

Boone River Watershed Current Conditions Report: Hazard Mitigation

Boone River Watershed Management Authority



November 2020

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Boone River Watershed Management Authority



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November 2020

Prepared as part of the Boone River Watershed Management Plan

TABLE OF CONTENTS

Table of Contents	iv
List of Tables	v
List of Figures	v
List of Attachments	v
Introduction and Background	1
Report Overview	1
Introduction to Resource	1
Existing Data	2
State of the Resource	4
Current Conditions	4
Historical Changes.....	5
Projects and Programs	5
Future Trends	8
Recommendations	9
Existing HMP Goals	9
Recommended Goals for Watershed Planning	9
Implementation	10
Education Strategies.....	10
References	12

LIST OF TABLES

Table 1: Hazard Mitigation Plan Participants 2
Table 2: Communities Participating in the National Flood Insurance Program (NFIP) 3
Table 3: Mitigation Actions Identified in Local Hazard Mitigation Plans that are Related to the Watershed 7

LIST OF FIGURES

No table of figures entries found.

LIST OF ATTACHMENTS

Attachment #1: Summary of Mitigation Action Items

INTRODUCTION AND BACKGROUND

REPORT OVERVIEW

The Boone River Watershed Management Authority (WMA) has identified eight primary resource concerns for the Boone River Watershed including; Shorelines and Riparian Areas, Plant and Animal Communities, Sediment, Nutrients, Stormwater, Public Access, Flood Resiliency, and Hazard Mitigation. This report focuses on Hazard Mitigation and is one of eight reports developed for each of these concerns. Information contained in this report will facilitate the identification of resource and implementation priorities that will be used in the development of the Boone River Watershed Management Plan. Additionally, data gaps that are limiting such prioritization have been identified for future consideration.

INTRODUCTION TO RESOURCE

Hazard mitigation planning is a process in which various natural and man-made hazards are identified and profiled; people and facilities at-risk are identified and assessed for threats and potential vulnerabilities; and strategies and mitigation measures are identified to reduce that risk. Hazard mitigation planning increases the ability of communities to effectively function in the face of natural and human-caused disasters. The goal of the process is to reduce risk and vulnerability, in order to lessen impacts to life, the economy, and infrastructure.

The U.S. Congress passed the Disaster Mitigation Act 2000 (DMA 2000) to amend the Robert T. Stafford Disaster Relief and Emergency Assistance Actⁱ. Section 322 of the DMA 2000 requires that state and local governments develop, adopt, and routinely update a hazard mitigation plan (HMP) to remain eligible for pre- and post-disaster mitigation funding.ⁱⁱ These funds include the Hazard Mitigation Grant Program (HMGP)ⁱⁱⁱ, Pre-Disaster Mitigation Program (PDM)^{iv}, and the Flood Mitigation Assistance Program (FMA)^v. The Federal Emergency Management Agency (FEMA) administers these programs under the Homeland Security and Emergency Management Department in the state of Iowa (HSEMD).^{vi}

On June 1, 2009, FEMA initiated the Hazard Mitigation Assistance (HMA) program integration, which aligned certain policies and timelines of the various mitigation programs. These HMA programs present a critical opportunity to minimize the risk to individuals and property from hazards while simultaneously reducing the reliance on federal disaster funds.^{vii}

Each HMA program was authorized by separate legislative actions, and as such, each program differs slightly in scope and intent.

- **HMGP:** To qualify for post-disaster mitigation funds, local jurisdictions must have adopted a mitigation plan that is approved by FEMA. HMGP provides funds to states, territories, Indian tribal governments, local governments, and eligible private non-profits following a presidential disaster declaration. The DMA 2000 authorizes up to seven percent of HMGP

funds available to a state after a disaster to be used for the development of state, tribal, and local mitigation plans.

- **FMA:** To qualify to receive grant funds to implement projects such as acquisition or elevation of flood-prone homes, local jurisdictions must prepare a mitigation plan. Furthermore, local jurisdictions must be participating communities in the National Flood Insurance Program (NFIP). The goal of FMA is to reduce or eliminate claims under the NFIP. The only community in the Boone River Watershed not participating in NFIP is Renwick (Table 2).
- **PDM:** To qualify for pre-disaster mitigation funds, local jurisdictions must adopt a mitigation plan that is approved by FEMA. PDM assists states, territories, Indian tribal governments, and local governments in implementing a sustained pre-disaster hazard mitigation program.

