

Chapter 4: Hazard Mitigation Strategy

The third major step in the FEMA Hazard Mitigation Planning Process is the development of the mitigation strategy for each jurisdiction. It identifies the range of projects that are to be completed over the next five years by jurisdiction. It includes the following information that rounds out the remaining parts of this plan.

- Description of goals for hazard mitigation in the next five years.
- List of possible mitigation actions.
- Description of existing capabilities to address hazard mitigation.
- Evaluation of the proposed hazard mitigation actions to be considered in the next five years.
- The mitigation strategy by jurisdiction.
- Description of the hazard mitigation plan implementation, maintenance, and evaluation processes.

During the first meeting of the hazard mitigation planning team the following question was asked: Where should your jurisdiction start to become more prepared for hazard mitigation (list one thing)? The following results were given:

- We do not have a siren for tornado warnings and cannot afford one, so it would be nice to know everyone had a weather radio.
- More communication with the fire department and residents.
- Severe storms.
- Have plans in place in case there is a need to implement them.
- Don't know.
- Terrorism.

Community residents in the planning area were also asked about why hazard mitigation is important. The following results were given:

- Failing to plan is planning to fail. Not an option in my book.
- Keep people safe and out of harm's way.
- So we are safe and people know how to handle situations.
- To keep us safe.
- To keep a viable community.
- For public safety.
- To keep residents, properties, and others safe and aware from/of hazards that could harm them to keep the city and county functioning during hazards and crises.
- Being prepared is wisdom in the calm to handle the chaos.
- It's better to be prepared.
- We have a lot of seniors in this community. They need a safe, easily accessed place to get to if needed. The church is an older church, but the basement isn't big enough to hold everyone in the community. We need a space to store supplies as well. It would be easier if the residents and supplies were in the same place.
- Save lives and property damage.
- So people know what to do when the unthinkable happens.
- Planning ahead makes it easier if you ever have to use it.
- With our local EMS, we have protection, leadership, education, and good practice in being safe each and every day.
- To protect our health and wellbeing and have procedures in place in the event of an emergency.
- It is important to keep the residents of the county as safe as possible from situations that might be harmful through preparedness and education.

Ringgold County Plan Update Changes to the Plan Structure

The previous plan broke out the topics of the mitigation strategy into numerous chapters. Upon review of other recently approved plans, it was determined that a new organization was easier to read and follow. It offers a better natural flow than the previous plan and reduces the complexity of the discussion. It also adds one or more sections devoted to plan update information, including the progress of projects listed in the previous plan and their continued relevance.

Ringgold County Plan Update Changes to the Data Process

This plan includes a significant update to the data in the previous plan related to the STAPLE-E process, goals selection, and other topics that result in a more streamlined and straightforward mitigation strategy. It also includes new mitigation ideas found in other plans and FEMA/State guidance. It also includes ideas related climate change resilience. Finally, the STAPLE-E analysis focuses on comparing possible mitigation actions for each of the hazards under consideration.

This chapter is divided into six main parts:

- **Section 4.1 Goals and Objectives** identifies the goals and objectives identified by the planning team and planning consultant at the fifth planning meeting and with consideration of the previous plan’s goals and objectives;
- **Section 4.2 Categories of Mitigation Actions** details the six FEMA/State prescribed categories of mitigation actions which helps the jurisdictions in the planning area focus attention and resources;
- **Section 4.3 Possible Mitigation Actions** lists possible mitigation actions for each of the Priority I hazards and river flood, as identified from various sources;
- **Section 4.4 Status of Mitigation Actions** reviews the status of potential mitigation actions for each hazard for each jurisdiction, both those listed in the previous plan and new potential actions, and discusses which ones are relevant for further consideration as part of the STAPLE-E evaluation process;
- **Section 4.5 Capability Assessment** describes the capabilities of each jurisdiction to address the various proposed mitigation actions.
- **Section 4.6 Evaluation Process for Alternative Mitigation Measures** details the STAPLE-E evaluation process.
- **Section 4.7 Evaluation Results for Alternative Mitigation Measures** details the STAPLE-E evaluation results that are used for prioritization of hazard mitigation projects.
- **Section 4.8 Selection of Alternative Measures by Jurisdiction** lists in a table the selected actions by jurisdiction for quick review.
- **Section 4.9 Implementation Strategy by Jurisdiction** provides tables containing a timeline for the selected mitigation actions by jurisdiction along with possible leadership and priority rating.
- **Section 4.10 Mitigation Action Summaries** provides details about mitigation actions selected, including primary hazards addressed, jurisdictions implementing, funding options, goals addressed, and benefits.
- **Section 4.11 Implementation of the National Flood Insurance Program (NFIP)** provides additional language and information on compliance with the NFIP where applicable in the planning area.

