster response. | 6/15/2021 3:42 PM |
| 401 | Coordinate and facilitate drills and training among community stake holders. Invest heavily in Emergency Management and Emergency Services. | 6/15/2021 3:42 PM |

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| 402 | Improved roads, i.e. more capacity and infrastructure protections, i.e. water system backups and power and more robust electrical grid | 6/15/2021 3:30 PM |
| 403 | informing residents of floodplain regulations increasing the alert text messages when flooding occurs | 6/15/2021 3:09 PM |
| 404 | I think having a clear plan for community shelters if that would become necessary and a plan to distribute that information and enlist volunteers. I think the community should be advised during calm times where the may be in case communications are disrupted. | 6/15/2021 3:07 PM |
| 405 | Improve infrastructure (roads, high speed Internet, power grid) | 6/15/2021 3:03 PM |
| 406 | Self-Preparedness | 6/15/2021 2:23 PM |

# Q24 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: 185 Skipped: 709

| # | RESPONSES | DATE |
|---|---|---|
| 1 | Getting like groups together and helping one another would be awesome. | 7/15/2021 8:52 AM |
| 2 | More resources to be available. | 7/7/2021 8:09 AM |
| 3 | This survey mentioned nothing of climate change but counted opioid epidemic as a natural disaster. | 7/6/2021 6:40 AM |
| 4 | need to get help for elderly to help clean up their prlperty | 7/2/2021 6:45 PM |
| 5 | Stop allowing buildings and large camp grounds full of campers and all their "stuff" in the flood planes | 7/1/2021 7:13 PM |
| 6 | Live on county line between Berkeley and Morgan Counties, lack of ambulance, police and fire services with 30 minutes. | 6/30/2021 3:23 PM |
| 7 | we need a culvert upgrade on lamplight rd. and three run creek. it floods every year and is beginning to fail. | 6/30/2021 2:14 PM |
| 8 | STOP BUILDING...OVERTAXING WATER, ELECTRIC, ETC. MAKE IT KNOW WHERE SHELTERS ARE FOR NATURAL OCCURANCES. | 6/29/2021 7:26 PM |
| 9 | I am the person who looks out for my neighbors and I think everyone should have a person to check in with. | 6/28/2021 9:30 AM |
| 10 | better source information. Many citizens do not receive newspaper. Many do not listen to local radio. No local TV coverage. We need better communication to citizens. | 6/27/2021 3:23 PM |
| 11 | Improve broad band access | 6/27/2021 4:29 AM |
| 12 | Keep the poor in mind and do better when it comes to them. Better planning. | 6/25/2021 2:26 PM |
| 13 | Enforce clean water standards. Quit creating nonpermeable surfaces that cause flooding. Address “food desert” issues ie Paw Paw which doesn’t have a proper grocery store/access to fresh food. Also transportation issues for the elderly and home bound. | 6/25/2021 9:24 AM |
| 14 | N/A | 6/25/2021 8:44 AM |
| 15 | Towns should have stockpiles of necessities like water , canned/boxed food, and common medications . | 6/25/2021 7:32 AM |
| 16 | Morgan County needs to provide adequate public safety staffing to protect the community. Not having 24 hour police coverage is not acceptable. Not having a single staffed firehouse house is even worse. Trying to cover the entire county from two locations with EMS leaves much of the county poorly serviced. | 6/25/2021 7:00 AM |
| 17 | This is a great survey and hourly reaches people without internet access. | 6/25/2021 6:56 AM |
| 18 | Same as above. Multi causality drills for first responders as well as events the community are welcome to participate in. | 6/24/2021 10:46 PM |
| 19 | Berkeley County needs to protect their karst. The wildfire threat in Morgan County can become uncontainable in the event of even a short draught. | 6/24/2021 2:10 PM |
| 20 | Identify disaster plans to the community Prior to an event | 6/24/2021 6:23 AM |
| 21 | Na | 6/23/2021 3:41 PM |
| 22 | N/A | 6/23/2021 2:12 PM |

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| 23 | I think a good chance our sewer truly needs to be looked into with expansion will be needed due to growth of area | 6/22/2021 6:58 PM |
| 24 | If we're going to insist on, and keep building ourselves into a major metropolitan area, then there is much on all of mentioned above that needs immediate improvement on- first- before anymore building is done, not just roadways either- again, what all else I have mentioned. | 6/22/2021 4:37 PM |
| 25 | n/a | 6/22/2021 10:59 AM |
| 26 | Same anSwer as #23 | 6/22/2021 9:45 AM |
| 27 | Focus on high probability issues, not "possible" events. | 6/22/2021 8:58 AM |
| 28 | N/A | 6/22/2021 8:26 AM |
| 29 | Without enough knowledge of the subject, cannot offer any suggestions. | 6/21/2021 4:00 PM |
| 30 | Stop building the roads catch up. | 6/21/2021 8:48 AM |
| 31 | Berkeley county has no technical rescue team and an extremely poor hazmat team as seen the other year with the water plant. Please do better with mutual aid agreements for such issues reach out to mutual aid fire departments like Washington county emergency services and loudoun county fire rescue or winchester fire rescue so you can better provide for the county in such situations like Hazmat and technical rescues. | 6/21/2021 8:25 AM |
| 32 | Na | 6/21/2021 6:57 AM |
| 33 | Active awareness of global climate change in the regional area including disease vectors, mosquitoes, extreme weather conditions, drought, flooding, severe storms, how to care for elderly neighbors or people with babies in case of emergencies, stockpiling necessary items in times of shortage, and teaching people how to prepare these items in their homes. | 6/20/2021 5:51 PM |
| 34 | Have none at the moment | 6/20/2021 5:29 PM |
| 35 | More resources to sheriff, fire, and ambulance/ first responder services. | 6/20/2021 4:31 PM |
| 36 | Immediately inform residents | 6/20/2021 4:02 PM |
| 37 | Treatment for calcium water in the water system so much so it destroys hot water heaters, pipes | 6/20/2021 3:15 PM |
| 38 | The development of the area was done with zero regard for infrastructure, therefore we had substandard roads, which are badly maintained, if at all, most of which also drain poorly, if at all. | 6/20/2021 11:37 AM |
| 39 | Clearing up accidents on Interstate 81. | 6/19/2021 5:19 PM |
| 40 | None | 6/19/2021 4:01 PM |
| 41 | re: number 23 above. fees/inconveniences/etc are fine if everyone knows what they're getting in return... if anything | 6/19/2021 12:58 PM |
| 42 | We need a much better early warning siren system. | 6/19/2021 12:43 PM |
| 43 | Nothing for now. | 6/19/2021 11:48 AM |
| 44 | Nothing at this time. | 6/19/2021 11:41 AM |
| 45 | Take the County Council out of the loop. They are incompetent, unethical and cowardly. | 6/19/2021 10:07 AM |
| 46 | I believe the text alerting system is a GREAT tool, however, the messages NEED to be sent in a MUCH timelier manor. There is TOO much lag-time before the message of an incident is sent, as well as when the incident was cleared up. However, there doesn't seem to be any problems with timely weather reports. Thank you for taking the time to ask for residents input! | 6/19/2021 10:01 AM |
| 47 | It make sense to coordinate on a regional basis | 6/19/2021 9:51 AM |
| 48 | If you don't practice and have set plans in place, no one is going to know what to do or where to go when something really happens. | 6/19/2021 9:45 AM |
| 49 | Send out more emergency alerts, advisories, etc with email... I know a lot of people who do not use Facebook, etc. | 6/19/2021 9:36 AM |

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| 50 | Don't know how to do it, but the general public needs to be more knowledgeable and supportive of emergency services personnel and systems. | 6/19/2021 9:35 AM |
| 51 | Nothing to comment. | 6/19/2021 9:04 AM |
| 52 | No further comment | 6/19/2021 8:59 AM |
| 53 | Fund reliability improvements to the electric grid. Electricity is essential. | 6/19/2021 8:47 AM |
| 54 | I am concerned about hazmat releases along I-81 resulting from traffic accidents. | 6/19/2021 8:45 AM |
| 55 | We need an active CERT program to teach citizens the skills needed to help during disasters. | 6/19/2021 8:13 AM |
| 56 | NA | 6/19/2021 8:01 AM |
| 57 | Thank you for asking and listening. | 6/19/2021 7:19 AM |
| 58 | N/A | 6/19/2021 3:43 AM |
| 59 | Make a list of volunteer groups who would be willing to assist. PLAN PLAN PLA ahead of need. | 6/18/2021 10:03 PM |
| 60 | N/A | 6/18/2021 9:29 PM |
| 61 | Be mindful that a likely disaster could well come from within the county citizens. | 6/18/2021 8:02 PM |
| 62 | Build up a CERT | 6/18/2021 7:59 PM |
| 63 | Early earnings | 6/18/2021 7:57 PM |
| 64 | Tennessee counties had an Emergency plan with many volunteers, some trained, that could be notified that an emergency existed and. Where to go to help. | 6/18/2021 7:49 PM |
| 65 | Update highways | 6/18/2021 7:12 PM |
| 66 | I did not know that Berkeley county had any kind of plan in place for dealing with natural disasters. | 6/18/2021 7:04 PM |
| 67 | Preventive planning is essential. Preparedness through our 911 offices and prep police training are utmost. | 6/18/2021 6:51 PM |
| 68 | Install warning sirens and announce that these will only be used for natural disasters and not for fire/ambulance calls. | 6/18/2021 6:48 PM |
| 69 | Pipelines next to schools given the topography here are a huge risk. What’s the plan if the one in Hedgesville has a problem? There are over 2000 kids sitting practically on top of it when school is in. | 6/18/2021 6:39 PM |
| 70 | What about establishing a FEMA stock at the Eastern Regional Airport | 6/18/2021 6:22 PM |
| 71 | Allow people that are on prescription medicine to stock up on their medicines for at least a month. Because right now you can only get refills on prescriptions when they are about ready to run out. (You can't stock up on your meds) | 6/18/2021 6:09 PM |
| 72 | Im concerned that the police would not protect me and my assits from local extremists. | 6/18/2021 6:07 PM |
| 73 | When a tax is imposed for work to prevent/lessen the impact of natural disasters, do the work, pay off the debt and then do away with the tax. Taxes are meant for a specific purpose, not fund “pet projects” not authorized by the original vote. | 6/18/2021 6:05 PM |
| 74 | N/A | 6/18/2021 6:04 PM |
| 75 | West Virginia seems to make things up as it trundles about. Hope is not a strategy. | 6/18/2021 6:03 PM |
| 76 | My opinion and/or fear level is not relevant to the resources I may or may not know about. But I believe our neighbors would help one another in an emergency. | 6/18/2021 6:00 PM |
| 77 | Great job by all. We are very thankful for all of you | 6/18/2021 5:57 PM |
| 78 | Traffic is a real concern on Route 9 through Hedgesville into Morgan Co. If residents were asked to evacuate, it would be nearly impossible as traffic is backed up daily and accidents are frequent. | 6/18/2021 5:52 PM |

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|---|---|---|
| 79 | Please make sure messaging is consistent and concise as possible to avoid misinterpretation and publicize aspects of whatever plan you do create so that of it ever has to be implemented people are already aware of what should be occuring. Continue to teach kiddos on fire topics but teach the kiddos more because they will share with parents and they understand more than adults most of the time. Thanks you for your efforts. | 6/18/2021 5:45 PM |
| 80 | I'm sure there are a lot of things but the first that comes to mind is to have some kind of plan in place so keep people from hoarding food, water and what ever else they might need during a disaster or as recent as the pandemic. There was no control over anything as far what people could buy and then some people had to go without for a long time no matter what it was...toilet paper, sanitizer, water among other things. It wasn't until things were back in stock that "rationing" and limiting how much people could buy was put into place. If people didn't panic and hoard, everyone would most likely be able to get what they need or at least something which is better than nothing most times. | 6/18/2021 5:41 PM |
| 81 | Make sure the community is aware to go to for help in advance. | 6/18/2021 5:36 PM |
| 82 | The state budgets for county health departments desperately need expanded... the Pandemic is proof . Understaffed, overworked, etc. The peoplel at my local Health Dept are great but they are stretched WAY too thin. | 6/18/2021 5:35 PM |
| 83 | The interstates slow repair and expansion have opened the county to multiple fuel and fluid leaks from tractor trailers and cars. I think having the company speed up the work would be a great start to minimizing those releases | 6/18/2021 5:25 PM |
| 84 | Do something about the drug use | 6/18/2021 5:14 PM |
| 85 | Just having the communications in place for emergency response in both counties to be coordinated and work together for the help and safety of residents. | 6/18/2021 5:05 PM |
| 86 | Non at the moment. | 6/18/2021 4:40 PM |
| 87 | Na | 6/18/2021 4:33 PM |
| 88 | Volunteer fire stations with home response is not going to do well. Fully fund a fire department for the county with guaranteed 24/7 staffing at NFPA levels of personnel | 6/18/2021 4:25 PM |
| 89 | Thank you for this opportunity. | 6/18/2021 4:23 PM |
| 90 | NA | 6/18/2021 4:23 PM |
| 91 | I think the old fashioned sirens should come back because people ignore their phones and tv. | 6/18/2021 4:23 PM |
| 92 | Berkeley’s Co should have several groups of volunteers trained and prepared to respond to any type of disaster that is to large for the local departments handle. I am an emergency response official through DHS and I believe the more trained citizens in our communities, the better | 6/18/2021 4:23 PM |
| 93 | Need more escape routes west over the mountains. | 6/18/2021 4:18 PM |
| 94 | Road structure is a complete failure. 81 design is horrible , construction is a death trap and concrete solid walls make so either side would deadlock. | 6/18/2021 4:16 PM |
| 95 | Important to have pet friendly places and easy access to water. | 6/18/2021 4:13 PM |
| 96 | Increase police enforcement on interstates. Lower speeds. Set limits on tractor trailers speed. Set severe penalties for TT that disregard laws and cause accidents. Have truck stops to slow down TT. Law enforcement to monitor traffic Get rid of BARS. Where all the shootings occur. More patrol to decrease or deterrent drugs and gangs. Make our community safer!!! | 6/18/2021 4:07 PM |
| 97 | They need to put a stop to the aggressive building of homes. We do NOT have the infrastructure for it being water, electric, the roads, etc. I don't say this to say this but I know first hand. | 6/18/2021 3:58 PM |
| 98 | Remind people that being prepared starts at home. Don't exspects the government to have all the answers | 6/18/2021 3:55 PM |
| 99 | None at this time. | 6/18/2021 3:55 PM |
| 100 | Next time let’s all agree with the science and act accordingly. | 6/18/2021 3:53 PM |
| 101 | ?? | 6/18/2021 3:51 PM |

| | | |
|---|---|---|
| 102 | Publicize regular emergency exercises, involve local organizations (4H, FFA, Scouts, community colleges, radio operator clubs, fraternal organizations). | 6/18/2021 3:49 PM |
| 103 | Sinkhole mapping/mitigation. | 6/18/2021 3:47 PM |
| 104 | Fill the potholes on the roadways. | 6/18/2021 3:41 PM |
| 105 | Constant monitoring and send out alerts asap when needed. | 6/18/2021 3:38 PM |
| 106 | Set up a cellphone program and online information | 6/18/2021 3:36 PM |
| 107 | Please be sure to test your plans so you may find ways to improve | 6/18/2021 3:33 PM |
| 108 | The county EMA office needs to be visible and provide community awareness and preparation programs. None of which is addressed currently. | 6/18/2021 3:32 PM |
| 109 | Increasing population Water contamination Aging sewer provisions | 6/18/2021 3:30 PM |
| 110 | More cell phone contact. | 6/18/2021 3:28 PM |
| 111 | Make county EOP’s available to public by publishing online through Berkeley’s Homeland Security website so residents can be aware of the response plan. | 6/18/2021 3:26 PM |
| 112 | None | 6/18/2021 3:25 PM |
| 113 | Any disaster would cause almost immediate traffic jams and accidents. These occur almost daily and are handled poorly now. | 6/18/2021 3:24 PM |
| 114 | Communication is key! | 6/18/2021 3:23 PM |
| 115 | Educate :) | 6/18/2021 3:21 PM |
| 116 | Provide free workshops for people to learn about prevention like how to pack a disaster bag | 6/18/2021 3:20 PM |
| 117 | None | 6/18/2021 3:20 PM |
| 118 | Partner with WV Eastern Panhandle Weather to ensure Weather related emergencies are adequately disseminated | 6/18/2021 3:19 PM |
| 119 | Assistance to HOAs to enforce 911 house numbering, adequate access and egress for public safety and utility vehicles, establishing alternate routes in case only entry is blocked by fallen trees, etc. | 6/18/2021 3:19 PM |
| 120 | When manpower is not enough what are your alternatives sources for help. Is that plan clear? Do you have CERT in place with active members? How often are they trained? I have EMT license in Ohio but additional work for me in WV to make it active here. I was involved in CERT Warren county Ohio. Fairly familiar with emergency response | 6/18/2021 3:19 PM |
| 121 | Have pre arranged evacuation points example bus stops. During pandemic or shelter in place have a system to deliver food and supplies to people without cars. | 6/18/2021 3:18 PM |
| 122 | i am not very educated about this subject. | 6/18/2021 3:18 PM |
| 123 | Implement and share a response plan to certain disasters. Share with police, rescue workers, Heath workers and the community. If everyone knows the plan of action, it will help keep the community calm during crisis. | 6/18/2021 3:14 PM |
| 124 | Continue to review procedures in all disaster situation to be able to function as situations arise. | 6/18/2021 3:13 PM |
| 125 | Share your survey results and concerns with the public | 6/18/2021 3:13 PM |
| 126 | There are currently too many sources of partial information. If the community resources would pool information together in a "one-stop" media source, perhaps run the same information on multiple platforms, so everyone gets current and correct information. As it sits, everyone gets varied information from multiple sources. | 6/18/2021 3:13 PM |
| 127 | My biggest concern is crime and the impact of addiction on the crime rate | 6/18/2021 3:12 PM |
| 128 | PulsePoint 911 alerts for emergency experienced people in county. | 6/18/2021 3:12 PM |
| 129 | I don't feel it's the government's job to take of me and my family however the local government IS RESPONSIBLE for protecting our infrastructure and public safety. Our local government is woefully unprepared that scenario. | 6/18/2021 3:12 PM |

| | | |
|---|---|---|
| 130 | None | 6/18/2021 3:11 PM |
| 131 | Better define tornado alerts, not just NWS. Define when you will direct citizens to take deep shelter. | 6/18/2021 3:11 PM |
| 132 | Focus on infrastructure: Power, Water & Sewer, Roads, and Medical Services. | 6/18/2021 3:11 PM |
| 133 | No comments | 6/18/2021 3:10 PM |
| 134 | I would like for there to be tornado/hazardous weather warnings installed | 6/18/2021 3:10 PM |
| 135 | Worry about trains nearby in relation to a hazardous event | 6/18/2021 3:10 PM |
| 136 | That the power would be off for an extended period of time, also set up a neighborhood base station in each neighborhood | 6/18/2021 3:10 PM |
| 137 | The over-building of homes, factories and warehouses in Berkeley County is depleting our water sources and it must be slowed down. | 6/18/2021 3:09 PM |
| 138 | Didn't know one existed | 6/18/2021 3:08 PM |
| 139 | Accidents everyday on 81 fix the roads | 6/18/2021 3:07 PM |
| 140 | A community wide plan that's better known. | 6/18/2021 3:07 PM |
| 141 | NA | 6/18/2021 3:06 PM |
| 142 | There are no natural disasters. Spend money on something else and stop building so many communities | 6/18/2021 12:37 PM |
| 143 | Training sessions for the public | 6/18/2021 12:10 PM |
| 144 | Unsure of additional comments I can make regarding natural disasters. The predominant scope of hazards I am aware of tend to be correlated with the greed/stupidity/self centered behaviors of people. | 6/18/2021 12:07 PM |
| 145 | I want to know WHAT was sprayed behind my house on June 25,2019 by three men wearing haz-mat looking outfits. They had white, flat boxes on their back (which were carried like a back pack) and a long sprayer/hose attached. WHATEVER they sprayed, it killed the shrubs and some trees and they are still dead two years later. I contacted utility companies as well as the owner of G&E Mobile Home Park and NONE of them claim to know anything about it. I want to know WHO these men were and WHAT they sprayed! They didn't spray behind EVERY mobile home; only random ones. They jumped on the back of a White, unmarked utility truck and drove down the road. The residents of G&E have the right to know what was sprayed and why. Also want to know...like ALL of Berkeley County...WHAT is going to be done about I81 and the lives that have been lost on that interstate over the years. If it wasn't an EVERY DAY occurrence, it would not be as questionable but ...it's EVERY SINGLE DAY. Also concerned about the water in this area. Most of us don't/won't drink water from the tap or cook with it or give it to our pets. | 6/18/2021 11:43 AM |
| 146 | You should use the American rescue plan funds and any other funds to bolster the emergency operation centers and coordinating entities. Reliance on volunteers and hit miss staffing is a root cause of effective response. I heard that the emergency response centers relied on volunteers and other entities to help them out. Also, please, invest in developing a comprehensive directory I'm available resources. Everyone keeps a copy of their Rolodex and index cards or phone numbers on their cell phones, but a direct rate of all of the social services, public health, healthcare institutions, and other entities needs to be centralized and used accordingly. I can be contacted at douglas.e.andetson57@gmail.com for more information. | 6/18/2021 10:53 AM |
| 147 | No more building permits to large scale housing developments until roads and infrastructure are improved. Widening 81 is of little help | 6/18/2021 10:20 AM |
| 148 | as in world war 2 have group trained to help as civil service | 6/18/2021 9:32 AM |
| 149 | Cell phone app that audibly alerts any disaster for the county and surrounding area within 100 miles | 6/17/2021 10:18 PM |
| 150 | Na | 6/17/2021 9:39 PM |