To be eligible for the HMA grant programs, participants must meet basic requirements in their local Hazard Mitigation Plan. These requirements include: attending engagement meetings; providing local information and data, including the identification of mitigation actions to address hazard risk; and adoption of the final approved plan by resolution.

EXISTING DATA

The Boone River WMA spans across multiple counties and communities. Hazard Mitigation Plans which include planning areas within the Boone River WMA include:

- Kossuth County Iowa HMP (2018)^{viii}
- Wright County Iowa HMP (2019)^{ix}
- Hancock County Multi-Jurisdictional HMP (2019)^x
- Hamilton County Iowa Multi-Jurisdictional HMP (2019)^{xi}
- Humboldt County Iowa HMP (2018)^{xii}
- Webster County Iowa HMP

In total, these plans include five counties, 47 communities, and eight public school districts (PSD). See Table 1 for a list of participants in each HMP.

Table 1: Hazard Mitigation Plan Participants

HMP Name	HMP Participants
Hamilton County HMP	City of Ellsworth, City of Jewell, City of Kamrar, City of Randall, City of Stanhope, City of Stratford, City of Webster City, City of Williams, Hamilton County (unincorporated) [<i>City of Blairsburg did not participate</i>]
Hancock County HMP	City of Britt, City of Corwith, City of Crystal Lake, City of Garner, City of Goodell, City of Kanawha, City of Klemme, City of Woden,

	Garner Hayfield Ventury PSD, West Hancock PSD, Hancock County (unincorporated)
Humboldt County HMP	City of Bode, City of Bradgate, City of Dakota City, City of Gilmore City, City of Hardy, City of Humboldt, City of Livermore, City of Ottosen, City of Pioneer, City of Renwick, City of Rutland, City of Thor, Humboldt County (unincorporated)
Kossuth County HMP	Kossuth County (unincorporated), City of Algona, City of Bancroft, City of Burt, City of Fenton, City of Lakota, City of Ledyard, City of Lone Rock, City of LuVerne, City of Swea City, City of Titonka, City of Wesley, City of Whittemore, Algona PSD, LuVerne PSD, North Kossuth PSD <i>[City of West Bend did not participate]</i>
Wright County HMP	Wright County (unincorporated), City of Belmond, City of Clarion, City of Dows, City of Eagle Grove, City of Goldfield, City of Rowan, City of Woolstock, Belmond-Klemme PSD, Clarion-Goldfield-Dows PSD, Eagle Grove PSD. <i>[City of Galt did not participate]</i>
Webster County HMP	Webster County has a HMP, however a copy of this plan was not available at the time this report was prepared.

The following communities participate in the NFIP:

Table 2: Communities Participating in the National Flood Insurance Program (NFIP)

Entity	NFIP Participation
Cities	
Webster City	Yes
Woolstock	Yes
Eagle Grove	Yes
Thor	Yes
Clarion	Yes
Goldfield	Yes
Renwick	No
Lu Verne	Yes
Kanawha	Yes
Wesley	Yes
Britt	Yes
Counties	
Kossuth	Yes
Hancock	Yes
Humboldt	Yes
Wright	Yes
Webster	Yes
Hamilton	Yes

Source: NFIP Community Status Book (FEMA, 2020)

STATE OF THE RESOURCE

CURRENT CONDITIONS

Hazard Mitigation Plans evaluate a range of natural and man-made hazards which are specific to each plan. Hazards are determined based upon the State of Iowa Hazard Mitigation Plan, FEMA guidance, and local planning teams. Hazards evaluated in the five HMPs within the Boone River WMA are shown in the following table.

Most relevant to the Boone River Watershed Plan are the following hazards: Dam Failure, Flash Flood, Levee Failure, and River Flooding. It is worth noting that not all hazards are evaluated in each HMP. Hazard selection is at the discretion of the regional planning teams at the beginning of each HMP update.