4.1: Mitigation Goals and Objectives

During the first meeting of the hazard mitigation planning team the following question was asked: “Why is hazard mitigation important for your community/jurisdiction?” The following results were given:

- So emergency response can be quick and efficient.
- We are a small community with quite a few older residents. If we had a tornado, I really don’t know what everyone would do if there were severe damage. The world is full of hazards and, if one occurs, it would be rough on citizens.
- So that we know that we are not alone in a disaster.
- To be prepared in any kind of disaster.
- So we can have help from others.
- To help in keeping any persons involved in a hazardous situation safe from being harmed.

This part of the plan addresses the following Stafford Act requirement:

Section 201.6 (c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

The Ringgold County Hazard Mitigation Planning Team at its fifth meeting reviewed the risk assessment and other planning documents drafted to date. The intent of the review was to develop goals and objectives that would be fiscally feasible and yet highly beneficial. During the fifth meeting, the goals and objectives were created and initially evaluated.

The hazard goals are based on a four-pronged approach to emergency response, recognizing that mitigation actions affect all elements:

- **Preparedness** activities ensure the community and its residents are ready for a disaster and that they respond effectively. Preparedness involves determining what the community will do if essential services break down, developing a plan for contingencies, and practicing the plan.
- **Response** activities begin as soon as the disaster threatens. Response includes access control, search and rescue, mass care, medical services, and restoring essential services.
- **Recovery** activities help the community to return to pre-disaster condition. They include rebuilding services, infrastructure (utilities, communications, and transportation systems), facilities, operations, and the lives affected by the disaster.
- **Mitigation** activities are sustained actions that reduce the long-term risk of disasters. They reduce threats to the public health and safety, reduce or eliminate damages caused by disaster, and reduce the burden placed on local, state, and federal preparedness, response and recovery activities.

This part of the plan addresses the following Stafford Act requirement:

Section 201.6 (c)(3)(i): The plan must contain a mitigation strategy that provides the jurisdictions blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools. This section must include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Ringgold County Plan Update Changes to the Mitigation Goals and Objectives

While there is no fundamental problem or flaws with the existing goals and objectives, the planning team considered a new list of potential options, from which it selected goals and objectives for consideration. These new goals and objectives reflect updated issue statements resulting from the new risk assessment.

The planning team, with assistance from the public, the consultant, current local plans, elected officials, and FEMA/IHSEMD guidance, established the following goals, generally in order of significance, to make the county and all jurisdictions safer and more disaster resilient. The goals were created as part of the fifth planning team meeting using a survey process where the team members ranked language suggestions for numerous goals and objectives. These goals and objectives apply to all the currently participating and future participating jurisdictions in the countywide multi-jurisdictional plan.

Goal 1: Protect the health and safety of the public.

- Objective 1: Improve warning capabilities against hazards.
- Objective 2: Increase efforts to educate the public about hazards.
- Objective 3: Implement structural and property improvement projects that will result in protection of life and safety.

Goal 2: Ensure local government/other entities can continue to operate during and after a hazard event.

- Objective 1: Provide backup or redundancy systems for critical infrastructure and assets.
- Objective 2: Improve local planning and organizational efficiency and gain understanding into mitigation needs.

Goal 3: Be as efficient as possible with public funds.

- Objective 1: Become and remain compliant with state and federal mitigation requirements and programs.
- Objective 2: Enhance and improve relations and communications with partner agencies.
- Objective 3: Maximize the use of technology in hazard mitigation.

Goal 4: Protect public property from hazards.

- Objective 1: Improve infrastructure and critical facilities.
- Objective 2: Set aside funding for mitigation projects and apply for mitigation funds.

Goal 5: Protect private property from hazards.

- Objective 1: Engage to a much greater level the private sector to address hazard mitigation.
- Objective 2: Improve local codes and laws to ensure mitigation is considered in development and land use.