| | | |
|---|---|---|
| 151 | I believe the counties should be doing extensive and aggressive public education emergencies, basic natural disasters kits for the household, and the expected response times from an over exhausted emergency services system. I also feel that community education on how to be less taxing on the emergency services in a natural disaster would be extremely beneficial. | 6/17/2021 9:22 PM |
| 152 | Schedule public meetings and handouts for all. | 6/17/2021 8:27 PM |
| 153 | Limited evacuation routes. Morgan and Berkeley County are connected to Maryland and Virginia only by a limited number of roads. Little caves by minor or local roads. | 6/17/2021 7:05 PM |
| 154 | N/A | 6/17/2021 4:01 PM |
| 155 | Thank you for working on this. Frank Rodgers, Director, Cacapon Institute frodgers@cacaponinstitute.org | 6/17/2021 1:04 PM |
| 156 | The frequency of natural disasters is increasing while the natural systems that moderate the severity of those disasters are being deleted. Restoring those systems and the use of green infrastructure had been shown to be an effective and cost effective means of addressing many of the issues. | 6/17/2021 11:28 AM |
| 157 | I believe in a serious event our biggest problem would be an influx of refugees fleeing the cities. | 6/17/2021 10:31 AM |
| 158 | (None for the plan, but the survey is off the mark with the threat versus risk analysis. Also, it should include common census terms (non-binary, different age groups to include 64+ due to Medicare benefits for planning purposes, do you own your home or rent, etc.). | 6/16/2021 7:53 PM |
| 159 | N/a | 6/16/2021 2:51 PM |
| 160 | I see not all the eastern panhandle counties are doing this…. Sad | 6/16/2021 2:42 PM |
| 161 | WE USED TO HAVE SIRENS FOR WARNINGS. WE NEED TO USE CELL PHONE ALERTS AND SOCIAL MEDIA. DELIVERY OF INFORMATION PARAMOUNT. | 6/16/2021 1:46 PM |
| 162 | Implement more paid fire service positions. | 6/16/2021 1:31 PM |
| 163 | Nothing | 6/16/2021 11:47 AM |
| 164 | None | 6/16/2021 11:28 AM |
| 165 | Unsure | 6/16/2021 10:02 AM |
| 166 | Combating disinformation would have helped mitigate the spread of harmful false propaganda about the pandemic and covid, and saved lives in our community. | 6/16/2021 9:23 AM |
| 167 | I feel that Cyber Terrorism should be looked at seriously. Many critical utilities have controls that are linked to the internet that can be easily infiltrated. | 6/16/2021 9:16 AM |
| 168 | The main issue I think happens is the condition of the roadways and the time it takes to clear them. We need better roads and response time on them when something happens! | 6/16/2021 8:43 AM |
| 169 | none | 6/16/2021 7:58 AM |
| 170 | At least in Morgan County the local government needs to have a third party evaluation done of their entire emergency service response system, from pre-incident planning all the way through termination of the incident. These group will evaluate the effectiveness of OES, 911, fire, Law, & EMS resulting in a useable plan to move the entire public safety sector forward to provide the services the community/citizens deserves countywide. | 6/16/2021 7:01 AM |
| 171 | Better evacuation plans . The city of Martinsburg was a nightmare when there was a gas leak , people didn't know which way to go . Maybe have someone not from the area set up mapping /directions to get in and out of areas. BTW the local TV station had something about gas leak and to stay away from area . Maybe set up something via cell phones as if there is serious accident on the streets that way the cell phone could be the guidance . | 6/16/2021 6:54 AM |
| 172 | to be more informed | 6/16/2021 4:48 AM |
| 173 | I do think a lot of this type of survival education should be taught not only at home but even more in school. I know with covid this has not been much of an option however now coming | 6/16/2021 4:23 AM |

| | | |
|---|---|---|
| | out of it I think it is important to really drill survival skills from a young age especially for where we live. | |
| 174 | Improve public transportation through a transportation levy. | 6/15/2021 10:22 PM |
| 175 | Stop allowing factories to set up here and ruin all the natural resources, air, and water. Stand up for your citizens. | 6/15/2021 10:19 PM |
| 176 | Don't forget the rural areas | 6/15/2021 9:58 PM |
| 177 | The supposed “Opioid Crisis”, which is actually an illicit fentanyl and heroin usage and addiction issue, is NOT a disaster and has no place in Hazard Mitigation preparedness or documentation. It is not a declared national emergency. | 6/15/2021 9:22 PM |
| 178 | Some kind of detours and signs for when 81 is closed need to be installed to better allow travelers to be informed of issues ahead. | 6/15/2021 9:07 PM |
| 179 | we need to find a way to communicate if our cell phones stop working | 6/15/2021 8:15 PM |
| 180 | They infrastructure in this area is junk. They continue to build and have no where for water to run after a storm. Causing flooding. | 6/15/2021 8:08 PM |
| 181 | the great catalog fire department needs to install , test and use the emergency siren. Also. There is no cell service here. We need to get cell or satellite service available to every home | 6/15/2021 7:53 PM |
| 182 | need to review flood areas and do abatement. Consider flood issues with any highway changes and additions. | 6/15/2021 5:36 PM |
| 183 | None. | 6/15/2021 3:42 PM |
| 184 | I just want to say, I'm so impressed with how our health department handled the pandemic. I'm impressed with the passionate people who work there that I've met. And I feel confident we have a knowledgeable group. | 6/15/2021 3:07 PM |
| 185 | N/A | 6/15/2021 2:23 PM |

## Appendix C-19 Radio Interview on Eastern Panhandle Talk with Rob and Dave (June 18, 2021)




Listen here: https://www.talkradiowrnr.com/local-talk-show-programs/2021/06/rob-dave-6-18-21-dr-kevin-mclaughlin-kenny-roberts-matt-pennington-troy-truax-mike-caryl-joe-ferretti-john-doyle/

## Appendix C-20 Radio Interview on Panhandle Live (June 29, 2021)

Listen here: https://anchor.fm/panhandle-news-network/episodes/Panhandle-Live--6-29-21-e13l9oh

## Appendix C-21 The Journal Article Regarding Public Meeting (August 24, 2021)

**NOTICE OF PUBLIC MEETING**

**BERKELEY COUNTY HAZARD MITIGATION PLAN UPDATE**

The Berkeley County Hazard Mitigation Plan Update Committee will meet on August 24, 2021 from 1:30 - 3:30 PM at the Berkeley County Council Chambers located at 400 W. Stephen Street, 2nd Floor, Martinsburg, WV 25401. 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 226 Pilot Way Ste. E., Martinsburg, WV 25405 or by phone at 304-263-1743.

8:5 (1t)

# Certificate of Publication

This is to certify the annexed advertisement

Notice of Public Meeting

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

Aug 5, 2021

and ending:

Aug 5, 2021

The Journal
207 W. King Street
Martinsburg, WV 25401

Fee $ 18.05

THE STATE OF WEST VIRGINIA
COUNTY OF BERKELEY

The foregoing instrument was acknowledged before me this 11 Aug 2021

_____ by

_____

My commission expires April 29, 2013

_____
Notary Public

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Carol Bush
[illegible]
My Commission Expires April 29, 2013

## Appendix C-22 Morgan Messenger Article Regarding Public Meeting

# CERTIFICATE OF PUBLICATION

THIS IS TO CERTIFY that a legal publication

Notice of Public Meeting

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

August 4, 2021

and ending

August 4, 2021

Per Skip Heaney

THE MORGAN MESSENGER, INC.

Words 120

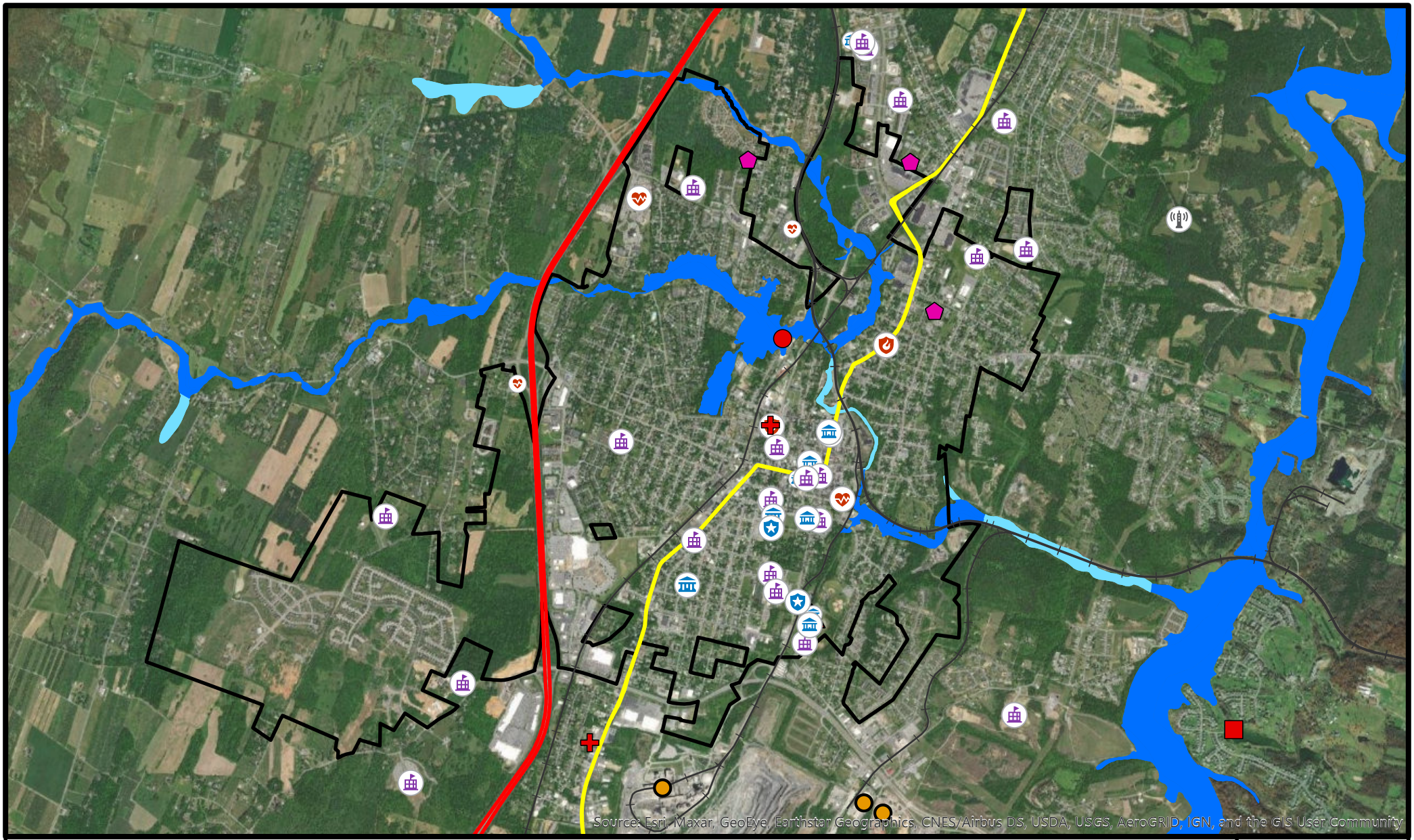
Charge $ 14.40

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

The Morgan County Hazard Mitigation Plan Update Committee will meet on August 24, 2021 from 9-11 a.m. at Blue Ridge Community and Technical College located at 109 War Memorial Drive, 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 226 Pilot Way Ste. E Martinsburg WV 25405 or by phone at 304-263-1743.

8-4-1tm

## D. Flood Vulnerability Maps




Communication Tower
Fire Stations
Police Stations
Healthcare Facilities
Government Facility
Schools
Nursing Home
TRI Facility
Water Treatment Facility
Ambulance
Dams
Energy Facility
EOC
A
AE
US Route
Interstate
Railroad

# Multi-Jurisdictional Hazard Mitigation Plan Update Martinsburg Flood Vulnerability

N

0 0.75 1.5 Miles

Appendix D

Michael Baker INTERNATIONAL




Fire Stations

Schools

Ambulance

A

AE

**Multi-Jurisdictional Hazard Mitigation Plan Update**
**Town of Hedgesville**
**Flood Vulnerability**

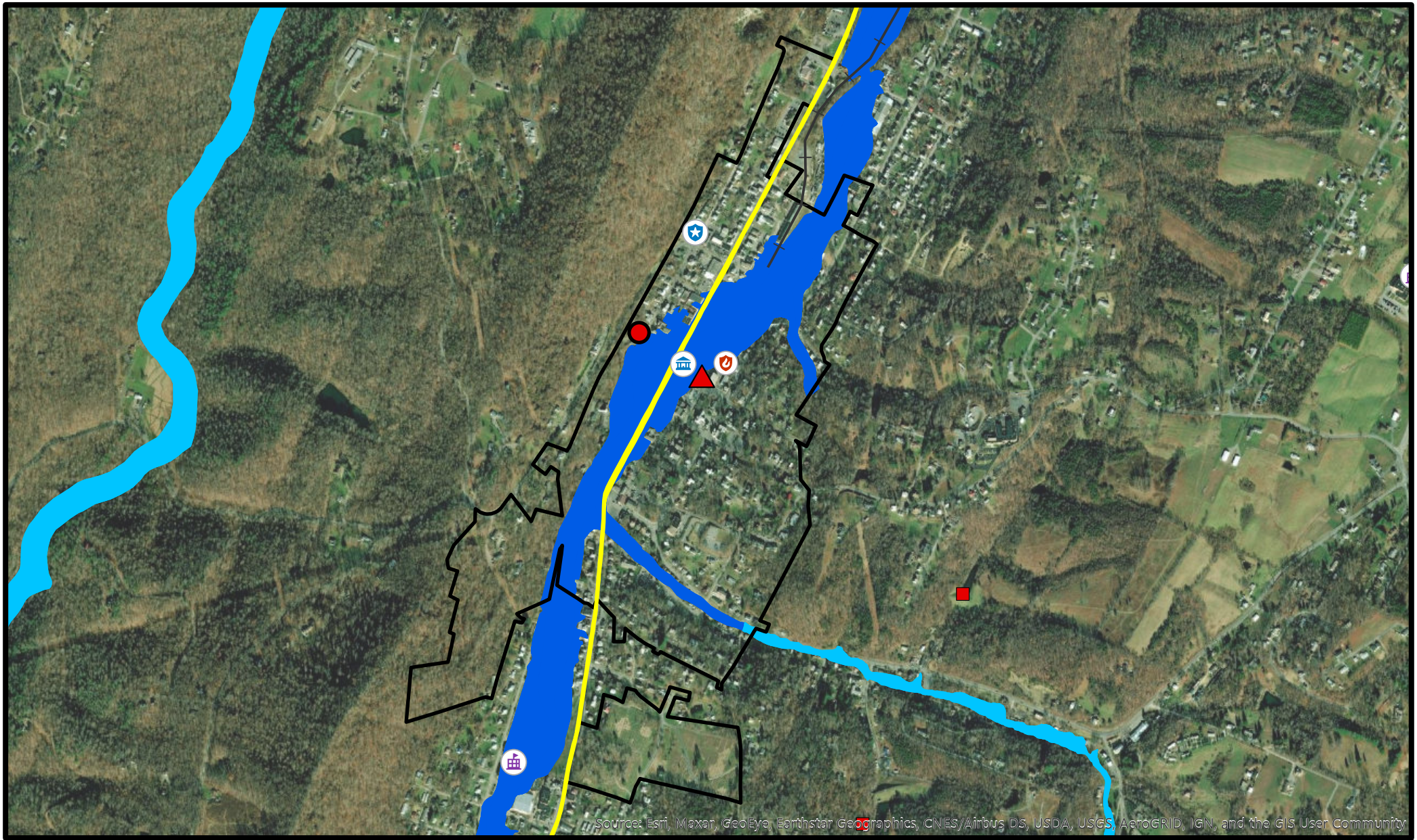
N

Miles

0 0.23 0.45

**Appendix D**

Michael Baker INTERNATIONAL




Fire Stations
Healthcare Facilities
Government Facility
Schools
Police Stations

Dams
Water Treatment Facility
US Route
Railroad

A
AE

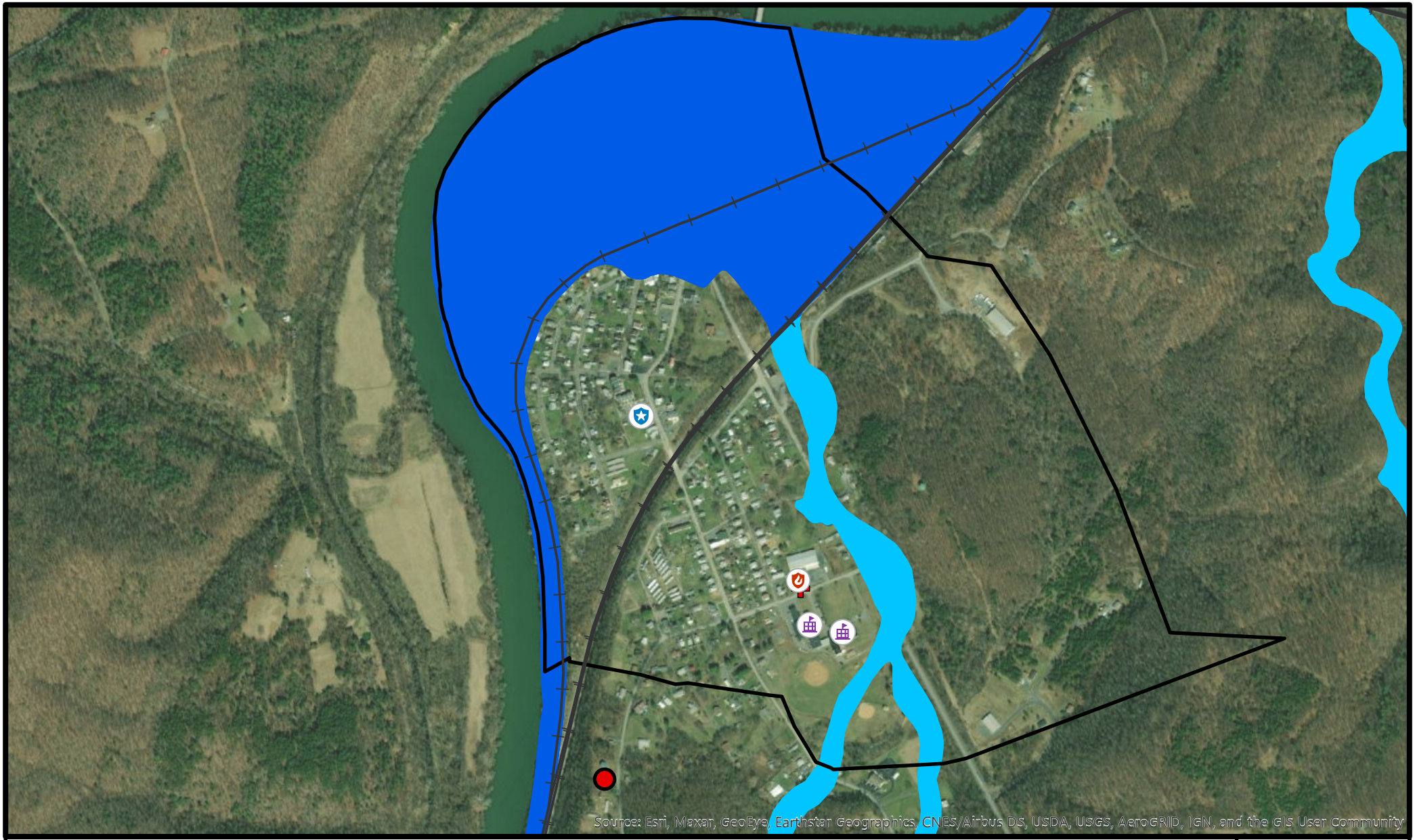
# Multi-Jurisdictional Hazard Mitigation Plan Update Town of Bath Flood Vulnerability

N

0 0.25 0.5 Miles

**Appendix D**

Michael Baker INTERNATIONAL




Fire Stations
Ambulance
Schools
Water Treatment Facility
Police Stations

A
AE
Railroad

**Multi-Jurisdictional Hazard Mitigation Plan Update**
**Town of Paw Paw**
**Flood Vulnerability**

0 0.15 0.3 Miles

N

**Appendix D**

Michael Baker INTERNATIONAL

## G. Hazus Flood Reports for all Participating Municipalities in Region 9

# COMMUNITY ASSETS (Region 9)


Religious Organization


Educational Building


Emergency Medical Services


Government Building


Utility


National Register Historical Structure

**Description:** **Community assets** are historical structures listed on the National Register of Historic Places, government facilities (federal, state, local), emergency medical services (EMS), religious organizations, utilities, postsecondary educational facilities, or other buildings of significance that contribute to the *built environment* of community. A hazard vulnerability analysis of community historic/cultural should be conducted by floodplain managers and risk planners to develop mitigation strategies for these assets.

A designated historic structure can obtain the benefit of subsidized flood insurance through the NFIP even if it has been substantially improved or substantially damaged so long as the building maintains its historic designation. Although the NFIP provides relief to historic structures from having to comply with NFIP floodplain management requirements for new construction, communities and owners of historic structures should give consideration to mitigation measures that can reduce the impacts of flooding on historic structures located in Special Flood Hazard Areas (44 CFR §60.3).

**Community Engagement and Verification:**

Review the accuracy and completeness of all *active* **community assets**. Report any structures that are missing. Verify the buildings and location using the Table and Risk MAP View of the WV Flood Tool. Review and identify mitigation strategies for the community assets vulnerable to flooding.

**Table CA-1.** Essential Facility Types and Qualification Criteria for Statewide Risk Assessment

| COMMUNITY ASSET | Government Buildings | EMS | Religious Organizations | Educational Facilities | Utilities | Historical Buildings |
|---|---|---|---|---|---|---|
| Qualification | Local, State, and Federal Buildings | Ambulances | Worship facility | Post-secondary educational facilities | Large utility structures (e.g., not small pump stations) | NR Site Points<br><br>Historic District Buildings older than 1930 |
| FEMA Lifeline Component | Government Service, Shelter | Patient Movement | Food, Water, Shelter | Shelter | Water, Health, Facility Management | |

**Community Lifelines:** FEMA recently developed the community lifelines construct to increase effectiveness in disaster operations and better position the Agency to respond to catastrophic incidents. Community assets cover a minimum of four lifeline sectors: Safety and Security; Food, Water, Shelter; Health and Medical; and Energy (CA-1).

**Community Assets:** A total of 32 community assets (non-historical) were inventoried in the 1%-annual-chance floodplain for the **Region 9** Planning and Development Council (Table CA-2). **Jefferson County** (ranked 45th in the state) has the largest number of inventoried community resources (n=13) in Region 9. In the floodplain are three Shepherdstown University *post-secondary educational* buildings located in **Shepherdstown**, **Jefferson County**, the highest ranking in the State for post-secondary facilities in an incorporated area and county. **Jefferson** and **Berkeley** counties are ranked 10th in the State for the number of inventoried *utility* buildings. The city of **Martinsburg** (ranked 1st of all incorporated areas) has four utilities located in the high-risk floodplain followed by the town of **Shepherdstown** (ranked 4th of all incorporated areas).