Hazard Profiled	Hazard Mitigation Plan				
	Hamilton County HMP	Hancock County HMP	Humboldt County HMP	Kossuth County HMP	Wright County HMP
Animal/Plan/Crop Disease	X	X	X	X	X
Dam Failure	X		X	X	
Drought	X	X	X	X	X
Earthquake		X		X	X
Expansive Soils	X	X	X		X
Extreme Heat	X	X	X	X	X
Flash Flood	X	X	X	X	X
Grass or Wildland Fire	X	X	X	X	X
Hazardous Materials Incident	X	X	X	X	X
Human Disease	X	X	X	X	X
Infrastructure Failure	X	X	X	X	X
Landslide	X				
Levee Failure	X				
Radiological Incident	X	X		X	X
River Flooding	X	X	X	X	X
Severe Winter Storms	X	X	X	X	X
Sinkholes	X	X	X		
Terrorism	X	X	X	X	X
Thunderstorms/Lightning/Hail (or Hailstorm)	X	X	X	X	X
Tornado/Windstorm	X	X	X	X	X
Transportation Incident	X	X	X	X	X

A hazard risk assessment is conducted for each hazard in an HMP which evaluates factors such as historical occurrence, frequency, magnitude or extent, regional vulnerabilities, and local capabilities. Individual participants may identify specific hazards of top concern which are most

damaging or concerning at the local level. Each participant must identify at least one mitigation action in the HMP to reduce overall risk to hazard events.

HISTORICAL CHANGES

FEMA requires HMPs to be reviewed and updated every five years. Hamilton, Hancock, Humboldt, Kossuth, and Wright Counties have all updated their multi-jurisdictional plans in accordance with FEMA requirements.

Changes to the planning process, HMP structure, hazard risk assessment, planning area demographics, and/or mitigation actions are implemented during the review and update planning process. Revisions may be taken from the past plan's state and federal review and based on local community input. See the *Planning Process* section of each respective HMP for a description of changes from past plans.

PROJECTS AND PROGRAMS

A major feature of HMPs is the identification and subsequent implementation of mitigation actions. Mitigation actions are activities or projects identified by each participating jurisdiction to reduce local risk to natural and man-made hazards as evaluated in the risk assessment portion of the HMP. Actions must be identified and described in the HMP to be eligible for HMA grant funding.

Oftentimes identified mitigation actions require additional partnerships with other local, state, or federal agencies and leverage multiple funding resources. Mitigation actions are not limited to structural or non-structural projects but can include any action from public education and awareness outreach efforts, to streambank stabilization and emergency communication equipment upgrades.

PRIMARY PARTNERSHIP AGENCIES

Iowa Department of Homeland Security and Emergency Management (HSEMD)

The Iowa Department of Homeland Security and Emergency Management is responsible for coordinating and overseeing emergency response activities at the state level for natural and man-made disaster events. The department acts as a regulatory agency and liaison between the Iowa Governor, FEMA, local first responders, and regional representatives. HSEMD reviews all local HMPs at the state level before plans are submitted to FEMA for final approval.

Iowa Department of Natural Resources (IDNR)

The IDNR manages fish and wildlife, forestry, environmental protection, and water resources programs across the state of Iowa. The IDNR has also established numerous programs which integrate hazard mitigation principles and can be utilized by jurisdictions to reduce overall risk from hazards, such as dam failure, hazardous material incidents, and flooding.

Iowa Department of Transportation (DOT)

The Iowa DOT is responsible for maintaining state highways and major roadways across the State of Iowa. The agency closes and redirects traffic during hazardous conditions and can serve as a partner agency on significant road improvement projects on highways in communities or in unincorporated county lands.

Local Emergency Management Agencies

Local emergency management decisions and actions are led by the County Emergency Manager position within the county Emergency Management Agencies as authorized in the Iowa Code Chapter 29C. Roles and responsibilities of county Emergency Managers include: developing plans and capabilities to improve emergency response; build interagency collaboration; direct and facilitate response to natural or man-made hazard events; and assist communities in disaster response and recovery efforts. Local emergency management agencies also oversee emergency communications such as Alert Iowa, Code Red, or other enhanced 911 systems in their respective county.

Iowa Flood Center

With the support of the Iowa Legislature, the University founded the Iowa Flood Center (IFC) in response to record-setting flooding in 2008. The IFC is an academic center focused on floods, flood research, and education. The IFC is an outward-facing organization focused on direct service to the people of Iowa. The IFC actively engaged in flood-related projects that help Iowans understand their flood risk and better prepare for flooding, which includes:

- A cost-efficient sensor network to better monitor stream flow
- A library of flood-inundation maps for more than 30 Iowa communities
- Floodplain maps for all of Iowa's 99 counties
- Leading the Iowa Watershed Approach
- Conducting Hydrologic Assessments

IDENTIFIED MITIGATION ACTIONS

Participating jurisdictions in HMPs must identify mitigation actions to reduce evaluated risk to natural and man-made hazards. Mitigation actions can range from bury powerlines, purchasing new backup generators, streambank stabilization efforts, or increased public education and outreach efforts. Mitigation actions are designed to be specific to communities to meet local needs. A full list of mitigation actions can be seen in Attachment #1. Mitigation actions directly related to the interests of the watershed are listed Table 3.

Table 3: Mitigation Actions Identified in Local Hazard Mitigation Plans that are Related to the Watershed

Mitigation Action	Jurisdiction
Encourage farmers to engage in conservation practices	Humboldt County
Replacement of sewer and water damage	Britt
Reconstruct/repair DD15/15A to reduce the amount of flash flooding that occurs within town; Begin process of assessment of DD-15 infrastructure, classify drainage district if needed, explore mitigation and funding	Eagle Grove
Acquire flood prone properties for conversion into green space; or elevate structures to or above base flood elevation; construction of levees, dams, and culverts to ensure adequate capacity and protection levels for property and critical facilities.	Kossuth County, Lu Verne
Look into alternatives for protecting repetitive flood loss properties	Hamilton County)
Enforce the floodplain ordinances and update them as needed	Webster City, Goldfield
Participate in the National Flood Insurance Program (NFIP)	Webster City, Corwith, Kossuth County, Lu Verne, Wright County, Clarion
Purchase trash pumps	Humboldt County
Purchase portable sand barricades and sand filling machines	Humboldt County
Study and fix storm sewer	Renwick
Separating storm and sanitary sewer, eliminating connections to mitigate property damage due to backflow and flooding	Eagle Grove
Increase storm water handling capacity for entire community	Corwith
Upgrade county tiles	Humboldt County
When roads, ditches etc. are reconstructed evaluate the condition of the drainage tile	Wright County
Identify, pinpoint and fix the inflow and infiltration of water into the tile system and its effects on the storm sewer. Knowing where all these sources are throughout town, project could then be developed to reduce flash flooding and sewer backups	Eagle Grove
Wastewater Treatment Facility upgrade and repair	Britt
Construct, retrofit, or maintain water supply, drainage, sewage, retention and detention systems to provide for the proper functioning of those systems	Kossuth County, Wesley
Continue monitoring current industrial discharges and consider ordinance to address future industrial discharge scenarios	Eagle Grove

FUTURE TRENDS

Hazard mitigation is an ongoing and ever-evolving process. Due to the extreme and volatile nature of many natural hazards (severe thunderstorms, severe winter storms, tornadoes, etc.), communities and counties across Iowa will continue to face natural disasters into the future. Additionally, due to changes in climatic conditions, such events are likely to increase in frequency and intensity in the coming decades. It is the responsibility of the HMP local planning teams to evaluate local risks to hazards in the future with the knowledge such events will continue to occur.

Future updates to the HMPs must also evaluate changes in development, regulatory codes and legislature, and community demographics. Many mitigation actions aim at reducing the likelihood of hazard events from occurring in developed areas, such as floodplain mapping, elevation projects, or flood-prone property buy-outs. Other actions aim at reducing potential losses to infrastructure or human lives, such as by hardening utilities or constructing community safe rooms.

RECOMMENDATIONS

The following goals have been developed for initial discussion with the WMA regarding hazard mitigation. It is anticipated that these goals may be modified for inclusion in the final Boone River Watershed Management Plan.

EXISTING HMP GOALS

Each of the five HMPs evaluated here utilized goals and objectives to guide the HMP planning process and to identify mitigation actions which align with those goals. Each HMPs goals were evaluated for consistency and overall intent for the Boone River WMA to create one cohesive list of goals as described below.

- Protect and reduce vulnerability to populations, buildings, infrastructure, and facilities critical for residents' health, safety, and wellbeing by implementing cost effective and technically feasible mitigation projects for all potential hazards.
- Improve overall capability to respond to hazard events by enhancing/redesigning existing infrastructure, adopting new policies, or improving current equipment and facilities through mitigation actions.
- Strengthen communications about hazard events, risk, and mitigation actions between emergency responders, government, business, and residents pre, during, and post disaster event
- Develop programs to improve response agencies, governments, educational institutions, and local businesses education of disaster events and ability to operate during times of disaster.