**Historical Community Assets:** A total of 190 *historical buildings* were inventoried in the 1%-annual-chance floodplain for **Region 9** (Table CA-3). The data sources for the historical buildings are from the National Register *site* and *area* designations. Buildings identified within National Register Areas or registered historic districts are older than 1930. **Jefferson County** is ranked 4th in the State as having the most historical buildings (123) in the high-risk floodplain. Most of these historical buildings are in the towns of **Shepherdstown** (51) and **Harpers Ferry** (29). The unincorporated area of **Jefferson County** is ranked 1st among all unincorporated areas with 26 historical buildings followed by the unincorporated area of **Berkeley County** (18 buildings). The town of **Bath** (Berkeley Springs) in Morgan County is ranked 10th in the State for an incorporated area with the most historical buildings (47). For the most National Register Areas in the State that intersect the 1% floodplain, **Jefferson County** (23 NR Areas) is ranked first, **Berkeley County** (20) second, and **Morgan County** (2) nineteenth. For more complete information about the historical designations, refer to the National Register WV Listings.

**FEMA LIFELINE RESOURCES**

Bringing Lifelines into Hazard Mitigation Planning: Slides | Audio | Fact Sheet | BRIC | FEMA Website

**HISTORICAL RESOURCES**

Incorporating Historic Resources in Hazard Mitigation Plan: FEMA R3 Presentation | MD Guide

FEMA Technical Bulletin: Floodplain Management of Historic Structures

Map Resources: WV Flood Tool's Risk MAP View | WV SHPO GIS Viewer

National Register Listing: WV State Historic Preservation Office

**Table CA-2.** Community Assets vulnerable to riverine flooding.

| Community Name | County | Religious Org. | Govt. Bldg. | Utility | Education | EMS | Other | Total (Non-Historical) |
|---|---|---|---|---|---|---|---|---|
| Berkeley County* | BERKELEY | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Hedgesville | BERKELEY | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Martinsburg | BERKELEY | 2 | 1 | 4 | 0 | 0 | 0 | 7 |
| *SUM* | **BERKELEY** | **3** | **1** | **4** | **0** | **0** | **0** | **8** |
| Bolivar | JEFFERSON | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Charles Town | JEFFERSON | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Harpers Ferry | JEFFERSON | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Jefferson County* | JEFFERSON | 2 | 2 | 1 | 0 | 0 | 0 | 5 |
| Ranson | JEFFERSON | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Shepherdstown | JEFFERSON | 0 | 0 | 2 | 3 | 0 | 0 | 5 |
| *SUM* | **JEFFERSON** | **3** | **3** | **4** | **3** | **0** | **0** | **13** |
| Bath | MORGAN | 6 | 2 | 0 | 0 | 0 | 0 | 8 |
| Morgan County* | MORGAN | 0 | 1 | 0 | 0 | 1 | 0 | 2 |
| Paw Paw | MORGAN | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| *SUM* | **MORGAN** | **7** | **3** | **0** | **0** | **1** | **0** | **11** |
| **TOTAL** | | **13** | **7** | **8** | **3** | **1** | **0** | **32** |

* Unincorporated Community

Region 9 Tabular Community-Level Report Link: https://data.wvgis.wvu.edu/pub/RA/State/CL/

**Table CA-3.** Historical Community Assets vulnerable to riverine flooding.

| Community Name | County | NR Bldg. Sites | Bldg. in Historic District (older than 1930) | Total Historic Bldgs. | # NR Areas /Districts in 1% Floodplain |
|---|---|---|---|---|---|
| Berkeley County* | BERKELEY | 6 | 12 | 18 | 13 |
| Hedgesville | BERKELEY | 0 | 0 | 0 | 0 |
| Martinsburg | BERKELEY | 0 | 2 | 2 | 8 |
| | **BERKELEY** | **6** | **14** | **20** | **20** |
| Bolivar | JEFFERSON | 0 | 3 | 3 | 3 |
| Charles Town | JEFFERSON | 0 | 14 | 14 | 2 |
| Harpers Ferry | JEFFERSON | 1 | 28 | 29 | 4 |
| Jefferson County* | JEFFERSON | 3 | 23 | 26 | 21 |
| Ranson | JEFFERSON | 0 | 0 | 0 | 1 |
| Shepherdstown | JEFFERSON | 1 | 50 | 51 | 2 |
| | **JEFFERSON** | **5** | **118** | **123** | **23** |
| Bath | MORGAN | 2 | 45 | 47 | 1 |
| Morgan County* | MORGAN | 0 | 0 | 0 | 2 |
| Paw Paw | MORGAN | 0 | 0 | 0 | 0 |
| | **MORGAN** | **2** | **45** | **47** | **3** |
| **TOTAL** | | **13** | **177** | **190** | **46** |

* Unincorporated Community

**Building-Level Community Assets by Flood Depth:** Community assets most vulnerable to a high-risk 1%-annual-chance (100-yr) flood event are displayed below. The flood depth grid and building damage estimates quantify the degree of risk at which facilities may be subject to the greatest flood damage.

**Table CA-4.** Community Assets most vulnerable to 1% Flood Depth. What is the degree of risk?

| Community Name | County | Facility Name | **Facility Type** | Flood Tool Link | **Flood Depth** | Building Damage Percent |
|---|---|---|---|---|---|---|
| Harpers Ferry | JEFFERSON | National Park Service Information Center | **Government** | FT | 31.9 | 78% |
| Shepherdstown | JEFFERSON | Shepherd's Mill | **Utilities** | FT | 12.3 | 55% |
| Shepherdstown | JEFFERSON | Shepherdstown Water Works Plant | **Utilities** | FT | 2.9 | 16% |
| Jefferson County* | JEFFERSON | Millville Pentecostal Church | **Religious Institution** | FT | 7.1 | 13% |
| Charles Town | JEFFERSON | Wastewater Treatment Plant | **Utilities** | FT | 2.1 | 12% |
| Berkeley County* | BERKELEY | Little Falls Chapel | **Religious Institution** | FT | 6.4 | 11% |
| Martinsburg | BERKELEY | Holy Grace Church of God | **Religious Institution** | FT | 3.4 | 11% |
| Martinsburg | BERKELEY | Roach Energy | **Utilities** | FT | 3.5 | 10% |
| Martinsburg | BERKELEY | Martinsburg Sewage Treatment Plant | **Utilities** | FT | 4.8 | 9% |
| Bath | MORGAN | Morgan County Courthouse | **Government** | FT | 2.6 | 7% |
| Bath | MORGAN | Morgan County Public Library | **Government** | FT | 2.9 | 7% |
| Shepherdstown | JEFFERSON | Shepherd University White Hall | **Education** | FT | 2.0 | 5% |
| Shepherdstown | JEFFERSON | Shepherd University McMurran and Reynolds Hall | **Education** | FT | 2.0 | 5% |

* Unincorporated Community

Region 9 Tabular Building-Level Report Link: https://data.wvgis.wvu.edu/pub/RA/Region9/BLRA/2A_CommunityAsset/

**Utility Facilities by Flood Depth:** Utility buildings prone to a high-risk 1%-annual-chance (100-yr) flood event are displayed below. The flood depth grid and building damage estimates quantify the degree of risk at which facilities may be subject to the greatest flood damage. Located in a high-risk advisory floodplain, the **Martinsburg Sewage Treatment Plant** with an appraised value of $51,761,800 is the most expensive facility among the community assets of **Region 9**.

**Table CA-5a.** Utility buildings at risk of a 1% Flood. What is the degree of risk?

| Community Name | County | Facility Name | **Facility Type** | Flood Tool Link | **Flood Depth** | Building Damage Percent |
|---|---|---|---|---|---|---|
| Shepherdstown | JEFFERSON | Shepherd's Mill | **Utilities** | FT | 12.3 | 55% |
| Shepherdstown | JEFFERSON | Shepherdstown Water Works Plant | **Utilities** | FT | 2.9 | 16% |
| Charles Town | JEFFERSON | Wastewater Treatment Plant | **Utilities** | FT | 2.1 | 12% |
| Martinsburg | BERKELEY | Roach Energy | **Utilities** | FT | 3.5 | 10% |
| Martinsburg | BERKELEY | Martinsburg Sewage Treatment Plant | **Utilities** | FT | 4.8 | 9% |
| Martinsburg | BERKELEY | Kilmer Springs Water Filtration Plant | **Utilities** | FT | 1.0 | 0% |
| Martinsburg | BERKELEY | Martinsburg Recycling Center | **Utilities** | FT | 0.0 | 0% |
| Jefferson County* | JEFFERSON | Harper's Ferry Water Works | **Utilities** | FT | 0.0 | 0% |

* Unincorporated Community

**Educational (Post-secondary) Community Assets by Flood Depth:** The following table shows the post-secondary educational facilities located in the high-risk (100-yr) floodplain of **Region 9**. All three buildings belong to **Shepherd University** in Shepherdstown, Jefferson County.

**Table CA-5b.** Educational (Post-secondary) buildings at risk of a 1% Flood. What is the degree of risk?

| Community Name | County | Facility Name | **Facility Type** | Flood Tool Link | **Flood Depth** | Building Damage Percent |
|---|---|---|---|---|---|---|
| Shepherdstown | JEFFERSON | Shepherd University White Hall | **Education** | FT | 2.0 | 5% |
| Shepherdstown | JEFFERSON | Shepherd University McMurran and Reynolds Hall | **Education** | FT | 2.0 | 5% |
| Shepherdstown | JEFFERSON | Shepherd University Human Resources | **Education** | FT | 2.0 | 0% |

Region 9 Tabular Building-Level Report Link: https://data.wvgis.wvu.edu/pub/RA/Region9/BLRA/2A_CommunityAsset/

**Historical Community Assets by Flood Depth:** Historical buildings most vulnerable to a high-risk 1%-annual-chance (100-yr) flood event in each county are displayed below. The flood depth grid and building damage estimates quantify the degree of risk at which facilities may be subject to the greatest flood damage. The town of Harpers Ferry has a history of catastrophic floods and is one of the most vulnerable communities in the State.

**Table CA-6a.** Jefferson County Historical buildings most vulnerable to 1% Flood Depth.

| Community Name | County | Facility Name | **Facility Type** | Flood Tool Link | **Flood Depth** | Building Damage Percent |
|---|---|---|---|---|---|---|
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 33.0 | 78% |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 32.8 | 78% |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 32.7 | 78% |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 32.1 | 78% |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 31.9 | 78% |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 31.7 | 78% |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 31.5 | 78% |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 31.3 | 78% |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 31.2 | 78% |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 30.5 | 78% |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 29.4 | 78% |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 29.1 | 78% |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 28.4 | 78% |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 27.9 | 78% |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 26.6 | 75% |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 26.1 | 73% |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | **National Register** | FT | 25.9 | 72% |

**Table CA-6b.** Morgan County Historical buildings most vulnerable to 1% Flood Depth.

| Community Name | County | Facility Name | **Facility Type** | Flood Tool Link | **Flood Depth** | Building Damage Percent |
|---|---|---|---|---|---|---|
| Bath | MORGAN | Town of Bath Historic District | **National Register** | FT | 8.3 | 27% |
| Bath | MORGAN | Town of Bath Historic District | **National Register** | FT | 7.8 | 40% |
| Bath | MORGAN | Town of Bath Historic District | **National Register** | FT | 7.0 | 16% |
| Bath | MORGAN | Town of Bath Historic District | **National Register** | FT | 6.6 | 37% |
| Bath | MORGAN | Town of Bath Historic District | **National Register** | FT | 5.5 | 16% |
| Bath | MORGAN | Town of Bath Historic District | **National Register** | FT | 5.0 | 16% |
| Bath | MORGAN | Town of Bath Historic District | **National Register** | FT | 4.8 | 8% |
| Bath | MORGAN | Town of Bath Historic District | **National Register** | FT | 4.7 | 17% |
| Bath | MORGAN | Town of Bath Historic District | **National Register** | FT | 4.4 | 5% |
| Bath | MORGAN | Town of Bath Historic District | **National Register** | FT | 4.2 | 2% |

**Table CA-6c.** Berkeley County buildings most vulnerable to 1% Flood Depth. What is the degree of risk?

| Community Name | County | Facility Name | **Facility Type** | Flood Tool Link | **Flood Depth** | Building Damage Percent |
|---|---|---|---|---|---|---|
| Berkeley County* | BERKELEY | Darkesville Historic District | **National Register** | FT | 5.2 | 22% |
| Berkeley County* | BERKELEY | Darkesville Historic District | **National Register** | FT | 4.7 | 13% |
| Martinsburg | BERKELEY | Tuscarora Creek Historic District | **National Register** | FT | 2.5 | 11% |
| Martinsburg | BERKELEY | Tuscarora Creek Historic District | **National Register** | FT | 2.1 | 14% |
| Berkeley County* | BERKELEY | Darkesville Historic District | **National Register** | FT | 2.1 | 8% |
| Berkeley County* | BERKELEY | Mill Creek Historic District | **National Register** | FT | 1.1 | 4% |

* Unincorporated Community

**National Register Areas:** The historical districts with the most buildings older than 1930 are listed below. Refer to the detailed National Register report as to which buildings contribute to the historic designation.

**Table CA-7.** National Register Areas with the estimated highest number of historic buildings.

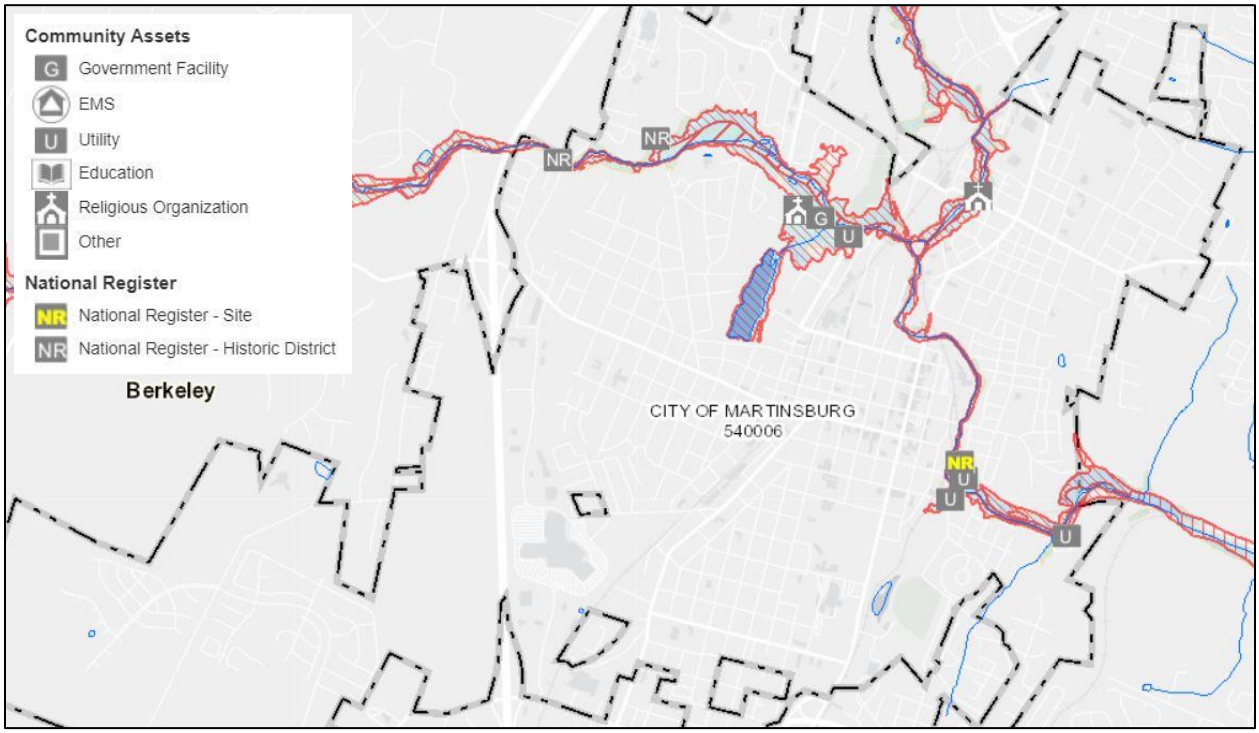
| Community Name | County | Historic Name | # Bldg. Points in NR Area | Flood Tool Link |
|---|---|---|---|---|
| Shepherdstown | JEFFERSON | Shepherdstown Historic District (Boundary Increase) | 57 | FT |
| Bath | MORGAN | Town of Bath Historic District | 45 | FT |
| Harpers Ferry | JEFFERSON | Harpers Ferry National Historical Park | 31 | FT |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District | 28 | FT |
| Harpers Ferry | JEFFERSON | Harpers Ferry Historic District (Additional Information) | 28 | FT |
| Shepherdstown | JEFFERSON | Shepherdstown Historic District | 15 | FT |
| Charles Town | JEFFERSON | Old Charles Town Historic District | 13 | FT |
| Jefferson County* | JEFFERSON | Middleway Historic District | 9 | FT |
| Berkeley County* | BERKELEY | Darkesville Historic District | 5 | FT |
| Berkeley County* | BERKELEY | Mill Creek Historic District | 3 | FT |
| Berkeley County* | BERKELEY | Scrabble Historic District | 3 | FT |
| Berkeley County* | BERKELEY | Tuscarora Creek Historic District | 3 | FT |

* Unincorporated Community

Source: Region 9 National Register Name Report: https://data.wvgis.wvu.edu/pub/RA/Region9/BLRA/2A_CommunityAsset/

**Verification - WV Flood Tool Risk MAP:** The **WV Flood Tool's Risk MAP View** should be used to view and verify mapped community assets and other risk layers, such as the example below of Martinsburg in Berkeley County.

**Figure CA-8.** Community Assets in city of Martinsburg displayed on Risk MAP View of the WV Flood Tool.




WV Flood Tool Map Link: https://www.mapwv.gov/flood/map/?wkid=102100&x=-8679524&y=4787539&l=7&v=2

**Verification - Tabular Report:** Community Assets can also be viewed and verified for each community by linking to the risk assessment **tabular report** (Excel spreadsheet). To verify the geographic location of each facility, the Excel table provides map view links. Community Asset data fields include Community Identifiers, Building ID, Address, Facility Name, Facility Type, Specific Occupancy Code, Building Value, Building Value Source, Flood Zone, Floodway, Flood Depth, Building Damage Estimate, and Flood Tool viewer link.

**Table CA-9.** Community Assets for city of Martinsburg displayed in Tabular Report with map links.

| Facility Name | Full Address | Facility Type | Flood Tool Link |
|---|---|---|---|
| Holy Grace Church of God | 215 W Moler Ave, Martinsburg, WV, 25404 | Religious Institution | FT |
| Roach Energy | 333 E John St, Martinsburg, WV, 25401 | Utilities | FT |
| Martinsburg Sewage Treatment Plant | 500 E John St, Martinsburg, WV, 25401 | Utilities | FT |
| Tuscarora Creek Historic District | 600A N TENNESSEE AVE, Martinsburg, WV, 25401 | National Register - Historic District | FT |
| Tuscarora Creek Historic District | 200 OLD MILL RD, Martinsburg, WV, 25401 | National Register - Historic District | FT |
| Berkeley City Council Warehouse | 750 Baltimore St, Martinsburg, WV, 25401 | Government | FT |
| Kilmer Springs Water Filtration Plant | 602 Baltimore St, Martinsburg, WV, 25401 | Utilities | FT |
| Kingdom Hall of Jehovah's Witnesses | 725 Baltimore St, Martinsburg, WV, 25401 | Religious Institution | FT |
| Martinsburg Recycling Center | 9999 E Stephen St, Martinsburg, WV, 25401 | Utilities | FT |

Region 9 Tabular Building-Level Report Link: https://data.wvgis.wvu.edu/pub/RA/Region9/BLRA/2A_CommunityAsset/

**Verification with Community-Level Report:** A summary report for all communities and regions can be accessed at https://data.wvgis.wvu.edu/pub/RA/State/CL/. See Tables CA-2 and CA-3 for sample outputs.

* * *

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# ESSENTIAL FACILITIES (Region 9)



Police Station


Fire Station


E-911 Dispatch


School


Hospital


Nursing Home

**Description:** **Essential facilities** provide critical services to the community and include police and fire stations, E-911 emergency operations centers, schools (often used as shelters), hospitals, and nursing homes. FEMA identifies these critical facilities as *essential* in its Hazus-MH risk assessment tool. If a critical facility must be in a floodplain then it should be provided a higher level of protection so that it can continue to function and provide services after the flood. Communities should develop emergency plans to continue to provide these services during the flood.

Under Executive Order 11988, Floodplain Management, Federal agencies funding and/or permitting critical facilities are required to avoid the 0.2 percent (500-year) floodplain or protect the facilities to the 0.2 percent chance flood level.

**Community Engagement and Verification:**

Review the accuracy and completeness of all *active* **essential facilities**. Report any facilities that are missing. Verify the facilities and location using the Table and RiskMAP View of the WV Flood Tool.

**Table EF-1.** Essential Facility Types and Qualification Criteria for Statewide Risk Assessment

| Essential Facility | Police Station | Fire Station | Emergency Operations Center | K-12 School | Hospital | Nursing Home |
|---|---|---|---|---|---|---|
| **Qualification** | Police Cars | Fire Trucks | E-911 Dispatch Office | Classrooms of students (public or private) | Inpatients | Staffed continuously for 24-hour medical supervision |
| **FEMA Lifeline Component** | Law Enforcement and Security | Fire Service | 911 and Dispatch | Government Service, Shelter | Medical Care (Public Health) | Medical Care (Long-Term Facilities) |

**Community Lifelines:** FEMA recently developed the community lifelines construct to increase effectiveness in disaster operations and better position the Agency to respond to catastrophic incidents. Community lifelines cover seven sectors: Safety and Security; Food, Water, Shelter; Health and Medical; Energy; Communications; Transportation; and Hazardous Material. Essential facilities are identified by six of the FEMA Lifeline Components (Table EF-1). Refer to other state risk assessment reports for additional information on housing, shelters, flood control (dams, levees), highways, railways, bridges, and other hazards (landslides).

**Other Related Risk Layers:** Primary Structures, Essential Facilities, Transportation, Dams, Levees

**Bringing Lifelines into Hazard Mitigation Planning:** Slides | Audio | Fact Sheet | BRIC | FEMA Website

**Critical Facilities:** Definition | Critical Facilities and Higher Standards

**Essential Facilities by Type:** Seventeen percent (17%) or 2 of the 12 flood-prone communities in Region 9 have essential facilities vulnerable to flooding. The county with the most essential facilities is **Morgan County** (ranked 29th for all counties), while the incorporated town with the highest number of facilities is **Bath** (ranked 46th for all municipalities in State) in Morgan County. Hospitals and nursing homes with immobile patients or residents are particularly vulnerable to a flood disaster. Small towns situated mostly in the floodplain are more challenged than unincorporated areas or larger cities to identify suitable sites that provide a high level of protection from flooding.