RECOMMENDED GOALS FOR WATERSHED PLANNING

To integrate HMPs into the Boone River Watershed Plan, the following goals have been identified for consideration:

- Work with other communities and stakeholder groups for holistic watershed management planning
- Leverage the hazard mitigation planning process to further refine and evaluate flood risk reduction strategies and projects
- Encourage the participation of multi-agency participation in both hazard mitigation planning teams and watershed planning update

IMPLEMENTATION

HMPs are designed to evaluate overall jurisdictional risk to hazards, identify possible mitigation actions to reduce that risk, and provide an avenue to pursue implementation of such actions. Not all actions identified will be completed by a jurisdiction within the five year update cycle. However, implementation of projects is the overall intent.

All communities and counties within the Boone River WMA area should continue to participate in a local Hazard Mitigation Plan update. Participating jurisdictions in an HMP can implement identified mitigation actions by submitting a Notice of Intent (NOI) to HSEMD or by partnering with other agencies. All jurisdictions should strive to implement one action, at a minimum, during the lifecycle of an HMP whether structural or non-structural.

Additionally, HMPs should be integrated into other existing planning mechanisms as developed or updated in each jurisdiction. The local governing body is responsible for ensuring that HMP goals are incorporated into applicable revisions of other planning mechanisms per community. These plans may include, but are not limited to, Comprehensive Plans, Capital Improvement or 1&6 year Plans, Zoning Ordinances, Floodplain Ordinances, Building Codes, County Local Emergency Operations Plans, and/or Watershed Management Plans.

ACTION STEPS

- Update local Hazard Mitigation Plans every five years
- Evaluate and prioritize applicable mitigation actions at the watershed level
- Integrate Hazard Mitigation goals and mitigation actions into other planning mechanisms, such as Comprehensive Plans, Zoning Ordinances, Future Land Use Development, Revitalization Studies, etc.
- Identify, prioritize, and conduct flood risk assessments at the community level throughout the watershed
- Adopt applicable hazard mitigation projects into the watershed plan, and vice-versa
 - Focus on the actions identified in Table 3 and in Attachment #1.

EDUCATION STRATEGIES

Education and outreach efforts are key to ensuring hazard mitigation principles are integrated into other planning mechanisms and ongoing resource management decisions. Extensive public engagement is a crucial component of effective and implementable hazard mitigation plans. Ways to educate and engage the public in the update process for HMPs and for this Boone River WMA include:

- Provide updates on project websites and community websites/social media
- Invite elected officials, residents, and stakeholders to meeting forums to discuss goals, mitigation actions, and action items

- Ensure county emergency managers, county engineers, watershed coordinators, IHSEMD, IDNR, IFC, and others directly impacted by hazard mitigation actions meet regularly or are involved in other planning processes or meetings (such as watershed planning)
- Share press releases with local news media for ongoing plan updates
- Sharing progress reports, photos, and results of implemented mitigation actions with community members
- Showcasing successful mitigation efforts in surrounding areas or similar conditions to the planning area.

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Boone WMA – Watershed Plan
 Current Condition Report: Hazard Mitigation

	West Hancock Schools (Britt)	Hamilton County	Webster City	Hancock County	Britt	Corwith	Kanawha	Humbolt County	Lu Verne	Renwick	Thor	Kossuth County	Lu Verne	Wesley	Wright County	Clarion	Eagle Grove	Goldfield	Woolstock
Mitigation Alternatives	Special Districts	Hamilton County	Hancock County				Humbolt County				Kossuth County			Wright County					
Assess and secure critical facilities within the city										X									
Communications One - Local phone, cable, internet provider has backup propane capability						X													
Close roadways where bridges are out		X																	
Update and enforce building codes										X									
Build public awareness on the importance of various forms of communication (landlines, cellphones, Life Alert)		X																	
Encourage farmers to engage in conservation practices								X											
Continuity of Operations Plan (COOP)			X									X	X						
Replacement of sewer and water damage					X														

**Boone WMA – Watershed Plan
Current Condition Report: Hazard Mitigation**

	West Hancock Schools (Britt)	Hamilton County	Webster City	Hancock County	Britt	Corwith	Kanawha	Humbolt County	Lu Verne	Renwick	Thor	Kossuth County	Lu Verne	Wesley	Wright County	Clarion	Eagle Grove	Goldfield	Woolstock
Reconstruct/repair DD15/15A to reduce the amount of flash flooding that occurs within town; Begin process of assessment of DD-15 infrastructure, classify drainage district if needed, explore mitigation and funding																	X		
Hold mass casualty drill for emergency responders		X																	
Educate drivers on how to drive during severe weather condition and on gravel roads		X																	
Set up protocol for a call center/develop an Emergency Operations Center (EOC)			X																
Develop an evacuation plan			X						X								X		
Ensure that fire departments are trained to contain hazardous materials		X						X									X	X	
Training Fire Departments and EMTs							X												
Provide spotter training for the fire department						X													

Boone WMA – Watershed Plan
 Current Condition Report: Hazard Mitigation

	West Hancock Schools (Britt)	Hamilton County	Webster City	Hancock County	Britt	Corwith	Kanawha	Humbolt County	Lu Verne	Renwick	Thor	Kossuth County	Lu Verne	Wesley	Wright County	Clarion	Eagle Grove	Goldfield	Woolstock
Continue training emergency personnel on how to respond to pipeline incidents								X											
Install and maintain security measures at all critical facilities and training of emergency response personnel												X	X	X					
Continue Incident Command training for fire fighters																		X	
Ensure that fire departments have adequate water sources		X																	
Purchase a new tanker truck to have enough water available for those areas where water hookups are not available																X			
Acquire flood prone properties for conversion into green space; or elevate structures to or above base flood elevation; construction of levees, dams, and culverts to ensure adequate capacity and protection levels for property and critical facilities.												X	X						

**Boone WMA – Watershed Plan
Current Condition Report: Hazard Mitigation**

	West Hancock Schools (Britt)	Hamilton County	Webster City	Hancock County	Britt	Corwith	Kanawha	Humbolt County	Lu Verne	Renwick	Thor	Kossuth County	Lu Verne	Wesley	Wright County	Clarion	Eagle Grove	Goldfield	Woolstock
Look into alternatives for protecting repetitive flood loss properties		X																	
Enforce the floodplain ordinances and update them as needed			X																
Communicate road closure or areas to avoid during flooding		X																	
Enforce floodplain Management Ordinance																		X	
Purchase and install a generator for the community shelter											X								
Purchase generators for all shelters within the county								X											
Purchase generators for public entities to use								X											
Purchase/install backup power generators												X	X	X					
Purchase additional generators for courthouse and essential county services															X				
Install a fixed generator for City Hall EMS, Fire Department and Street Department																	X		

Boone WMA – Watershed Plan
 Current Condition Report: Hazard Mitigation

	West Hancock Schools (Britt)	Hamilton County	Webster City	Hancock County	Britt	Corwith	Kanawha	Humbolt County	Lu Verne	Renwick	Thor	Kossuth County	Lu Verne	Wesley	Wright County	Clarion	Eagle Grove	Goldfield	Woolstock
Portable generator(s) for lift stations																	X		
Purchase fixed generators for Water Plant and Lift Station so that they will continue to operate when electricity fails																		X	
Purchase and install generator and wiring to Community Hall so that the Hall will continue to operate when electricity fails																			X
Mobile Generator																X			
Work with Iowa DOT and the Governor Safety Task Force (511)		X																	
Update HAZMAT equipment										X									
Map out where all hazardous materials are located within the city and have laptop computer for location of hazardous materials (to be put in fire truck)																X			
Make updates to sewage lift station										X									
Maintain and inspect light on top of large structures										X									
Develop a mass casualty plan			X																

Boone WMA – Watershed Plan
 Current Condition Report: Hazard Mitigation

	West Hancock Schools (Britt)	Hamilton County	Webster City	Hancock County	Britt	Corwith	Kanawha	Humbolt County	Lu Verne	Renwick	Thor	Kossuth County	Lu Verne	Wesley	Wright County	Clarion	Eagle Grove	Goldfield	Woolstock
Participate in the National Flood Insurance Program (NFIP)			X			X						X	X		X	X			
Develop and promote comprehensive, cost-effective, common sense recommendations for adoption and enforcement of land use, ordinances and regulations, zoning and building codes that decrease risk in areas susceptible to hazards												X		X					
Continue mitigation activities and ordinances; hire a code enforcer																	X		
Purchase and install two permanent generators											X								
Develop/update/publicize emergency management plans, including preparedness, response recover, operations, long term recovery, and mitigation plans and maintain data inventory													X	X					
Purchase a large portable generator			X																
Bury powerlines			X																
backup power at fire station						X													