**Table EF-2.** Essential Facilities by Type vulnerable to riverine flood.

| COMMUNITY IDENTIFICATION | | | ESSENTIAL FACILITIES | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **CID** | **Community Name** | **County** | **Police Station** | **Fire Station** | **911 Center** | **School** | **Hospital** | **Nursing Home** | **TOTAL** |
| 540282 | Berkeley County* | BERKELEY | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 545550 | Hedgesville | BERKELEY | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 540006 | Martinsburg | BERKELEY | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *SUM* | | **BERKELEY** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| 540030 | Bolivar | JEFFERSON | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 540066 | Charles Town | JEFFERSON | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 540067 | Harpers Ferry | JEFFERSON | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 540065 | Jefferson County* | JEFFERSON | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 540068 | Ranson | JEFFERSON | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 540069 | Shepherdstown | JEFFERSON | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *SUM* | | **JEFFERSON** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| 540005 | Bath (Ranked 46th for all municipalities in State) | MORGAN | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| 540144 | Morgan County* | MORGAN | 1 | 0 | 0 | 1 | 0 | 0 | 2 |
| 540252 | Paw Paw | MORGAN | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *SUM* | **Ranked 29th in State** | **MORGAN** | **1** | **1** | **1** | **1** | **0** | **0** | **4** |
| **TOTAL** | | | **1** | **1** | **1** | **1** | **0** | **0** | **4** |

* Unincorporated Community

** Split Community

**Essential Facilities by Flood Zone:** There are 4 facilities in the high-risk *effective* and *advisory* 1%-annual-chance (100-yr) floodplains. No essential facilities exist in the Regulatory Floodway or in the moderate-risk 0.2%-annual-chance (500-yr) floodplain.

**Table EF-3.** Essential Facilities by Flood Zone. What is at risk?

| COMMUNITY IDENTIFICATION | | | FLOOD ZONE BREAKDOWN | | | | |
|---|---|---|---|---|---|---|---|
| | | | 1%-Annual-Chance (100-yr) Floodplain | | | 0.2% (500-yr) Floodplain | High & Moderate Risk |
| **CID** | **Community Name** | **County** | **Flood-way** | **Effective** | Advisory | Effective | **TOTAL** |
| 540282 | Berkeley County* | BERKELEY | 0 | 0 | 0 | 0 | 0 |
| 545550 | Hedgesville | BERKELEY | 0 | 0 | 0 | 0 | 0 |
| 540006 | Martinsburg | BERKELEY | 0 | 0 | 0 | 0 | 0 |
| *SUM* | | **BERKELEY** | **0** | **0** | **0** | **0** | **0** |
| 540030 | Bolivar | JEFFERSON | 0 | 0 | 0 | 0 | 0 |
| 540066 | Charles Town | JEFFERSON | 0 | 0 | 0 | 0 | 0 |
| 540067 | Harpers Ferry | JEFFERSON | 0 | 0 | 0 | 0 | 0 |
| 540065 | Jefferson County* | JEFFERSON | 0 | 0 | 0 | 0 | 0 |
| 540068 | Ranson | JEFFERSON | 0 | 0 | 0 | 0 | 0 |
| 540069 | Shepherdstown | JEFFERSON | 0 | 0 | 0 | 0 | 0 |
| *SUM* | | **JEFFERSON** | **0** | **0** | **0** | **0** | **0** |
| 540005 | Bath | MORGAN | 0 | 2 | 0 | 0 | 2 |
| 540144 | Morgan County* | MORGAN | 0 | 1 | 1 | 0 | 2 |
| 540252 | Paw Paw | MORGAN | 0 | 0 | 0 | 0 | 0 |
| *SUM* | | **MORGAN** | **0** | **3** | **1** | **0** | **4** |
| **TOTAL** | | | **0** | **3** | **1** | **0** | **4** |

* Unincorporated Community

** Split Community

**Essential Facilities by Flood Depth:** Facilities most vulnerable to a high-risk 1%-annual-chance (100-yr) flood event are displayed below. The flood depth grid and building damage estimates identify which facilities may be subject to the greatest flood damage. Refer to the building-level Table and RiskMAP View of the WV Flood Tool to review base flood depths and damage estimates of facilities.

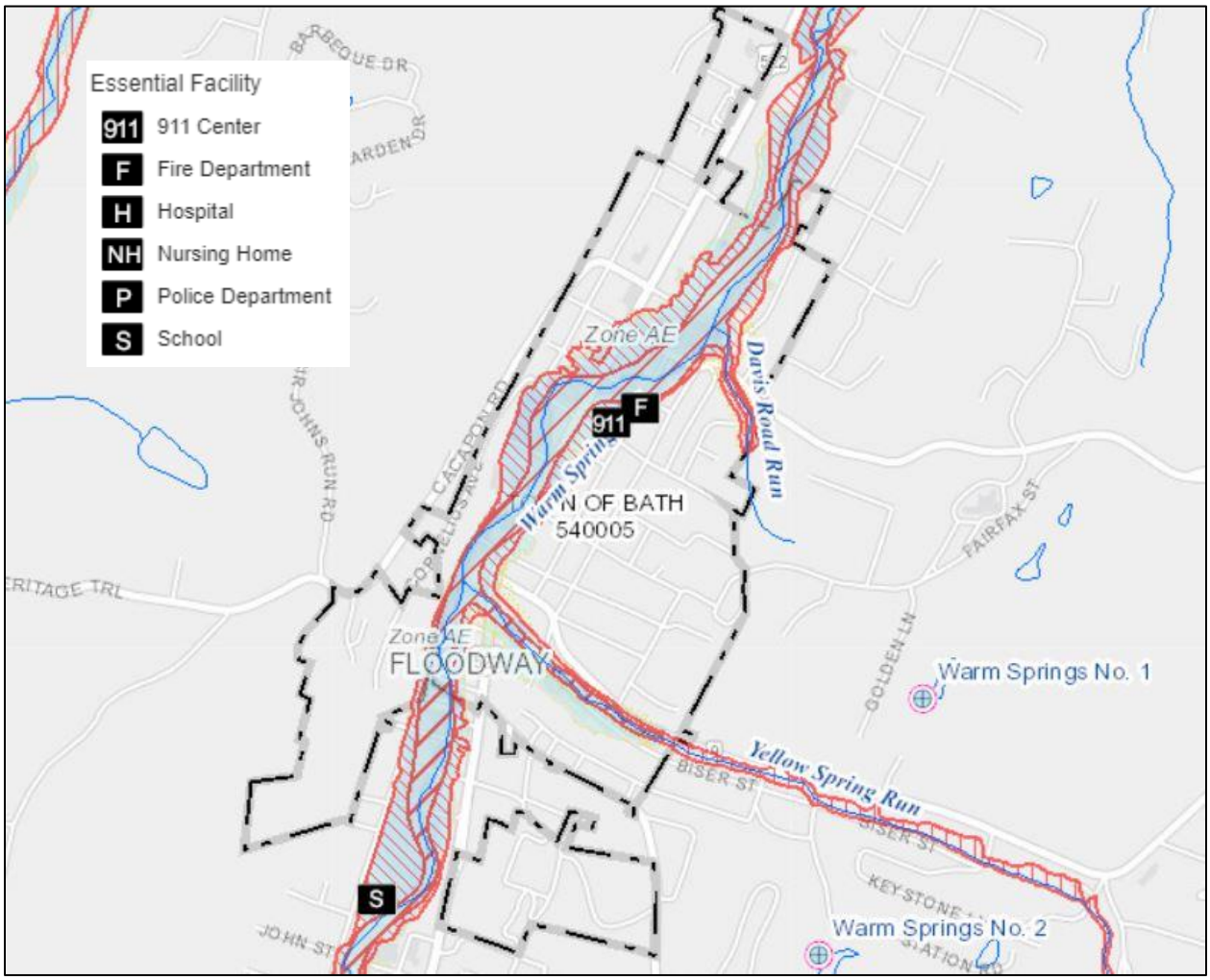
**Table EF-4.** Essential Facilities by 1% Flood Depth (> than 3 feet). What is the degree of risk?

| Community Name | County | Facility Name | Facility Type | Flood Tool Link | Flood Depth | Building Damage Percent |
|---|---|---|---|---|---|---|
| Morgan County* | MORGAN | Berkeley Springs High School | School | FT | 1.4 | 1.9 |
| Morgan County* | MORGAN | WV State Police Troop 2 | Police Department | FT | 0.2 | 0 |
| Bath | MORGAN | Berkeley Springs Volunteer Fire Department | Fire Department | FT | 0 | 0 |
| Bath | MORGAN | Morgan County 911 Center | 911 Center | FT | 0 | 0 |

* Unincorporated Community

**Verification - WV Flood Tool Risk MAP:** The **WV Flood Tool Risk Map View** should be used to view and verify mapped essential facilities and other risk layers, such as the example below of Bath in Morgan County.

**Figure EF-5.** Essential Facilities in town of Bath displayed on Risk MAP View of the WV Flood Tool.




WV Flood Tool Map Link: https://www.mapwv.gov/flood/map/?wkid=102100&x=-8707877&y=4811595&l=8&v=2

**Verification - Tabular Report:** Essential facilities can also be viewed and verified for each community by linking to the risk assessment **tabular report** (Excel spreadsheet). To verify the geographic location of each facility, the Excel table provides map view links. Essential facility data fields include Community Identifiers, Building ID, Address, Facility Type, Occupancy Code, Building Value, Building Value Source, Floodplain, Floodway, and Flood Tool Link.

**Table EF-6.** Essential Facilities for town of Bath displayed in Tabular Report with map links.

| Facility Name | Full Address | **Facility Type** | Flood Tool Link |
|---|---|---|---|
| Berkeley Springs Volunteer Fire Department | 34 North Mercer Street, Berkeley Springs, Morgan, WV, 25411 | Fire Department | FT |
| Morgan County 911 Center | 111 Fairfax Street, Berkeley Springs, Morgan, WV, 25411 | 911 Center | FT |

Region 9 Tabular Report Link: https://data.wvgis.wvu.edu/pub/RA/Region9/BLRA/2_EssentialFacility/

**Verification with Community-Level Report:** A summary report for all communities and regions can be accessed at https://data.wvgis.wvu.edu/pub/RA/State/CL/. See Tables EF-2 and EF-3 for sample outputs.

* * *

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# BUILDING DOLLAR EXPOSURE & TYPE (Region 9)



Residential **Home** | Residential **Manufactured Home** | Residential **Apartment** | Non-Residential **Commercial** | Non-Residential **Industrial** | Non-Residential **Other**

**Building Inventory of Flood-Risk Structures:** This report identifies high-valued buildings and other building characteristics exposed in the 1%-annual-chance (100-year) floodplain. Flood Risk Assessment datasets are developed by pinpointing all primary insurable structures in the high-risk effective and advisory floodplains. Essential facilities (schools, fire, police, E-911, nursing homes, hospitals, nursing homes) are inventoried to the 0.2-pecent (500-year) annual chance flood event. Community assets (government buildings, churches, historical structures, utilities, etc.) are also inventoried. Building characteristics inventoried and verified are **Occupancy Class**, Foundation Type, First Floor Height, Number of Stories, Area, and **Replacement Cost.** Default values are populated from the WV Property Tax Assessment Database and if necessary modified with user-defined values. Building pictures can be linked to the structure-level risk assessment using the unique building identifier (Parcel ID + Address Number).

**Building Replacement Value:** The repair costs to rebuild residential or non-residential structures from flood damage are significant insurance rating and mitigation construction factors. In addition, the structure's replacement value and other building characteristics (occupancy class, foundation type, first floor height, number of stories, and structure area) are inputs to model flood damage estimates. Appraisal values from the West Virginia property tax assessment records are the primary data source for buildings exposed in the 1%-annual-chance (100-yr) floodplain. These building replacement values in the statewide tax assessment database are updated every year by the WV Property Tax Division. If necessary, modified or user-defined values are entered in the enhanced building inventory database to override default appraisal records values when no appraisal values exist or are identified in an adjacent parcel; or if multiple buildings on a single parcel must be apportioned. Other data sources for building dollar replacement costs include neighborhood appraisal values, BRIM Insurance, and RS Means.

**Occupancy Classes:** The building type categories for residential and non-residential structures follow FEMA's Hazus occupancy classification. The primary source for the occupancy type is the 186 land use categories from tax assessment data. These land use codes are converted to the 33 Hazus building specific occupancy classes, and further generalized to residential and non-residential building classes. On the Risk MAP View of the WV Flood Tool, the building occupancy types based on *structure use* are classified as **Residential** (R - single dwelling, farmhouse, mobile home, multi-family, apartments, nursing homes, group quarters); **Commercial** (C - businesses or industrial), and **Other** Non-Residential (schools, government buildings, churches, non-inhabitable agricultural structures, etc.).

Different residential/non-residential categories may apply to different FEMA programs. Typically, the main difference is that for **structure use** applications the **Other Residential (> 4 units)** occupancy class (e.g., apartments, group housing) is categorized as RESIDENTIAL but for **structure type** applications is classified as NON-RESIDENTIAL. The **structure use** occupancy classification is based on habitable on non-habitable occupancy whereas the **structure type** classification is based on design and materials. Refer to the Occupancy Class Types table for a more detailed breakdown of the residential/non-residential categories by specific occupancy classes.

> **FEMA Programs that utilize "Structure Use" Residential/Non-Residential Classification:** WV Flood Tool's Risk MAP View (**R**esidential, **C**ommercial, and **O**ther Non-Residential), NFIP Specific Rating Guidelines; Open Hazus FAST Flood Assessment Structure Tool (Building Damage, Debris Total, and Restoration Time); Population Displacement Model. Note that Other Residential (> 4 units) is included in the RESIDENTIAL classification.
>
> **FEMA Programs that utilize "Structure Type" Residential/Non-Residential Classification:** FEMA's Community Rating System (CRS 214) Program Data Table; Substantial Damage Estimator (SDE) Tool; Nonstructural Mitigation Measures. Note that Other Residential (> 4 units) is included in the NON-RESIDENTIAL classification.

**Manufactured Homes:** Every manufactured mobile home in the floodplain is counted as a primary structure. If singlewide and doublewide mobile homes are assessed as personal property with no listed appraisal values, then replacement manufactured costs are derived from other sources. For example, manufactured replacement home costs may be compiled from the Other Building and Yard Improvements tax assessment table. However, if no tax appraisal values are present, then a countywide average value of singlewide or doublewide home values may be applied.

**Owner Occupancy:** Owner Occupancy is determined from the tax class data value records. Class II properties are owner-occupied residential property used exclusively for residential purposes and all farmland used for agricultural purposes by its owner or bona fide tenant.

**Building Year and FIRM Status:** Collected from the tax assessment records, the building year is compared to the effective date of the initial Flood Insurance Rate Map to determine the Pre-FIRM or Post-FIRM status of each inventoried building. If the site of a post-FIRM structure was not mapped as a Special Flood Hazard Area at the time of construction, then repairs or alterations are regulated as though it is a pre-FIRM structure.

**Community Engagement and Verification:**

Building-Level Verification: Verify the highly valued buildings using the building-level table and Risk MAP View of the WV Flood Tool. For buildings inventoried in the 1% floodplains, review the most expensive residential and non-residential buildings located in the high-risk flood zones sorted on building appraisal value from largest to smallest value. Identify building-level mitigation and outreach strategies.

- Confirm highly valued residential and non-residential buildings for correctness. Confirm recently vacated or demolished structures for correctness. Use the Construction Grade with the building replacement value to identify superior quality structures versus dilapidated/vacated structures. Submit map links of missing noteworthy structures in the high-risk floodplains, especially those of significant importance to the community.

- Filter by Occupancy Class and Regulatory Floodway to refine analysis of building types exposed to higher flood velocities associated with the main channel of the river or stream.

Community-Level Verification: Review community-level flood risk assessment statistics of the building stock to identify mitigation and outreach strategies.

- Percentage of residential versus non-residential homes which impact flood disaster response and flood proofing mitigation efforts.

- Percentage of Post-FIRM buildings and compliance with floodplain development standards.

- Review the more vulnerable building stock such as lighter-weight manufactured homes and rental homes where renters may not carry rental insurance.

**Building Counts / Building Dollar ($) Exposure / Building Occupancy Type / Building Year.** Tables BE-1 through BE-5 present the building counts, building dollar exposure totals, median building values, residential/non-residential occupancy classes, owner-occupancy, building year, and Post-FIRM percentage. These building characteristics are for structures inventoried in the high-risk effective and advisory flood zones for a 1%-annual-chance (100-year) event.

Summary Community Building Counts

- **Jefferson**, **Berkeley**, and **Morgan** counties have similar countywide building counts and rank between 42 and 44 of the State's 55 counties. **Berkeley Unincorporated** (ranked 36th in unincorporated areas) and the incorporated town of **Bath** (ranked 60th for incorporated areas) have the *most buildings* in the high-risk floodplain.

Summary Community Building Values

- **Berkeley**, **Morgan**, and **Jefferson** counties have similar countywide total building values and rank between 24 and 28 in the State. **Jefferson Unincorporated** (ranked 20th in unincorporated areas) and the incorporated town of **Martinsburg** (ranked 14th for incorporated areas) have the *highest building dollar values* vulnerable to a 1%-annual-chance flood event.

Median Building Replacement Value

- **Jefferson** ($96K), **Morgan** ($79K), and **Berkeley** ($62K) **counties** rank first, second, and fourth in the State for *countywide median building replacement value* and much higher than the state median building replacement value of $37,000.
- **Jefferson** ($101K), **Berkeley** ($96K), and **Morgan** ($80K) **counties** rank first, second, and fourth in the State for *countywide median single-family dwelling (RES 1 Occupancy Class) replacement value* and above the state median single family dwelling value of $44,000.

Building Occupancy Class Type

- Most of the primary buildings are *residential*: **Berkeley County** (94%), **Jefferson County** (89%), and **Morgan County** (81%). Of the residential buildings, most of the building stock is *owner-occupied*: Berkeley County (74%), Jefferson County (71%), and Morgan County (69%).
- The total building value for **Jefferson County** is 73% *residential* for the countywide building stock value exposed in the 1% floodplain, while for **Berkeley County** and **Morgan County** the *non-residential* properties are 51% and 59% respectively of the countywide building stock dollar value exposure.
- **Berkeley County Unincorporated** (ranked 12th in the State and 1st in Region 9) has the highest percentage (34%) of *manufactured homes* for *single family dwelling* building stock (Hazus specific occupancy categories: RES1-single family dwelling and RES2-mobile home).

Building Year and FIRM Status

- **Berkeley** and **Jefferson counties** rank 11th in the State for the highest percentage of *Post-FIRM structures* or new development.
- Historical **Harpers Ferry** and **Shepherdstown** are two of the oldest communities in the State with *building year median values* of 1830 and 1900, respectively.

**Table BE-1.** Community rankings of **Total Building Counts** and **Total Building Replacement Values**. Statewide there are 268 flood-prone communities, consisting of 213 incorporated areas and 55 unincorporated areas/counties. For Region 9, eleven incorporated communities except for Hedgesville participate in the NFIP.

| BUILDING COUNT RANKING | | |
|---|---|---|
| Community | Region | State |
| **INCORPORATED** | | |
| Bath | 1 | 60 |
| Ranson | 2 | 86 |
| Martinsburg | 3 | 91 |
| Shepherdstown | 4 | 103 |
| Harpers Ferry | 5 | 143 |
| **UNINCORPORATED** | | |
| Berkeley | 1 | 36 |
| Jefferson | 2 | 40 |
| Morgan | 3 | 41 |
| **COUNTY** | | |
| Jefferson | 1 | 42 |
| Berkeley | 2 | 43 |
| Morgan | 3 | 44 |

| BUILDING $ VALUE RANKING | | |
|---|---|---|
| Community | Region | State |
| **INCORPORATED** | | |
| Martinsburg | 1 | 14 |
| Bath | 2 | 27 |
| Shepherdstown | 3 | 44 |
| Harpers Ferry | 4 | 89 |
| Ranson | 5 | 102 |
| **UNINCORPORATED** | | |
| Jefferson | 1 | 20 |
| Morgan | 2 | 21 |
| Berkeley | 3 | 31 |
| **COUNTY** | | |
| Berkeley | 1 | 24 |
| Morgan | 2 | 27 |
| Jefferson | 3 | 28 |

Source: Region 9 Community-Level Building Exposure Table

- Highest number of primary structures in the 1% floodplain:
  - Bath (incorporated)
  - Berkley County Unincorporated (unincorporated area)
  - Jefferson County (countywide)

- Highest building dollar exposure in the 1% floodplain:
  - Martinsburg (incorporated)
  - Jefferson County Unincorporated (unincorporated)
  - Berkeley County (countywide)

**Table BE-2.** Building Dollar Exposure: Residential versus Non-Residential

| Community | RESIDENTIAL | | | | COMMERCIAL NON-RESIDENTIAL | | OTHER NON-RESIDENTIAL | | TOTAL BUILDING VALUE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Community Name | # | % Count | Value ($) | % Value | # | Value ($) | # | Value ($) | # | Value ($) | Rank[1] |
| Berkeley County* | 619 | 97% | $50,593K | 96% | 12 | $1,965K | 4 | $373K | 635 | $52,931K | 3 |
| Martinsburg | 51 | 68% | $6,124K | 10% | 21 | $55,166K | 3 | $1,035K | 75 | $62,324K | 1 |
| **BERKELEY** | **670** | **94%** | **$56,717K** | **49%** | **33** | **$57,131K** | **7** | **$1,408K** | **710** | **$115,255K** | **1** |
| Bolivar | 3 | 100% | $251K | 100% | 0 | $0K | 0 | $0K | 3 | $251K | 8 |
| Charles Town | 23 | 85% | $2,073K | 65% | 4 | $1,107K | 0 | $0K | 27 | $3,180K | 6 |
| Harpers Ferry | 6 | 19% | $722K | 10% | 25 | $6,243K | 0 | $0K | 31 | $6,965K | 4 |
| Jefferson County* | 505 | 96% | $60,022K | 85% | 14 | $4,889K | 7 | $5,349K | 526 | $70,260K | 1 |
| Ranson | 79 | 99% | $5,206K | 98% | 0 | $0K | 1 | $100K | 80 | $5,305K | 5 |
| Shepherdstown | 38 | 58% | $7,873K | 42% | 24 | $6,057K | 4 | $4,794K | 66 | $18,724K | 3 |
| **JEFFERSON** | **654** | **89%** | **$76,146K** | **73%** | **67** | **$18,295K** | **12** | **$10,243K** | **733** | **$104,685K** | **3** |
| Bath | 64 | 50% | $7,226K | 21% | 52 | $11,499K | 13 | $16,499K | 129 | $35,224K | 2 |
| Morgan County* | 439 | 91% | $35,347K | 51% | 38 | $11,135K | 7 | $23,386K | 484 | $69,867K | 2 |
| Paw Paw | 16 | 53% | $1,133K | 41% | 13 | $1,507K | 1 | $130K | 30 | $2,770K | 7 |
| **MORGAN** | **519** | **81%** | **$43,705K** | **41%** | **103** | **$24,141K** | **21** | **$40,015K** | **643** | **$107,862K** | **2** |
| **SUMMARY** | **1843** | **3** | **$176,569K** | **54%** | **203** | **$99,567K** | **40** | **$51,666K** | **2086** | **$327,802K** | |

* Unincorporated

** Split Community

[1] Group Rank on Community Type: County, Unincorporated, Incorporated

Region 9 Tabular Community-Level Report: https://data.wvgis.wvu.edu/pub/RA/State/CL/ (Building Exposure)

**Table BE-3.** Building Dollar Exposure Breakdown by Single Family

| Community | | SINGLE FAMILY HOME | | MANUFACTURED (MOBILE) HOME | | | SINGLE FAMILY TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| Community Name | County | Count | Value ($) | Count | % Count | Value ($) | Count | Value ($) | Group Rank[1] |
| Berkeley County* | BERKELEY | 404 | $45,448K | 206 | 34% | $3,947K | 610 | $49,396K | 2 |
| Martinsburg | BERKELEY | 41 | $4,507K | 0 | 0% | $0K | 41 | $4,507K | 4 |
| | **BERKELEY** | **445** | **$49,956K** | **206** | **32%** | **$3,947K** | **651** | **$53,903K** | **2** |
| Bolivar | JEFFERSON | 3 | $251K | 0 | 0% | $0K | 3 | $251K | 8 |
| Charles Town | JEFFERSON | 21 | $1,991K | 0 | 0% | $0K | 21 | $1,991K | 5 |
| Harpers Ferry | JEFFERSON | 6 | $722K | 0 | 0% | $0K | 6 | $722K | 7 |
| Jefferson County* | JEFFERSON | 421 | $56,946K | 77 | 15% | $2,311K | 498 | $59,257K | 1 |
| Ranson | JEFFERSON | 65 | $4,494K | 10 | 13% | $351K | 75 | $4,845K | 3 |
| Shepherdstown | JEFFERSON | 35 | $7,191K | 0 | 0% | $0K | 35 | $7,191K | 1 |
| | **JEFFERSON** | **551** | **$71,595K** | **87** | **14%** | **$2,663K** | **638** | **$74,257K** | **1** |
| Bath | MORGAN | 52 | $5,542K | 3 | 5% | $53K | 55 | $5,595K | 2 |
| Morgan County* | MORGAN | 367 | $33,782K | 66 | 15% | $1,211K | 433 | $34,993K | 3 |
| Paw Paw | MORGAN | 12 | $806K | 0 | 0% | $0K | 12 | $806K | 6 |
| | **MORGAN** | **431** | **$40,130K** | **69** | **14%** | **$1,265K** | **500** | **$41,394K** | **3** |
| **SUMMARY** | | **1,427** | **$161,680K** | **362** | **20%** | **$7,875K** | **1,789** | **$169,555K** | |

* Unincorporated

** Split Community

[1] Group Rank on Community Type: County, Unincorporated, Incorporated

Region 9 Tabular Community-Level Report: https://data.wvgis.wvu.edu/pub/RA/State/CL/ (Building Exposure)

**Table BE-4.** Building Year, Building Value, Building Value Single Family Dwelling (RES 1 occupancy class)

| Community Name | County | Average Building Year | Median Building Year | Average Building Value | Median Building Value | Average Building Value RES 1 | Median Building Value RES 1 |
|---|---|---|---|---|---|---|---|
| Berkeley County* | BERKELEY | 1969.6 | 1978 | $83K | $57K | $82K | $56K |
| Martinsburg | BERKELEY | 1961.9 | 1970 | $831K | $103K | $120K | $103K |
| | **BERKELEY** | **1968.7** | **1977** | **$162K** | **$62K** | **$112K** | **$96K** |
| Jefferson County* | JEFFERSON | 1958.3 | 1973 | $134K | $93K | $119K | $94K |
| Bolivar | JEFFERSON | 1878 | 1870 | $84K | $86K | $84K | $86K |
| Charles Town | JEFFERSON | 1938.2 | 1920 | $118K | $60K | $90K | $55K |
| Harpers Ferry | JEFFERSON | 1848.5 | 1830 | $225K | $188K | $120K | $110K |
| Ranson | JEFFERSON | 1970.5 | 1977 | $66K | $63K | $66K | $63K |
| Shepherdstown | JEFFERSON | 1886.5 | 1900 | $284K | $207K | $207K | $173K |
| | **JEFFERSON** | **1947.4** | **1969** | **$143K** | **$96K** | **$130K** | **$101K** |
| Morgan County* | MORGAN | 1971 | 1975 | $144K | $70K | $81K | $65K |
| Bath | MORGAN | 1941.1 | 1940 | $273K | $113K | $113K | $92K |
| Paw Paw | MORGAN | 1946.9 | 1941 | $92K | $66K | $71K | $66K |
| | **MORGAN** | **1963.7** | **1968** | **$168K** | **$79K** | **$93K** | **$80K** |
| **State Statistics** | | **1959.1** | **1960** | **$91K** | **$37K** | **$57K** | **$44K** |

* Unincorporated

Region 9 Tabular Community-Level Report: https://data.wvgis.wvu.edu/pub/RA/State/CL/ (FIRM)

**Table BE-5.** Initial FIRM Effective Date, Pre-FIRM/Post-FIRM percentages

| CID | Community Name | County | Initial FIRM Effective Date | Total Building Count | % Pre-FIRM | % Post-FIRM | % Unknown |
|---|---|---|---|---|---|---|---|
| 540282 | Berkeley County* | BERKELEY | 8/4/1988 | 635 | 58% | 32% | 10% |
| 540006 | Martinsburg | BERKELEY | 12/18/1979 | 75 | 79% | 21% | 0% |
| | | **BERKELEY** | | **710** | **60%** | **31%** | **9%** |
| 540030 | Bolivar | JEFFERSON | 12/18/2009 | 3 | 100% | 0% | 0% |
| 540066 | Charles Town | JEFFERSON | 12/4/1979 | 27 | 74% | 22% | 4% |
| 540067 | Harpers Ferry | JEFFERSON | 8/24/1984 | 31 | 100% | 0% | 0% |
| 540065 | Jefferson County* | JEFFERSON | 10/15/1980 | 526 | 59% | 36% | 5% |
| 540068 | Ranson | JEFFERSON | 6/15/1979 | 80 | 66% | 33% | 1% |
| 540069 | Shepherdstown | JEFFERSON | 3/18/1980 | 66 | 85% | 8% | 8% |
| | | **JEFFERSON** | | **733** | **64%** | **31%** | **5%** |
| 540005 | Bath | MORGAN | 1/2/1980 | 129 | 88% | 12% | 0% |
| 540144 | Morgan County* | MORGAN | 7/1/1987 | 484 | 65% | 33% | 2% |
| 540252 | Paw Paw | MORGAN | 11/2/1984 | 30 | 90% | 10% | 0% |
| | | **MORGAN** | | **643** | **71%** | **28%** | **2%** |

* Unincorporated

Region 9 Tabular Community-Level Report: https://data.wvgis.wvu.edu/pub/RA/State/CL/ (FIRM)

**Verification - Tabular Report:** Building Dollar Exposure for structures located in the high-risk 1%-annual-chance (100-yr) floodplain can be viewed and verified for each community by linking to the risk assessment tabular report (Excel spreadsheet). To verify the geographic location of each high-valued building, the Excel table provides map view links. Refine the search by filtering residential and non-residential records.

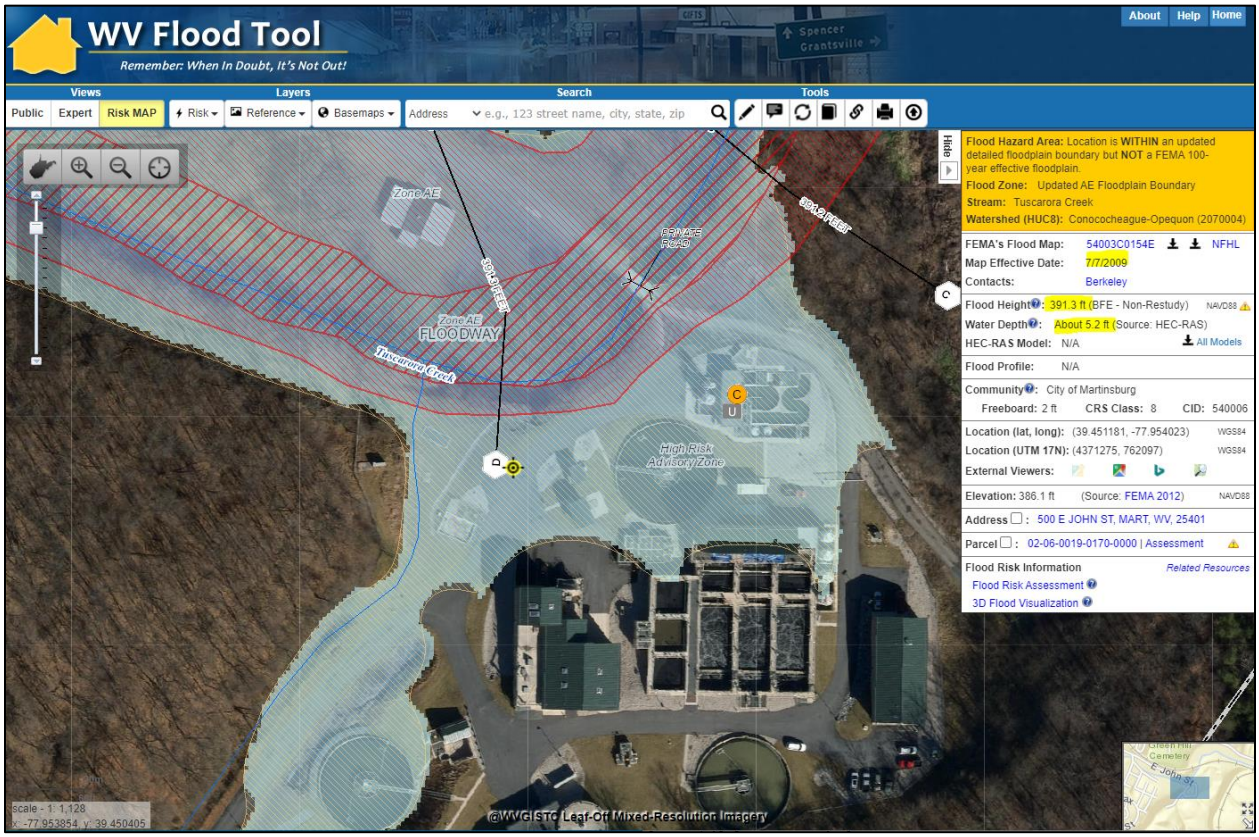
**Table BE-6A.** Highly valued, non-residential buildings in 1% Floodplain for **Berkeley County**. Source of Building Replacement Values: Assessment Records, Neighborhood Values, BRIM Insurance, RS Means, or any other available sources. Which high-valued-structures are vulnerable to riverine flooding?

| Community Name | WV Flood Tool Link | Owner Name or Building ID | Hazard Occupancy Code | **General Occupancy** | **Building Appraisal** |
|---|---|---|---|---|---|
| Martinsburg | FT | Martinsburg Treatment Plant | COM4 | Commercial | $ 51,776,300 |
| Martinsburg | FT | COUNTY COUNCIL OF BERKELEY COUNTY WEST VIRGINIA | COM2 | Commercial | $ 945,800 |
| Berkeley County* | FT | SHEPHERDS COVE LLC | RES1 | Residential | $ 851,200 |
| Martinsburg | FT | CITY OF MARTINSBURG | GOV1 | Other | $ 785,600 |
| Berkeley County* | FT | 02-04-0003-0049-0000_1340 | RES1 | Residential | $ 714,000 |
| Berkeley County* | FT | 02-02-0017-0040-0000_1210 | RES1 | Residential | $ 638,100 |
| Martinsburg | FT | MAGYARI PROPERTIES LLC | IND2 | Commercial | $ 573,200 |
| Berkeley County* | FT | 02-02-005A-0055-0000_315 | RES1 | Residential | $ 559,900 |
| Berkeley County* | FT | BUNKER HILL ANTIQUES ASSOCIATES LLC | COM1 | Commercial | $ 546,000 |
| Martinsburg | FT | CAPITAL MEATS INC | COM2 | Commercial | $ 498,000 |
| Berkeley County* | FT | 02-08-0009-0001-0004_555 | RES1 | Residential | $ 411,000 |
| Berkeley County* | FT | 02-04-0003-0002-0000_413 | RES1 | Residential | $ 399,500 |
| Berkeley County* | FT | 02-02-0003-0075-0000_955 | RES1 | Residential | $ 369,400 |
| Berkeley County* | FT | 02-04-037M-0013-0000_197 | RES1 | Residential | $ 346,300 |
| Berkeley County* | FT | LEATHERMAN LYNN EUGENE | COM1 | Commercial | $ 338,500 |
| Berkeley County* | FT | 02-02-0003-0077-0000_1061 | RES1 | Residential | $ 338,400 |
| Berkeley County* | FT | 02-04-0040-0005-0003_8973 | RES1 | Residential | $ 329,800 |
| Berkeley County* | FT | 02-02-0010-0052-0001_21 | RES1 | Residential | $ 314,000 |
| Berkeley County* | FT | 02-02-0018-0003-0009_1147 | RES1 | Residential | $ 313,700 |
| Berkeley County* | FT | 02-02-0003-0119-0000_421 | RES1 | Residential | $ 313,300 |
| Berkeley County* | FT | 02-02-010M-0007-0000_18 | RES1 | Residential | $ 302,800 |
| Berkeley County* | FT | 02-02-0002-0058-0000_1433 | RES1 | Residential | $ 301,500 |
| Martinsburg | FT | 02-06-004D-0146-0000_331 | RES3B | Residential | $ 300,300 |

* Unincorporated

Region 9 Tabular Building-Level Report Link: https://data.wvgis.wvu.edu/pub/RA/Region9/BLRA/4_BldgDollarExposure

**Figure BE-6B.** Martinsburg Wasteater Treatment Plant. Map link.




A high-risk advisory floodplain was redelineated using newer 2012 elevation LiDAR data. In 2016, **Martinsburg's wastewater treatment plant** was revamped at a cost of $53.5 million. Some structures of the wastewater treatment plant are in the high-risk advisory floodplain at a 1% (100-year) and 0.2% (500-year) estimated flood inundation depths of 5 feet and 10 feet, respectively.

New flood maps: An active flood study is being performed for this location which in the future will produce new effective flood maps and base flood elevations. If the natural grade changed when the new wastewater treatment plant was revamped, a newer topographic elevation source other than the 2012 LiDAR should be incorporated into the flood study update. In 2021 the USGS is setting up a task order for new LiDAR to be flown for the Eastern Panhandle which could be an updated topographic source.

Examples of mitigation measures for *utilities* include:

- Emergency response plan
- Barriers around key assets
- Elevated electrical equipment
- Emergency generators
- Bolted down chemical tanks

Online Resources:

- EPA FLOOD RESILIENCE: A Basic Guide for Water and Wastewater Utilities
- Tips for Flood-Proofing Wastewater Treatment Plants
- Flood-Resistant Wastewater Treatment Plant Upgrades

**Table BE-6C.** Highly valued, non-residential buildings in 1% Floodplain for **Morgan County**. Which high-valued-structures are vulnerable to riverine flooding?

| Community Name | WV Flood Tool Link | Owner Name or Building ID | Hazard Occupancy Code | General Occupancy | Building Appraisal |
|---|---|---|---|---|---|
| Morgan County* | FT | BOARD OF EDUCATION | EDU1 | Other | $ 15,000,000 |
| Bath | FT | MORGAN CO BLDG COMM | GOV1 | Other | $ 10,591,500 |
| Morgan County* | FT | BOARD OF EDUCATION | EDU1 | Other | $ 6,210,000 |
| Morgan County* | FT | U S SILICA | IND4 | Commercial | $ 3,304,600 |
| Morgan County* | FT | BOARD OF EDUCATION | EDU1 | Other | $ 1,650,000 |
| Bath | FT | CATHOLIC CHURCH | REL1 | Other | $ 1,565,700 |
| Bath | FT | MORGAN ARTS COUNCIL INC | COM8 | Commercial | $ 1,482,300 |
| Bath | FT | CITIZENS NATIONAL BANK OF BERKELEY SPRINGS | COM5 | Commercial | $ 1,448,900 |
| Morgan County* | FT | RANKIN & ASSOCIATES LLC | COM8 | Commercial | $ 1,122,100 |
| Bath | FT | BERKELEY SPRINGS STATE PARK | COM8 | Commercial | $ 1,009,900 |
| Morgan County* | FT | DANIEL G KAMIN BERKELEY SPRINGS LLC | COM1 | Commercial | $ 934,900 |
| Bath | FT | THE COUNTRY INN OF BERKELEY SPRINGS LLC | RES4 | Residential | $ 931,600 |
| Bath | FT | MORGAN COUNTY COMMISSION (THE) | EDU1 | Other | $ 872,400 |
| Bath | FT | BOARD OF EDUCATION | EDU1 | Other | $ 702,900 |
| Morgan County* | FT | BERKELEY ON THE RUN LLC | COM2 | Commercial | $ 653,200 |
| Bath | FT | M E CHURCH TR | REL1 | Other | $ 615,900 |
| Morgan County* | FT | WARM SPRINGS PUBLIC SERVICE | COM4 | Commercial | $ 606,600 |
| Bath | FT | CHURCH OF CHRIST OF B S | REL1 | Other | $ 547,600 |
| Morgan County* | FT | 33-08-002A-0059-0000_167 | RES1 | Residential | $ 511,100 |
| Paw Paw | FT | ROGERS PROPERTIES LLC | COM1 | Commercial | $ 482,600 |
| Morgan County* | FT | 33-01-0019-0029-0000_4581 | RES1 | Residential | $ 448,900 |
| Morgan County* | FT | CITIZENS NATIONAL BANK OF BERKELEY SPRINGS | COM5 | Commercial | $ 439,100 |
| Morgan County* | FT | MCDONALDS CORP A DEL CORP | COM8 | Commercial | $ 409,800 |

* Unincorporated

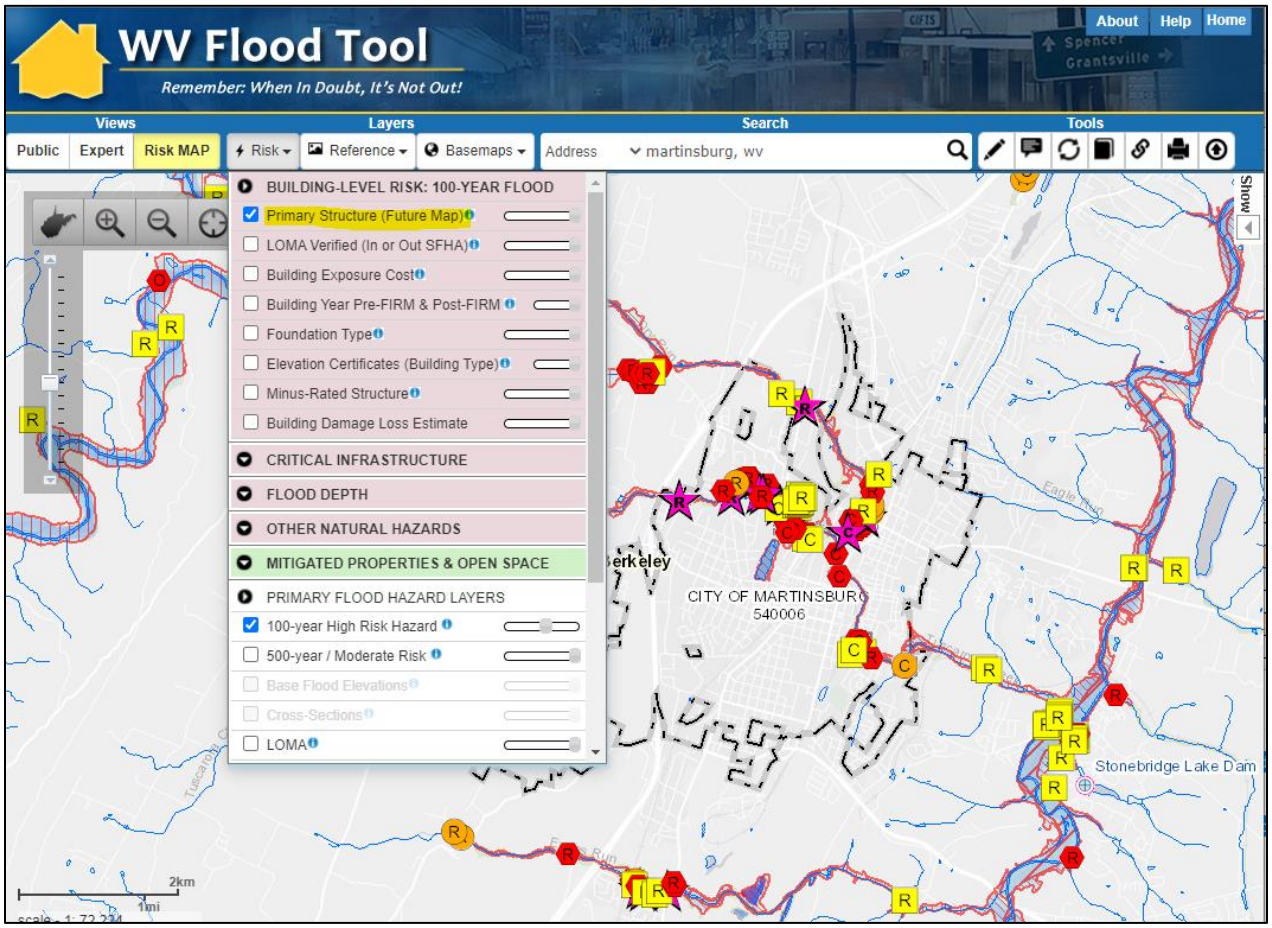
Region 9 Tabular Building-Level Report: https://data.wvgis.wvu.edu/pub/RA/Region9/BLRA/4_BldgDollarExposure

Two high-value structures greater than $10 million in or near Berkeley Springs (Bath) are the Berkeley Springs High School and Berkeley County Courthouse. The flood source is Warm Springs Run.