**Boone WMA – Watershed Plan
Current Condition Report: Hazard Mitigation**

	West Hancock Schools (Britt)	Hamilton County	Webster City	Hancock County	Britt	Corwith	Kanawha	Humbolt County	Lu Verne	Renwick	Thor	Kossuth County	Lu Verne	Wesley	Wright County	Clarion	Eagle Grove	Goldfield	Woolstock
The Case-International Harvester business in town has backup power capability						X													
Make improvements to power line, bury if necessary										X									
Develop a list of power and communication locations throughout the county								X											
Establish ordinance to bury power lines in future development																	X		
Develop redundant power plan for government function, emergency response and public safety																	X		
Educate the public on how to properly deal with hazards								X		X									
Educate the public on potential hazards		X	X									X	X	X		X			
Purchase trash pumps								X											
Encourage weather radios for indoor use		X	X																

Boone WMA – Watershed Plan
 Current Condition Report: Hazard Mitigation

	West Hancock Schools (Britt)	Hamilton County	Webster City	Hancock County	Britt	Corwith	Kanawha	Humbolt County	Lu Verne	Renwick	Thor	Kossuth County	Lu Verne	Wesley	Wright County	Clarion	Eagle Grove	Goldfield	Woolstock
Inform the public of the dangers of railroad crossings that do not have warning signals		X																	
Install crossbars and lights at railroad intersections								X											
Develop a response plan for the aftermath of hazardous events			X																
Road clearing measures in place						X													
Purchase portable sand barricades and sand filling machines								X											
Sewer Backup prevention																X			
Designate a community shelter											X								
Provide a network of shelters throughout the county								X											
Construct or retrofit existing structures into public safe rooms at government facilities, recreational facilities, recreational areas, manufactured home parks, schools, day care centers, and other critical facilities												X	X	X					

Boone WMA – Watershed Plan
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Construct a tornado shelter to be open to the public to use in case of tornados and when other storms lead to power outage																X			
Designate emergency shelters for people to take refuge in the event of a power outage, extreme temperatures, and hazardous weather.																	X		
Make list of locations which could serve as community shelter																		X	
Saferoom and emergency shelter																X		X	
Install more sirens and early warning systems																			X
Study and fix storm sewer										X									
Separating storm and sanitary sewer, eliminating connections to mitigate property damage due to backflow and flooding																	X		
Increase storm water handling capacity for entire community						X													

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Get funding to establish a property inspection program to identify issues which can be addressed in order to reduce the number of properties with structural failure issues																X			
Purchase surge protectors for critical facilities								X											
Encourage residents to sign up for emergency text messages			X																
Continue supporting and promoting Code Red and utilize the system to warn citizens of hazards															X				
Encourage residents to sign up for free weather service alerts via apps of texts		X																	
Upgrade county tiles								X											
When roads, ditches etc. are reconstructed evaluate the condition of the drainage tile															X				

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Identify, pinpoint and fix the inflow and infiltration of water into the tile system and its effects on the storm sewer. Knowing where all these sources are throughout town, project could then be developed to reduce flash flooding and sewer backups																	X		
Expand the early warning system by installing more horns around town										X									
Encourage family and traveler emergency preparedness			X																
Continue tree management			X			X				X									
Continue pipeline safety training and support One Call to ensure pipeline and utility locations known before digging															X				
Wastewater Treatment Facility upgrade and repair					X														
Water Main Loops					X														
Backup power for water pumps						X													

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Construct, retrofit, or maintain water supply, drainage, sewage, retention and detention systems to provide for the proper functioning of those systems												X		X					
Continue weather spotters training																		X	
Research mitigation measure for winter storms						X													
Continue to enforce zoning and building ordinances			X																
Water Tower removal of Lead Based Paint					X														
Geo-coding cities addresses and GPS Units																X			
Continue monitoring current industrial discharges and consider ordinance to address future industrial discharge scenarios																		X	
Build Retaining wall around Lift station																		X	

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Inform the public through mailings or public announcements about the dangers of hail, transportation emergencies, watershed pollution, grassfires and other hazards affecting the city																				X