In the building-level dollar exposure report, data fields include Community Identifiers, Building Identifier, Address, Owner Name, Flood Zone designation, FIRM Status, Building Characteristics (year, occupancy, grade, foundation type, first floor height, area), Building Appraisal, Building Value Source, Depth Grid, Depth in Structure, Building Damage Percent, Building Loss Dollar Value, and Flood Tool Link.

**Verification - WV Flood Tool Risk MAP:** The **WV Flood Tool Risk Map View** should be used to view and verify inventories high-value buildings and other risk layers, such as the examples below of Martinsburg in Berkeley County and Berkeley Springs (Bath) in Morgan County. Figure BE-7A shows the primary structures default view for Residential, Commercial, and Non-Residential properties.

**Figure BE-7A.** Martinsburg's *primary structures* viewable on the Risk MAP View of the WV Flood Tool. Symbol letters indicate general occupancy (**R**esidential, **C**ommercial, **O**ther Non-Residential).




WV Flood Tool Map Link: https://mapwv.gov/flood/map/?wkid=102100&x=-8679568&y=4788783&l=7&v=2

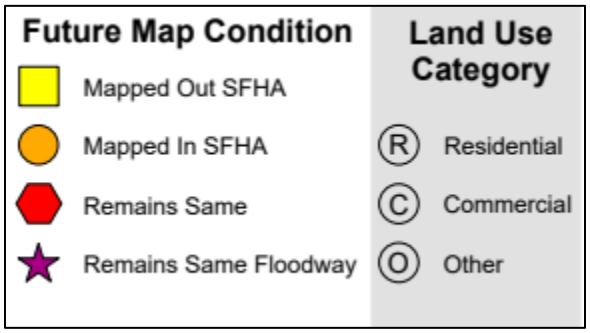
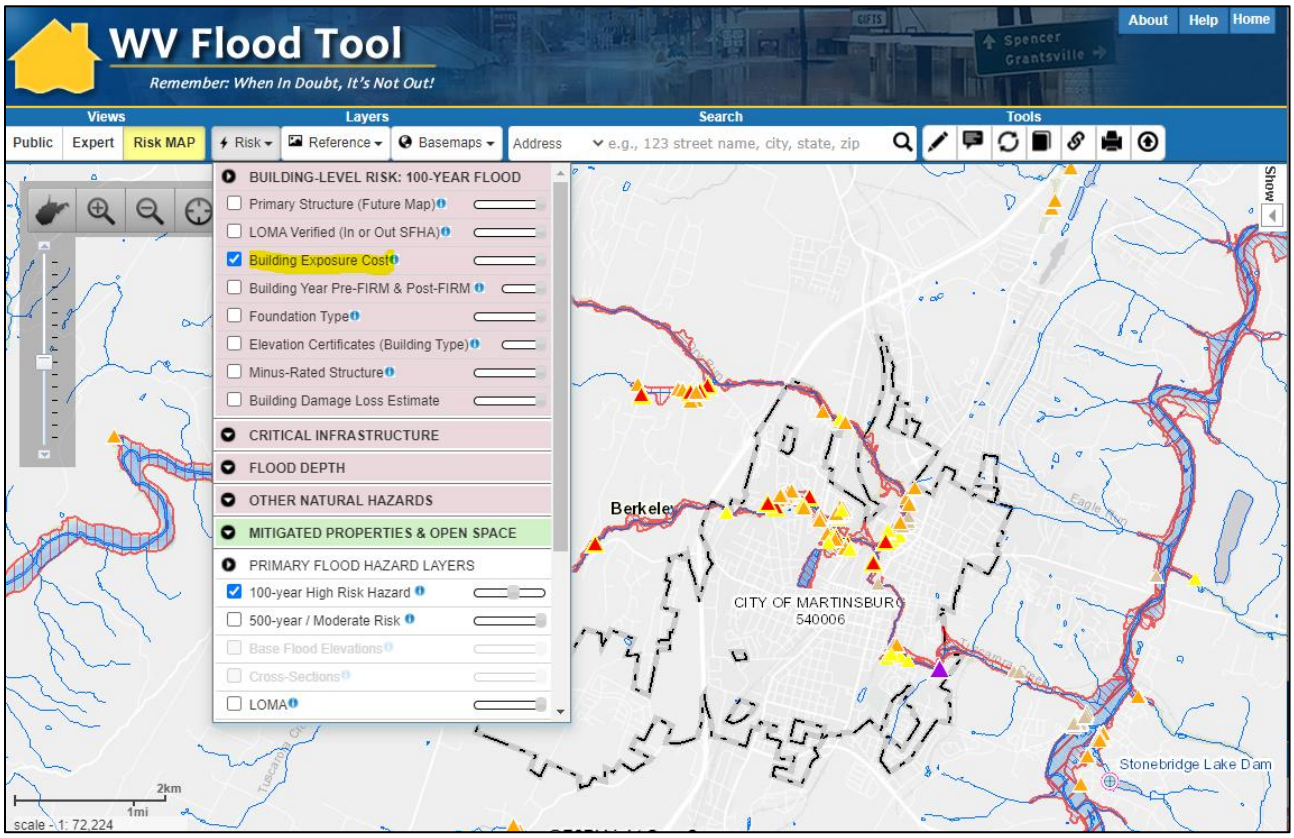


**Figure BE-7B.** Martinsburg's *high-value building floodplain structures* viewable on the Risk MAP View of the WV Flood Tool. Symbol letters indicate building exposure cost.




WV Flood Tool Map Link: https://mapwv.gov/flood/map/?wkid=102100&x=-8679568&y=4788783&l=7&v=2

Legend for General Occupancy Class

**R – Residential** (homes, apartments, group quarters)
**C – Commercial** (industrial)
**O – Other Non-Residential** (schools, churches, govt.)

Legend for Building Exposure Cost

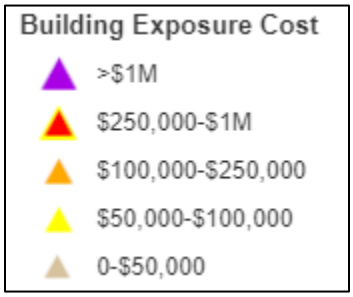
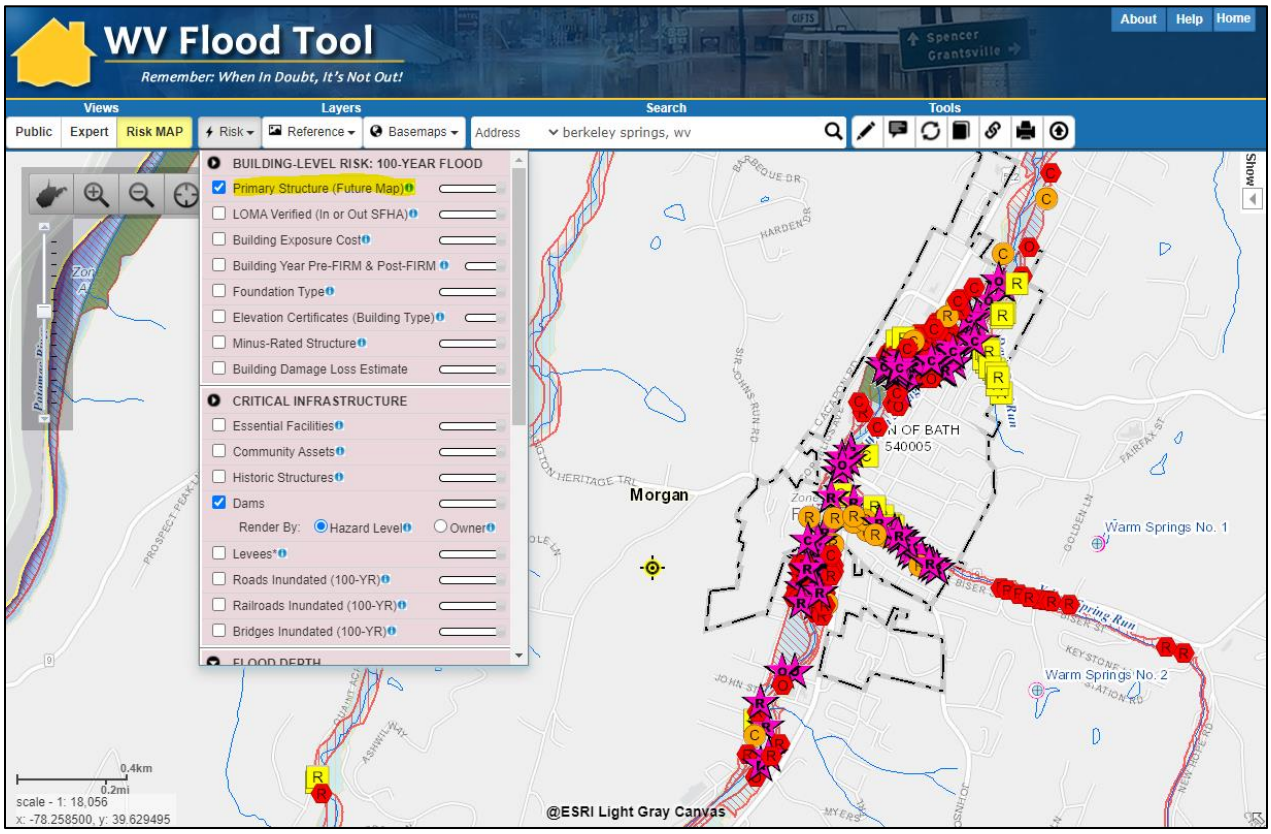


**Figure BE-7C.** Bath's *primary structures* viewable on the Risk MAP View of the WV Flood Tool. Symbol letters indicate general occupancy (**R**esidential, **C**ommercial, **O**ther Non-Residential).




WV Flood Tool Map Link: https://mapwv.gov/flood/map/?wkid=102100&x=-8708553&y=4811397&l=9&v=2

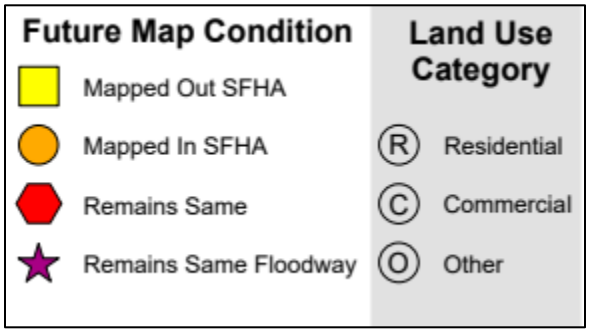
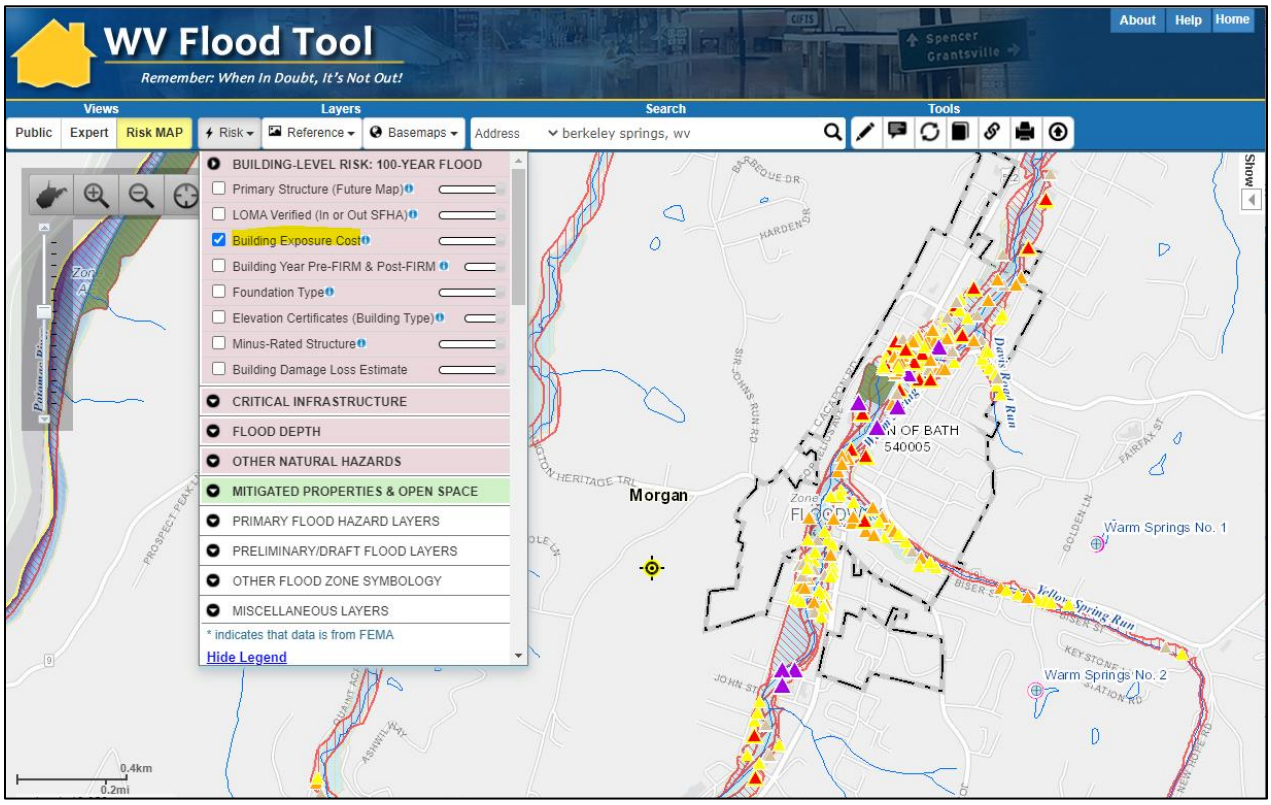


**Figure BE-7D.** Bath's *high-value building floodplain structures* viewable on the Risk MAP View of the WV Flood Tool. Symbol letters indicate building exposure cost.

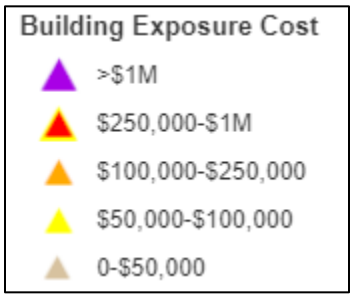



WV Flood Tool Map Link: https://mapwv.gov/flood/map/?wkid=102100&x=-8708553&y=4811397&l=9&v=2

Legend for General Occupancy Class

**R – Residential** (homes, apartments, group quarters)
**C – Commercial** (industrial)
**O – Other Non-Residential** (schools, churches, govt.)

Legend for Building Exposure Cost



**RESOURCES:**

**Reference Tables:** Occupancy Classes | Foundation Types

**Flood Risk Methodology:** WV Flood Risk Assessment | FEMA's Hazus Loss Estimation

**WV Flood Tool:** Resources Page | Glossary

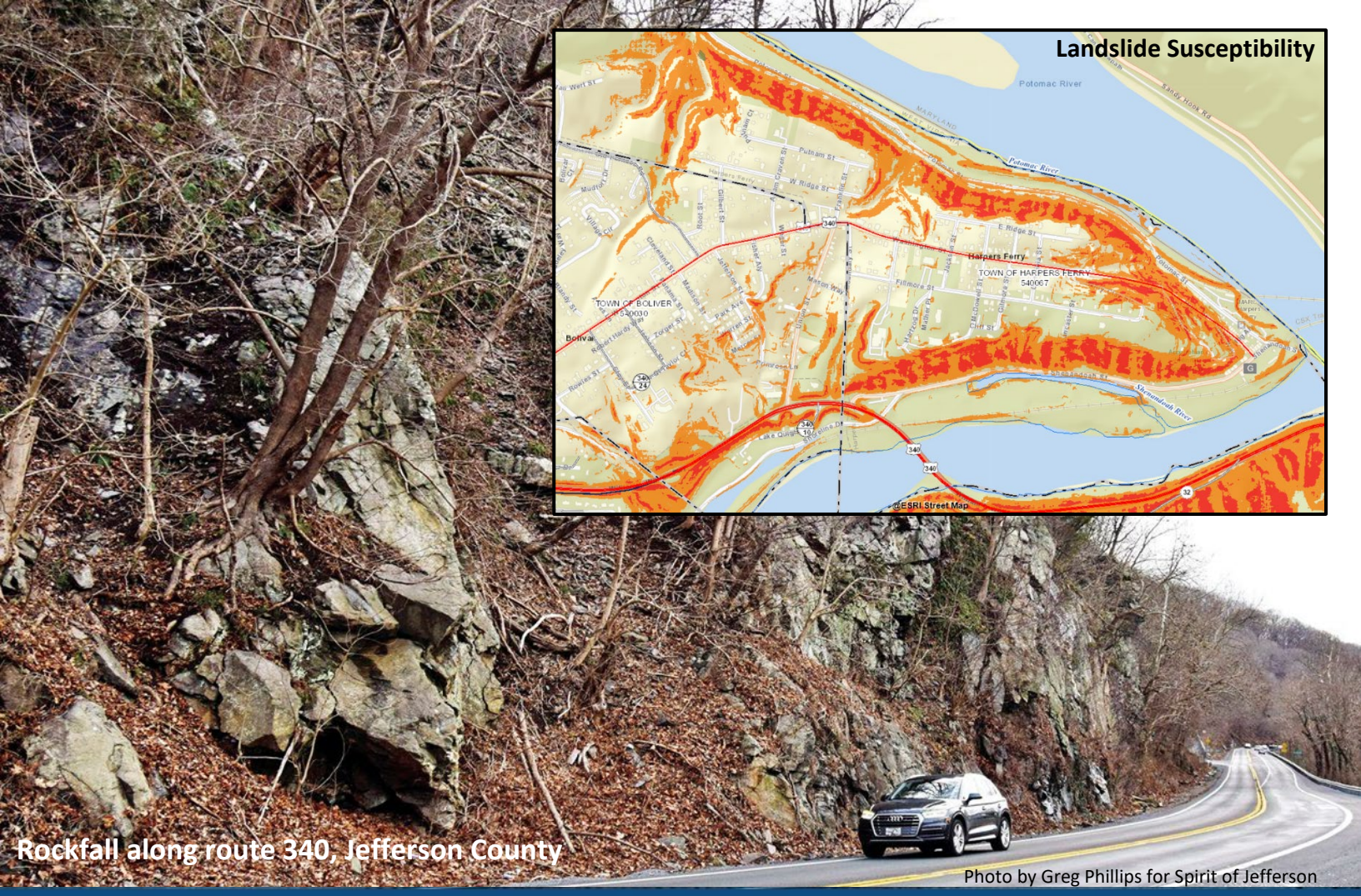
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Rockfall along route 340, Jefferson County

Photo by Greg Phillips for Spirit of Jefferson

# West Virginia Landslide Risk Assessment

## Region 9 – Berkeley, Jefferson, Morgan county

OCTOBER 11, 2021

In support of FEMA HMGP Project

FEMA

WV GIS TC

EMERGENCY MANAGEMENT DIVISION WVEMD WEST VIRGINIA

## Executive Summary

The West Virginia Emergency Management Division (WVEMD), Department of Homeland Security (DHS), and Federal Emergency Management Agency (FEMA) have facilitated landslide susceptibility studies and community-based risk assessments in support of local and state hazard mitigation plans. Landslide susceptibility was modeled using a random forest machine learning method. Model used LiDAR-identified landslide locations, topography, soil type, and proximity to roads and streams among many input variables to produce landslide susceptibility grids. Overall 62 landslide points were identified using LiDAR. Risk assessment was performed at the sub-county scale and includes results on roads and structures/parcels. This report summarizes risk assessment results by West Virginia planning and development council regions. Results of Region 9 can be integrated into hazard mitigation plans to enhance resilience and protect communities from landslide hazards.

This landslide risk report provides non-regulatory landslide risk information to help local officials, planners, emergency managers, and others better understand their landslide risk, take steps to mitigate those risks, and communicate those risks to citizens and local businesses.

**Road risk analysis** – In Region 9, **Morgan County** has about 21 miles of road that is susceptible to high/medium probability of landslide vulnerability. **Berkeley County** has about 16 miles, and **Jefferson County** has nearly 9 miles of road prone to high/medium risk for slope failure. Overall, Region 9 has relatively lower risk as compared to the rest of the state. Of all 55 counties, Morgan County ranks 51$^{st}$, Berkeley 54$^{th}$, and Jefferson 55$^{th}$ in high/medium landslide risk to roads.

**Structure/Parcel risk analysis** - **Morgan County** has a total of 356 primary structures with a total appraisal value of $31,940,422 that are in high/medium susceptibility areas. **Berkeley County** has 516 primary structures with total appraisal value of $57,360,557 in high/medium susceptibility areas. **Jefferson County** has 323 primary structures with a total appraisal value of $52,730,494 in high/medium susceptibility areas. Morgan County ranked 25$^{th}$, Berkeley 15$^{th}$, and Jefferson 29$^{th}$ for total number of at-risk structures in WV counties. However, Morgan ranks 13$^{th}$, Berkeley 7$^{th}$, and Jefferson 9$^{th}$ for total assets that are at risk for high/medium susceptibility of landslide. All Region 9 counties have a lower ranking for the number of at risk structures. This indicates that there are fewer landslide-vulnerable structures as compared to other counties in the state. Ranking changes when considering the ranking of Region 9 counties for total vulnerable assets. This jump in ranking for Region 9 counties can be due to the higher property value/parcel value in this region.

*This report is for informational purposes related to general emergency services planning. It has not been prepared for, and may not be suitable for legal, design, engineering, or site-preparation purposes. This report cannot substitute for site-specific investigations by qualified practitioners. Landslide risk is complex and continually changing. Although other existing studies or reports may provide more precise and comprehensive information, detailed original site investigations are normally an essential best practice for public safety, sustainability, and financial viability. These other data sources may give results that differ from those in this report.*

## Introduction

West Virginia has been divided into 11 regional and planning development councils to more effectively utilize funding, plan development, and aid cooperation. Landslide risk assessment has been performed in Region 9 for roads and structures/parcels. Roads provide critical service to communities. FEMA recently developed the community lifelines to enhance their effectiveness in disaster operations and better position themselves to respond to catastrophic incidents. Community lifelines cover seven sectors: Safety and Security; Food, Water, Shelter; Health and Medical; Energy; Communications; Transportation; and Hazardous Material. Roads are classified under Transportation in FEMA community lifelines.

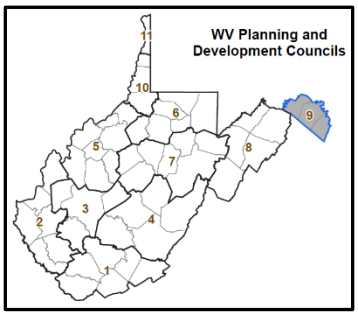



***Figure 1.*** *Planning and development regions in West Virginia*

Landslide risk assessment has been performed to assess high and medium risk road segments and structures/parcels. **This study is suitable for planning-level analysis. The risk analysis for roads should be used in conjunction with site-specific risk analysis performed by WV Department of Transportation.** FEMA's goal is to ensure that communities address natural hazards. A comprehensive plan should acknowledge all hazards that pose a risk and identify steps to avoid these hazards altogether or incrementally reduce a community's exposure to them.

**Community Engagement and Verification:**
Review Landslide points identified using LiDAR data in the WV Landslide Tool. Add any missing major landslide points in the web application. A photo of the landslide incident can also be uploaded to the Landslide Tool. Review the susceptibility grid in WV Landslide or WV Flood Tool. Report any major discrepancies in high/medium landslide susceptible zones.

## About Landslide Risk

Landslides are naturally occurring phenomena that can happen almost everywhere in West Virginia, especially on steep slopes. In its most basic form, a landslide is the movement of soil or rock down a slope. Landslides become hazardous to people and property when they happen in an area where development has occurred, causing losses. Many landslides have relatively little impact on people or property, such as minor road damage, tree throws, or tilting of fences and walls. However, severe landslide damage can topple buildings, destroy roads, disrupt utilities, and cause critical injuries or death.



***Figure 2.*** *Landslides present a risk to critical infrastructure and public safety (Photo by WVDOT)*

## Calculating Landslide Risk

It is not enough to simply identify where landslides may occur. Knowing approximately where a landslide may occur is not the same as understanding the **risk** posed by landslides. The most common method for determining landslide risk, also referred to as vulnerability (the exposure of a given population to harmful effects from a hazard), is to identify the susceptibility of landslide occurrence and then determine the subsequent consequences. In other words:

**Landslide Risk = Susceptibility x Consequences**

Where,

**Susceptibility** = the likelihood of occurrence
**Consequences** = the estimated impacts associated with the occurrence

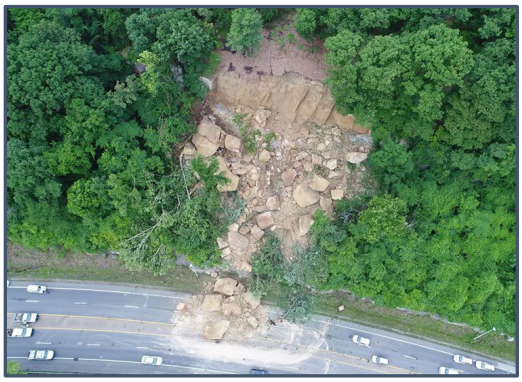


***Figure 3.*** *The **consequences** of a landslide are often higher in populated areas due to resulting property damage and injury to citizens (Photo by WVDOT)*

An area's **landslide susceptibility** is the likelihood that a landslide will occur. The likelihood of a landslide occurring can change based on physical, environmental, or contributing human factors. Factors affecting the likelihood of landslide occurrence in an area include seasonality, weather, climate, slope, human disturbance, and the existence of mitigation structures. The ability to assess the likelihood of landslide occurrence and the level of accuracy for that assessment are enhanced by landslide modeling methodology advancements and more widespread reporting or mapping of landslide occurrence.

The **consequences of a landslide** are the estimated impacts related to the landslide occurrence. Consequences relate to human activities within an area and how a landslide impacts natural and manmade infrastructures.

## Sources of Data for Landslide Risk Assessments

To assess potential community losses or the consequences portion of the "risk equation", the following data is typically collected for analysis and inclusion in a landslide risk project:

- Locations of past landslide occurrence
- Areas susceptible to landslide occurrence
- Information about local assets or resources at risk from landslide occurrence
- Information about where the risk is most severe

The following sources of incidence information were compiled for the statewide Landslide risk project and can be viewed on the West Virginia Landslide Tool. A detailed table showing landslide points and polygons collected in the state can be reviewed here. However, **only high-resolution LiDAR-identified landslide incidence points were used for susceptibility modeling**.

- **WVGES Study** - A study by West Virginia Geological and Economic Survey in the 1970s led to a report by Lessing et al. (1976) published as WVGES Environmental Geology Bulletin no. 15. The study mapped 46,330 landslide polygons in 39 7.5-minute quadrangles throughout West Virginia. The study was largely based on air photos taken in the 1960s and 1970s. The West Virginia GIS Technical Center (WVGISTC) digitized many of these polygons in 2018. Failures were categorized into three broad categories based on original map symbology: older landslides, recent landslides, and rockfalls. Mapping efforts yielded no published data from Region 9.

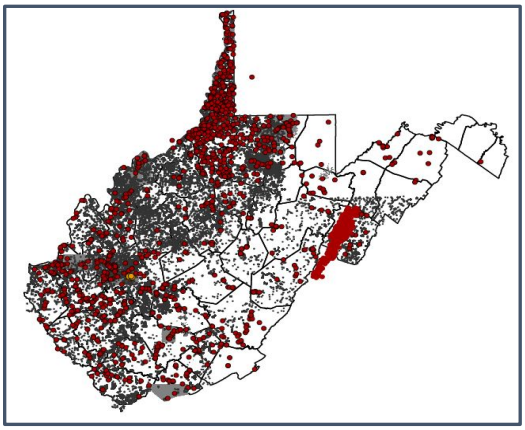


***Figure 4.*** *Historical landslides were compiled from several studies to create a comprehensive landslide dataset (Image adapted from the West Virginia Landslide Tool)*

- **USGS Study** - The United States Geological Survey completed a multiple-author study between 1975 and 1985 that mapped various failures over 382 7.5-minute quadrangles. The WVGISTC digitized 41,307 "active or recently active" slope failure polygons in 2018. Unfortunately, mapping efforts yielded no published data from Region 9.
- **Landers and Smosna (1973)** evaluated the damage caused by flooding and slope failure during a 1973 storm event in Kanawha City. From this study, ten landslide points were mapped in the Charleston area.
- **Jacobson et al. (1993)** mapped 3,571 slope failures near the Wills Mountain anticline to evaluate the effects of the November 1985 flood in the upper Potomac and Cheat basins.
- **Kory Konsoer (2008) and Beau Downing (2008**), as part of their M.S. theses, performed a landslide study in the Horseshoe Run watershed in Tucker County, WV. This research mapped 149 landslide polygons within the watershed and included a statistical analysis to quantitatively assess risk. In 2014, **Yates and Kite** created a landslide inventory in the Bluestone National Scenic River and vicinity. This inventory included 12 landslide polygons. Following this analysis, an inventory of 212 polygons was created for the New River Gorge National River area by the same authors (Yates and Kite, 2016).
- **West Virginia Department of Highways (WVDOH) database of landslide locations** – The road landslide Inventory (2016) contains 1,406 points where landslides have occurred along roadways. Many of these incident points are no longer visible with LiDAR data, even at the 1-meter scale, either because they are small enough to escape visibility or because the WVDOT has repaired the damage. The database contained only one landslide in Jefferson County.

- **High-resolution LiDAR-identified landslide incidence points** - Landslide initiation points were identified and mapped specifically for this project on DEMs created from recent high resolution (1- or 2-m) LiDAR. Trained technicians placed points at the approximate center of the landslide headscarp and classified the failures into one of six general slope failure categories: slide, debris flow, lateral spread, multiple failures, fall, or undetermined. The details of classification can be found here. The nature of the West Virginia landscape and the LiDAR imagery limited mapping to landslides at least 33 feet wide. This approach undercounts small, shallow landslides and slope failures that human agents may have mitigated or removed**.** Rockfall, a major landslide risk in Jefferson County and Region 9 is considerably undercounted in this approach. Overall, 62 landslide points were identified in Region 9. Morgan County has 37 points, Berkeley has 24, and Jefferson has 1 landslide point.

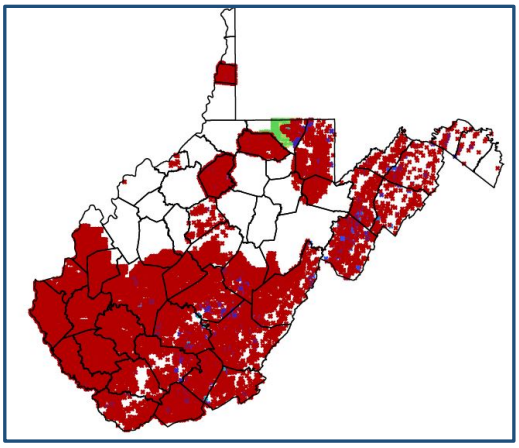


***Figure 5.*** *LiDAR-mapped landslide points are dependent upon the presence of 1- or 2-meter LiDAR data (Image from the West Virginia Landslide Tool)*

Well-known incidences of rockfall and other landslides exist in Region 9, so the scarcity of landslides within the county database confirms the general nature of susceptibility maps. It also reinforces the importance of site-specific geotechnical investigations. Analyses in this report rely heavily upon relationships between high-resolution LiDAR-identified landslide incidence points and control factors in other West Virginia counties located in the Northern Appalachian Ridges and Valleys Major Land Resource Area. Fortunately, susceptibilities predicted by modeling are consistent with known landslide-risk areas in Region 9.

## Landslide Susceptibility Methodology

Landslide susceptibility has been generated as a grid raster dataset for the state. Much like the pixels in a photo or graphic, a grid is made up of square cells, where each grid cell stores a value representing a landslide susceptibility value. Using Random Forest machine learning methods, landslide incidence was modelled and rendered as a raster grid dataset. In machine learning, a model is generated by learning from examples. Figure 6 shows a simplified diagram of the machine learning model. Modeling starts with two basic variables:

1) Response variable you want to predict (example: landslide susceptibility) and,

2) Predictor variables you think might help you predict the new response variable (for example: prior locations of landslide, geology, soil, slope, etc.). Then, these predictor variables are run through a machine learning algorithm to train a model. This trained model is used for making predictions. In the end, a new prediction grid is generated (in this case, landslide susceptibility grid).

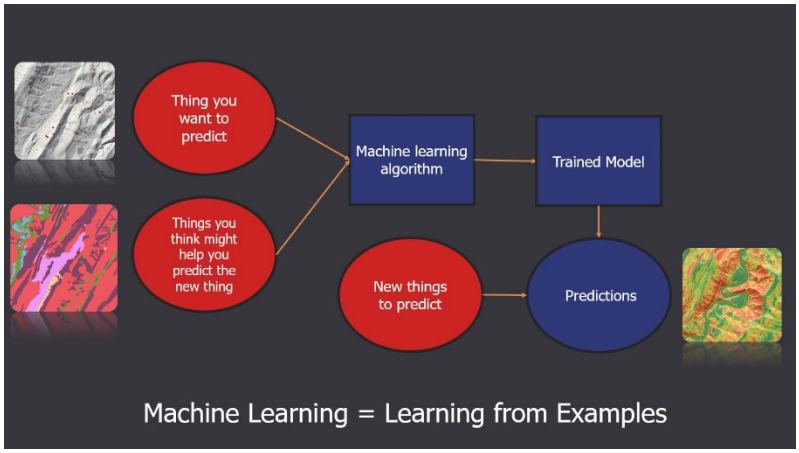



***Figure 6:*** *Simplified diagram showing machine learning process for generating landslide susceptibility grid*

Following is the methodology for landslide susceptibility grids generated using the Random Forest machine learning model:

Landslide locations were mapped throughout West Virginia using light detection and ranging (LiDAR) elevation data products, including hillshades and slopeshades. Mapped failure types include slide, debris flow, lateral spread, multiple failures (when several failures were present in a small area, but were too small or close together to map separately), fall, and undetermined failure type (Figure 7). Site characteristics and terrain variables, such as slope, lithology, soil type, and distance to roads and streams, were extracted from the mapped landslide locations. Using a random forest machine learning algorithm, these variables were used as inputs to calculate a probabilistic landslide susceptibility grid. A majority of the mapped landslide locations were used to train the model, and the remaining locations were used to validate the model's accuracy. The resulting grid cells were classified into low, medium, and high susceptibility areas using professional judgement and model statistics. On an average, over 95% of known failure locations were found to occur within the modeled high susceptibility areas (Maxwell et al., 2020).

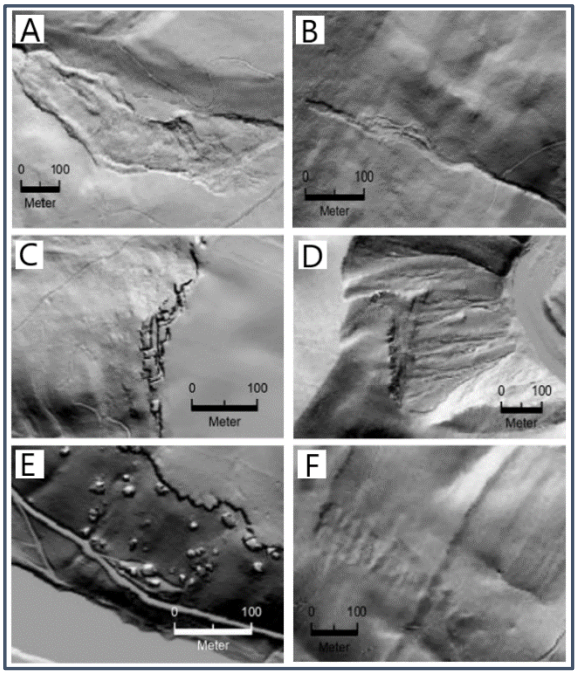



***Figure 7.*** *A) Slide B) Debris Flow C) Lateral Spread D) Multiple Failures E) Fall F) Undetermined*

Landslide susceptibility modeling was performed at the Major Land Resource Area (MLRA) scale. MLRAs are geographic areas defined by the Natural Resources Conservation Service based upon shared characteristics, such as lithology, climate, soils, land uses, and water resources. There are four major MLRAs in West Virginia. Models were generated for each MLRA to take advantage of similarities in

physiographic conditions that may influence landslide susceptibility. Region 9 counties (Berkeley, Morgan, and Jefferson) are in the **Northern Appalachian Ridge and Valley MLRA** (Figure 8).

This MLRA has very diverse topography, geology, and soils. These factors contribute to higher variability in landslide distribution and a wider variety of landslide types than in any other MLRA in West Virginia. In Region 9, Northern Appalachian Ridges and Valleys encompass most of the gentle topography in the state, and LiDAR-based mapping reveals the MLRA has fewer landslides.

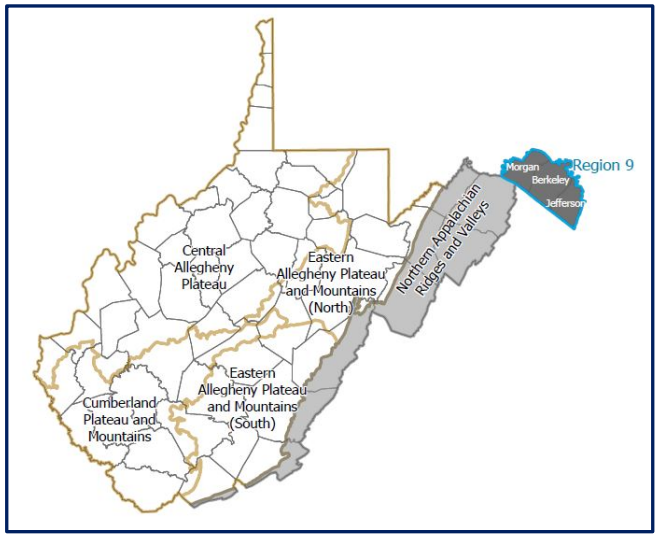



***Figure 8.*** *Major land resource areas in Eastern West Virginia*

Many local factors contribute to landslides and their related losses. Contributing factors can be natural or human induced, but slope and local bedrock geology strongly influences county and community scale landslide incidence. Bedrock control on landslides is relatively consistent throughout individual MLRAs, which are geographically associated with Land Resource Units (LRUs).

Following are detailed MLRA characteristics in Region 9 counties and a summary of the critical underlying variables that affect landslide susceptibility in this region. A detailed report on these variables can be found here.

**Landscape Characteristics**

The Northern Appalachian Ridges and Valleys MLRA is an erosional landscape underlain by folded and faulted bedrock with varied resistance to weathering and erosion. Hard, resistant bedrock units, primarily composed of quartz-rich sandstone, form parallel linear ridges, separated by valleys underlain by more erodible shale, siltstone, and limestone. Slope failures are most common on the steep flanks of ridges but less common on ridge crests; landslides rarely initiate on flat land, but large landslides may extend from steep slopes onto valley bottoms.

Residuum (material weathered in place or nearly in place) and colluvium (material transported some distance by gravitational processes) are the dominant earth materials in which soils develop in the MLRA. Residuum depth varies with rock type and degree of weathering; limestones and very old stable surfaces typically develop thick residual soils. Colluvium, which includes landslide deposits, is generally thin close to ridgetops, increasing in thickness further downslope.

**Landslide Characteristics and Contributing Factors**

**Rockfall** and **debris flow** are the most common types of landslides in Region 9. Debris flows initiate as slumps or slides in residuum or colluvium on upper slopes but may run downslope for a mile or more from their source. *The most frequent causes of debris flows are heavy rains associated with intense spring and early summer storms or late summer and early autumn remnants of tropical cyclones.* The high-intensity rainfall events that trigger debris flows tend to produce numerous slope failures in local clusters. Fortunately, in the Appalachians, debris flows are infrequent, with recurrence intervals at the

most vulnerable sites estimated to be hundreds or thousands of years. Less common landslide types in the Appalachian Ridges and Valleys MLRA include multiple failures (tight clusters of small landslides and debris flows that tend to occur during debris flow events) and lateral spreads (clusters of large rock blocks that appear to move rarely).

**Slope:** Analysis of the LiDAR-based landslide data and model results from the MLRA reveals that slope steepness may be the most critical control over where landslides develop, especially in steep hillslope hollows that allow subsurface moisture, surface-water runoff, and unconsolidated material to accumulate. Almost 90 percent of mapped landslides occur on **slopes greater than 20 degrees.**

**Geology:** Geology is a universally cited factor in landslide distribution, and this is the case in the Ridges and Valleys of eastern West Virginia. Most of the role of geology on landslides is indirect. The distribution of resistant bedrock at the earth surface determines the location of ridge crests and steep adjacent side slopes. Weaker rock types on side slopes may be just as prone or even more prone to failure as a resistant rock type responsible for the ridge. Shale is the primary rock type in geological units covering over 45 percent of the Ridges and Valleys MLRA, providing initiation sites for 51 percent of landslides. Siltstone, sandstone, and limestone are the primary rock types in about 1/6th of the MLRA, but sandstone units are more strongly associated with landslides. Alluvium (unconsolidated floodplain and river terrace deposits) and dolomite cover smaller fractions of the MLRA, and are host to even smaller fractions of landslides.

**Soil:** USDA Natural Resource Conservation Service (NRCS) SSURGO data show that soil parent material and drainage class influence landslide susceptibility in the Ridges and Valleys MLRA area. Over 75 percent of the soils in the area are developed predominantly in the residuum parent material, and over 90 percent of landslides are initiated in these residual soils.

The NRCS recognizes four residuum categories in the study area, differentiated by the underlying bedrock from which the soil was derived. Acid clastic residuum forms on sedimentary bedrock (shale, siltstone, or sandstone) lacking significant amounts of carbonate minerals, whereas calcareous clastic residuum develops from sedimentary bedrock either admixed with calcareous layers or bound together by calcium carbonate cement. Limestone residuum in the Ridges and Valleys forms from either limestone or dolomite. Metamorphic rock residuum in West Virginia is limited to phyllite, quartzite, and greenstone bedrock in the Blue Ridge Mountains of eastern Jefferson County.

Landslide initiation is heavily influenced by soil parent material. Acid clastic residuum, the most widespread category, has significantly more landslides than would be expected based on the extent of this parent material.

Soil polygons assigned as “somewhat excessively drained” cover about 85 percent of the Ridges and Valleys landscape and account for almost 95 percent of landslide initiation points; this over-representation reflects the importance of slope to soil drainage class landslide initiation.

**Other Landslide Factors:** Although many factors influencing slope stability are universal, some aspects of slope stability in the Ridges and Valleys area differ from elsewhere in West Virginia. Anthropogenic disturbance is locally significant but generally not as problematic as in more densely populated areas or coalfields farther west.

Limestone quarries present local rockfall susceptibility, but elsewhere in the area, falls are most commonly associated with over-steepened road cuts, particularly where dipping bedrock layers have been undercut. The scope of rockfall susceptibility along roads in the Ridges and Valleys is not well illuminated by the landslide inventory, and fallen rock is unlikely to be caught on occasional LiDAR surveys because it is usually removed promptly and commonly too small to be resolved.

**Landslide Susceptibility E-size maps** for Morgan, Berkeley and Jefferson counties can be viewed here.

## Risk Assessment

The following datasets have been used in risk assessment study for roads and structures/parcels

- Landslide susceptibility analyses using random forest machine learning algorithms and landslide occurrence locations (Maxwell et al., 2020)
- E-911 site address points inside the floodplain
- Parcel centroids for areas outside the floodplain
- Roads (accessed from WV DOH website)

## Risk Analysis

### Roads

Road risk analysis provides an assessment of landslide risk along roads in West Virginia. **This analysis is suitable only for planning level analysis and should be used in conjunction with site-specific risk analysis performed by WV Department of Transportation.** This "big picture" perspective will benefit the planning of route improvements and lead to more effective landslide risk mitigation for West Virginia roads. The analysis classifies roads into high, medium, and low risk areas. The following methodology was used to assess landslide risk to roads in Region 9.

The statewide landslide susceptibility grid was classified as High (1-0.7), Medium (< 0.7-0.3), and Low (0.3-0) susceptibility. This raster grid was then converted to a vector feature class. Road data from WV Department of Transportation was used for analysis. For analysis, roads were analyzed for Interstate, US Roads, State, and Other roads (county roads, N/A, state parks, and forests road, FANS, HARP, and Others). Municipal non-state roads, railroads, and trail features were not included in the analysis. Since the road feature class is a line layer, a buffer of four meters was created for the road feature class. A buffer was created to adequately capture the risk for road feature class as most landslides initiate on the side slopes of roads. An intersection between the buffered road layer and susceptibility feature class was performed to capture risk information for road segments that overlapped with high and medium susceptibility areas. Finally, the road layer was clipped using buffer layer to identify high and medium risk road segments for each community.

## Results:

Roads were analyzed at two scales. Overview level analysis was performed on all of the roads without any distinction to get the total risk to the roads in each community. This result was used to rank communities based on the length of susceptible roads. The second set of analyses contains susceptibility details relating to Interstates, US Roads, State Roads, and Others. Railroad and trails were not part of the analysis.

Table 1 shows the total miles of roads that are prone to high/medium slope failure risk. The table also shows the rank of landslide susceptibility within the state**. Morgan County** has about 21 miles of road that is susceptible to high/medium probability of vulnerability. **Berkeley County** has about 16 miles, and **Jefferson County** has nearly 9 miles of road prone to high/medium risk for slope failure. Counties were ranked for slope failure risk based on the number of miles that are at risk. Overall, Region 9 has relatively lower risk as compared to the rest of the state. Of all 55 counties, Morgan County ranks 51$^{st}$, Berkeley 54$^{th}$, and Jefferson 55$^{th}$. In each county, most of the at-risk roads are in unincorporated areas. Figure 9 shows an example of landslide risk along Route 9 in Berkeley County. The road segments susceptible to landslide can be viewed on the Landslide Tool.

***Table 1.*** *Road length susceptible to High/Medium Risk Landslide. *Unincorporated Community*

| Community Name | County | Roads Total (miles) | Roads Total (miles) - High/Medium Risk | Rank |
|---|---|---|---|---|
| Morgan County* | MORGAN | 423.9 | 21.1 | 49 |
| Bath | MORGAN | 4.5 | 0 | 182 |
| Paw Paw | MORGAN | 2.7 | 0.3 | 96 |
| | **MORGAN** | **431.1** | **21.5** | **51** |
| Berkeley County * | BERKELEY | 701.6 | 15.9 | 53 |
| Hedgesville | BERKELEY | 0.9 | 0 | 182 |
| Martinsburg | BERKELEY | 30.6 | 0.3 | 96 |
| | **BERKELEY** | **733.1** | **16.4** | **54** |
| Jefferson County * | JEFFERSON | 434.8 | 7.5 | 55 |
| Bolivar | JEFFERSON | 3 | 0.3 | 96 |
| Charles Town | JEFFERSON | 23.1 | 0.4 | 81 |
| Harpers Ferry | JEFFERSON | 1.7 | 0.4 | 81 |
| Ranson | JEFFERSON | 29.2 | 0.7 | 52 |
| Shepherdstown | JEFFERSON | 2.2 | 0 | 182 |
| | **JEFFERSON** | **494** | **9.6** | **55** |

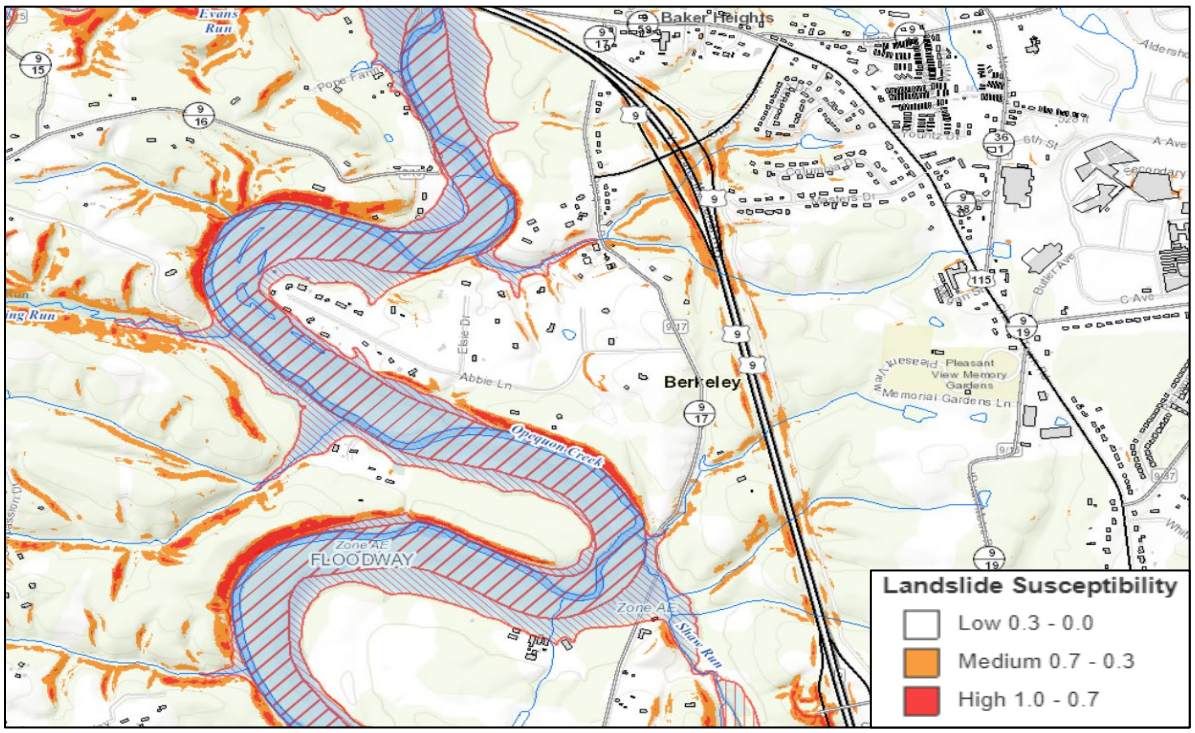



***Figure 9.*** *Landslide Susceptibility in unincorporated area of Berkeley County. Notice high and medium susceptibility landslide area along Route 9. Data can be assessed on WV Flood Tool*

The second set of risk analyses was performed to evaluate the total length of different types of roads in high/medium susceptible areas in each community. Table 2 shows details of different types of roads in high/medium susceptibility zones in each community. In each community, most of the at-risk roads are in the unincorporated area of each county. In **Morgan County**, the unincorporated area has 21 miles of at-risk roads, constituting 98% of at-risk roads in the county; 2.4 miles of US roads and 2.9 miles of State roads are at-risk. Paw Paw has only 0.3 miles, and Bath has no at-risk roads. **Berkeley County** has 16 miles of at-risk roads in unincorporated areas, constituting 97% of at-risk roads. Interstate has 1.9 miles, US roads has 0.4 miles, and State roads have 2.2 miles of at-risk roads. Martinsburg has 0.1 miles of at-risk US roads. In **Jefferson County**, the unincorporated area has 7.5 miles of at-risk roads, constituting 78% of at-risk roads in the county. The unincorporated area also has 1.6 miles of US roads and 1.9 miles of State roads at risk. US roads are majority percent of at-risk roads in Bolivar and Charlestown. Harpers Ferry has a majority percentage of at-risk US roads while Shepherdstown has no at-risk roads.

***Table 2.*** *Different road type and length susceptible to High/Medium Risk Landslide. *Unincorporated Community*

| Community Name | County | Roads Total (miles) | Roads Total (miles) - High/Medium Risk | Interstate Roads High/Medium Risk | US Roads High/Medium Risk | State Roads High/Medium Risk | Other Roads |
|---|---|---|---|---|---|---|---|
| Morgan County* | MORGAN | 423.9 | 21.1 | 0 | 2.4 | 2.9 | 15.8 |
| Bath | MORGAN | 4.5 | 0 | 0 | 0 | 0 | 0 |
| Paw Paw | MORGAN | 2.7 | 0.3 | 0 | 0 | 0.3 | 0 |
| | **MORGAN** | **431.1** | **21.5** | **0** | **2.4** | **3.2** | **15.8** |
| Berkeley County* | BERKELEY | 701.6 | 15.9 | 1.9 | 0.4 | 2.2 | 11.4 |
| Hedgesville | BERKELEY | 0.9 | 0 | 0 | 0 | 0 | 0 |
| Martinsburg | BERKELEY | 30.6 | 0.3 | 0 | 0.1 | 0 | 0.2 |
| | **BERKELEY** | **733.1** | **16.4** | **1.9** | **0.5** | **2.2** | **11.6** |
| Jefferson County* | JEFFERSON | 434.8 | 7.5 | 0 | 1.6 | 1.9 | 4 |
| Bolivar | JEFFERSON | 3 | 0.4 | 0 | 0.3 | 0 | 0.1 |
| Charles Town | JEFFERSON | 23.1 | 0.4 | 0 | 0.3 | 0.1 | 0 |
| Harpers Ferry | JEFFERSON | 1.7 | 0.4 | 0 | 0.2 | 0 | 0.2 |
| Ranson | JEFFERSON | 29.2 | 0.7 | 0 | 0 | 0.6 | 0.1 |
| Shepherdstown | JEFFERSON | 2.2 | 0 | 0 | 0 | 0 | 0 |
| | **JEFFERSON** | **494** | **9.6** | **0** | **2.4** | **2.6** | **4.4** |

## Land Use Landslide Risk

Land use risk analysis provides an assessment of landslide risk to structures/parcels in West Virginia. **This study is not intended for site-specific analysis and remediation measures and is only suitable for planning-level analysis.** This "big picture" perspective will benefit planning and lead to more effective landslide risk mitigation for West Virginia. The following methodology was used to assess landslide risk to structures/parcels.

Primary structures were extracted for each parcel both inside and outside of 1% annual chance floodplain in each community. Verified primary structures located inside 1% annual chance floodplain were used as a point to assess landslide risk within a parcel. For primary structures in the rest of the area outside of floodplain, the following methodology was applied to extract primary structures. This method was used to avoid overestimating the values for each parcel. A spatial join was performed between the site address point and property tax assessment record. To avoid overestimating the appraisal value, the average was calculated by dividing the building appraisal value of the tax assessment record by the number of points located in the parcel. A spatial join was performed between the site addresses and parcels with the average building appraisal value. The output resulted in a site address point feature class representing primary structures attributed to the building appraisal value. These processing steps avoided adding the same building appraisal value multiple times to more than one site address point within a tax parcel.

One notable limitation of this method was that parcels containing no addressing points are assigned a building value of zero ($0). In addition, the building values for some structures are less than the values recorded in the community-wide building dollar exposure report because for specific parcels the appraisal values may be in neighboring parcels instead of the parcel where the structure is located. This results in building values not being assigned to site address points. Also, some government and other

property values do not get pulled in from the statewide assessment database, resulting in lower value of at-risk structures.

## Results:

Structures were analyzed at two scales for each community. An initial overview-level analysis was performed for all of the structures without any distinction to occupancy type. A second analysis was performed for different types of occupancy for high/medium risk of landslide.

Table 3 shows the total count of primary structures in high/medium landslide susceptibility areas. Total asset values were then derived from the 2021 tax assessment database. Each county was ranked for the number of primary structures and the total asset values in high/medium susceptibility areas. **Morgan County** has a total of 356 primary structures with a total appraisal value of $31,940,422 that are in high/medium susceptibility areas. **Berkeley County** has 516 primary structures with total appraisal value of $57,360,557 in high/medium susceptibility areas. **Jefferson County** has 323 primary structures with a total appraisal value of $52,730,494 in high/medium susceptibility areas. Morgan county ranked 25$^{th}$, Berkeley 15$^{th}$, and Jefferson 29$^{th}$ for total number of at-risk structures in WV counties. However, Morgan ranks 13$^{th}$, Berkeley 7$^{th}$, and Jefferson 9$^{th}$ for total assets that are at risk for high/medium susceptibility of landslide. Notice that all of Region 9 counties have a lower ranking for the number of at risk structures. This indicates that there are fewer landslide-vulnerable structures as compared to other counties in the state. Ranking changes when we compare the ranking of Region 9 counties for total vulnerable assessment cost. This jump in ranking for Region 9 counties can be due to the higher property value/parcel in this region.

***Table 3**. Structures susceptible to High/Medium Risk Landslide. *Unincorporated Community*

| Community Name | County | Total Count | Total Value | Ranking(Count) | Ranking(Value) |
|---|---|---|---|---|---|
| Morgan County* | | 337 | $30,207,387 | 18 | 10 |
| Bath | | 19 | $1,733,036 | 57 | 34 |
| Paw Paw | | 0 | $0 | 187 | 183 |
| | **MORGAN** | **356** | **$31,940,422** | **25** | **13** |
| Berkeley County* | | 496 | 54441856.98 | 9 | 5 |
| Martinsburg | | 18 | 2804600 | 62 | 23 |
| Hedgesville | | 2 | 114100 | 158 | 130 |
| | **BERKELEY** | **516** | **$57,360,557** | **15** | **7** |
| Jefferson County* | | 237 | 35200114.97 | 30 | 6 |
| Bolivar | | 10 | 1033800 | 90 | 46 |
| Charles Town | | 6 | 1699250 | 119 | 35 |
| Harpers Ferry | | 60 | 10486112.66 | 25 | 10 |
| Ranson | | 1 | 146700 | 171 | 117 |
| Shepherdstown | | 9 | 4164516.668 | 100 | 15 |
| | **JEFFERSON** | **323** | **$52,730,494** | **29** | **9** |

Table 4 shows detailed risk of slope failure based on different occupancy classes. In general, the **residential** occupancy class has structures with the highest replacement cost in high/medium landslide susceptibility areas. **Commercial** occupancy class is mostly second, followed by **Other** occupancy class structures. This trend is similar in all three counties in Region 9. Property values of Other occupancy class should be ignored as some government and other property values do not get incorporated in from the statewide assessment database, resulting in lower value of at-risk structures.

**Morgan County** has a total of 298 structures in Residential occupancy class with replacement costs of $30,903,625 followed by 49 Other occupancy class structures and 9 Commercial structures with replacement costs of $712,158. The unincorporated areas of Morgan County have the highest structure count and corresponding replacement values, whereas Paw Paw has no structure or related replacement costs in high and medium-risk susceptibility areas.

**Berkeley County** has a total of 456 structures in the Residential occupancy class with replacement costs of $53,183,807 followed by 52 Other structures and finally 8 commercial structures with replacement costs of $2,575,300. The unincorporated areas of Berkeley County have the highest structure count and corresponding replacement values whereas Hedgesville has the lowest structure count and related replacement costs in high and medium risk susceptibility areas.

**Jefferson County** has a total of 271 structures in the Residential occupancy class with replacement costs of $39,628,571, followed by 33 Commercial structures with replacement costs of $8,628,019 and 19 Other structures. The unincorporated areas of Jefferson County have the highest structure count and corresponding replacement values, whereas Ranson has the lowest structure count and related replacement costs for high and medium risk structures.

***Table 4.*** *Types of Structures susceptible to High/Medium Risk Landslide. *Unincorporated Community, **Other occupancy class value is underreported as assessment value is absent in assessment database.*

| Community Name | County | RESIDENTIAL OCCUPANCY CLASS | | COMMERCIAL OCCUPANCY CLASS | | OTHER OCCUPANCY CLASS | |
|---|---|---|---|---|---|---|---|
| | | High/Medium Susceptibility | | High/Medium Susceptibility | | High/Medium Susceptibility | |
| | | Residential count | Residential-value | Commercial count | Commercial value | Other count | Other value** |
| Morgan County* | | 279 | $29,170,589 | 9 | $712,158 | 49 | $324,639 |
| Bath | | 19 | $1,733,036 | 0 | $0 | 0 | $0 |
| Paw Paw | | 0 | $0 | 0 | $0 | 0 | $0 |
| | **MORGAN** | **298** | **$30,903,625** | **9** | **$712,158** | **49** | **$324,639** |
| Berkeley County* | | 441 | $52,069,407 | 7 | $771,500 | 48 | $1,600,950 |
| Martinsburg | | 13 | $1,000,300 | 1 | $1,803,800 | 4 | $500 |
| Hedgesville | | 2 | $114,100 | 0 | $0 | 0 | $0 |
| | **BERKELEY** | **456** | **$53,183,807** | **8** | **$2,575,300** | **52** | **$1,601,450** |
| Jefferson County* | | 205 | $28,991,810 | 23 | $5,576,545 | 9 | $631,760 |
| Bolivar | | 10 | $1,033,800 | 0 | $0 | 0 | $0 |
| Charles Town | | 5 | $451,950 | 1 | $1,247,300 | 0 | $0 |
| Harpers Ferry | | 43 | $6,179,511 | 8 | $1,764,457 | 9 | $2,542,144 |
| Ranson | | 1 | $146,700 | 0 | $0 | 0 | $0 |
| Shepherdstown | | 7 | $2,824,800 | 1 | $39,717 | 1 | $1,300,000 |
| | **JEFFERSON** | **271** | **$39,628,571** | **33** | **$8,628,019** | **19** | **$4,473,904** |

## Limitations and Expert Consultation

Landslide susceptibility classifications are based on physical characteristics associated with landslide locations mapped using LiDAR data. The nature of the West Virginia landscape and the LiDAR imagery limited mapping to landslides at least 33 feet wide. This approach undercounts small, shallow landslides and slope failures that may have been mitigated or removed by human agents. LiDAR-mapped landslide locations and landslide susceptibility maps derived from this data are inherently biased against these areas. Additionally, it is not feasible to thoroughly verify the accuracy of each dataset used for mapping and modeling. However, every effort has been made to ensure the integrity of this data.

Landslide risk is complex and continually changing. Future mitigation projects or alterations to topography, land use, and climate may render these results inaccurate. Other models, maps, reports, and future site-specific analyses may provide results that differ from those included here.

**This study is NOT intended for regulatory use and is NOT the final authoritative source of all landslide risk data in the community. It should be used in conjunction with other data sources to provide a comprehensive picture of general landslide risk. This report is for informational and planning purposes regarding landslide susceptibility and risk at the county scale. It may not be used to identify susceptibility at site-specific locations.**

To address landslide susceptibility at a sub-county scale, geotechnical evaluations should be performed by professional engineers or geologists. For site-specific investigations, local officials, developers, and property owners should consult slope-stability experts, such as certified professional engineers and qualified geologists. Site-specific evaluations for landslide susceptibility can only be provided by performing detailed site-specific geotechnical studies, including bedrock and soil analyses, core description, physical testing, and slope-stability analyses.

## Outreach Materials

- **The West Virginia Landslide Tool** (http://mapwv.gov/landslide) is a landslide web mapping application showing landslide incidence data and modeling results. The West Virginia GIS Technical Center created an ArcGIS online map that provides information about landslide susceptibility and landslides mapped throughout West Virginia. The map allows users to display landslide locations mapped by the West Virginia Department of Transportation (WV DOT), West Virginia Geological and Economic Survey (WVGES), United States Geological Survey (USGS), several independent research projects, and landslides mapped using high-resolution elevation data. The public can also add landslide locations to the West Virginia Landslide Tool (http://www.mapwv.gov/landslide) by taking a photo of the landslide and uploading it to the application.

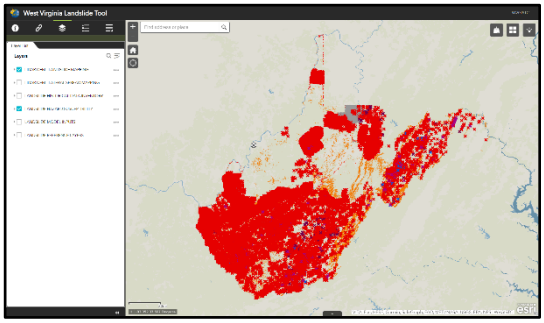



***Figure 10.*** *West Virginia Landslide Tool*

- **Story Maps**
  - ***Causes of Landslides in Mountain State, West Virginia*** https://arcg.is/1SW0Sn discusses different causes of landslides in the state.

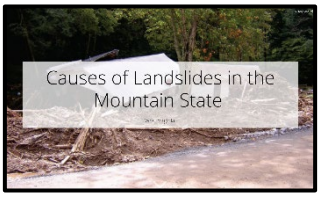



***Figure 11.*** *Story Map showing causes of landslide*

  - ***West Virginia Landslides and Slide Prone Areas, WVGES 1976*** https://arcg.is/1KDnvq discusses landslide risk assessment published in 1976 by the WV Geological and Economic Survey that was funded by the Appalachian Regional Commission.

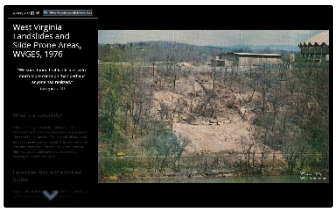



***Figure 12.*** *WVGES 1976 Study details in Story Map*

- **Educational brochures** were developed to provide general information about identifying signs of slope instability and mitigation measures that may help reduce landslide risk at the community and individual property levels.




***Figure 13.*** *Mitigation brochure for community and property owners*

- **Landslide susceptibility modelling publications**- Two peer reviewed modelling papers have been published in refereed journals
    - Slope Failure Prediction Using Random Forest Machine Learning and LiDAR in an Eroded Folded Mountain Belt – Published in journal Remote Sensing
    - Assessing the Generalization of Machine Learning-Based Slope Failure Prediction to New Geographic Extents – Published in journal International Journal of Geo-Information
- **County Landslide Susceptibility Maps** – Landslide susceptibility maps for Berkeley, Jefferson and Morgan counties can be viewed and downloaded here.

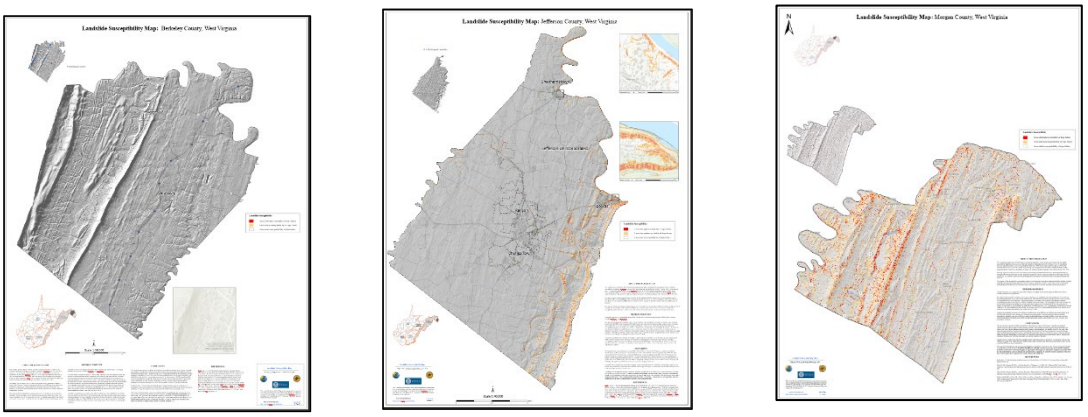


***Figure 14.*** *Landslide Susceptibility maps of Berkeley, Jefferson and Morgan counties.*

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