4.2: Categories of Mitigation Actions

Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of unavoidable emergencies. Efforts by Federal, State, and local governments can restrict development in vulnerable areas, direct new development to less vulnerable areas, and promote ways to safeguard existing development in hazard-prone areas. Individuals can also participate through practicing sound personal safety and property protection measures. According to the 2013 FEMA document “Local Mitigation Planning Handbook,” there are four major categories of mitigation actions:

- Local plans and regulations include government authorities, policies, or codes that influence the way land and buildings are developed and built.
- Structure and infrastructure projects involve modifying existing structures and infrastructure (public or private) to protect them from a hazard or remove them from a hazard area. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural systems protection actions minimize damage and losses and also preserve or restore the functions of natural systems.
- Education and awareness programs

Mitigation Type	Description	Examples
Local Plans and Regulations	These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.	<ul style="list-style-type: none"> • Comprehensive plans • Land use ordinances • Subdivision regulations • Development review • Building codes and enforcement • NFIP Community Rating System • Capital improvement programs • Open space preservation • Stormwater management regulations and master plans
Structure and Infrastructure Projects	<p>These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure.</p> <p>This type of action also involves projects to construct manmade structures to reduce the impact of hazards.</p> <p>Many of these types of actions are projects eligible for funding through the FEMA Hazard Mitigation Assistance program. <i>Task 9 – Create a Safe and Resilient Community</i> provides more information on these programs.</p>	<ul style="list-style-type: none"> • Acquisitions and elevations of structures in flood prone areas • Utility undergrounding • Structural retrofits. • Floodwalls and retaining walls • Detention and retention structures • Culverts • Safe rooms
Natural Systems Protection	These are actions that minimize damage and losses and also preserve or restore the functions of natural systems.	<ul style="list-style-type: none"> • Sediment and erosion control • Stream corridor restoration • Forest management • Conservation easements • Wetland restoration and preservation
Education and Awareness Programs	These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as <i>StormReady</i> ¹ or <i>Firewise</i> ² Communities. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead to direct actions.	<ul style="list-style-type: none"> • Radio or television spots • Websites with maps and information • Real estate disclosure • Presentations to school groups or neighborhood organizations • Mailings to residents in hazard-prone areas. • StormReady • Firewise Communities

¹ For more information on the National Weather Service’s StormReady, see <http://www.stormready.noaa.gov/>.

² For more information on the Firewise Communities program, see <http://www.firewise.org/>.

These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs.

4.3: Possible Mitigation Actions

The next step in the development of a mitigation strategy is to formulate a “comprehensive range of mitigation actions” to apply to the various hazards outlined in previous chapters to which the planning area and its participating jurisdictions are vulnerable. The following matrices include the list of potential mitigation actions that can address the Priority 1 Hazards as identified in Chapter 3. Based on numerous sources of mitigation action ideas, the following includes policies, actions, programs, and projects that impact lives, properties, and community sustainability and resilience. Only mitigation actions listed in this section are considered in the mitigation alternatives analysis/evaluation and strategies sections in the remaining chapters of this plan.

This part of the plan addresses the following Stafford Act requirement:

Section 201.6 (c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

As part of the plan update, the county’s plan preparer, the Southern Iowa Council of Governments, worked with the planning team to update the list of potential projects. The work involved consideration of many lists of mitigation projects from the following sources:

- State of Iowa Hazard Mitigation Plans adopted in 2007, 2010, and 2013
- Previous Ringgold County Hazard Mitigation Plan
- Other mitigation plans adopted in the region and recommended for review by FEMA Region VII and the Iowa HSEMD
- FEMA resources, including the new “Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards” published in 2013

Before the plan covers possible mitigation actions, brief discussion on the existing mitigation actions is needed.

Ringgold County Plan Update Changes to the Plan Structure

This plan update includes a vastly expanded list of possible mitigation actions from more sources and examples. It also upgrades and makes more succinct the planning process by better identifying by hazard the possible mitigation actions and by removing those the planning team initially considered that are in fact not mitigation actions.

From various sources, the planning team came up with over 150 possible mitigation projects. At the same time, through FEMA and State sponsored trainings and new guidance, the plan preparer learned that many commonly identified mitigation actions are not mitigation actions at all but are emergency and administrative functions that might relate to capabilities but do not in themselves result in hazard mitigation. Below are many of these actions, which for this plan update are no longer being identified as mitigation actions. While these actions are important and can reduce risks, they are addressed in other planning mechanisms and/or existing or planned capabilities:

- Acquire modern chemicals and equipment for firefighting.
- Adopt/promote terrorism response plan.
- Adopt/keep current a thorough emergency operations plan (EOP).
- Buy warm-weather firefighter clothing.
- Construct or improve fire, police, and EMS stations.
- Designate debris disposal sites for items such as tree limbs and other non-hazardous materials.
- Develop a search and rescue team.
- Develop the volunteer base – trained and standby groups.
- Establish HAZMAT deconstruction sites.
- Hire or designate a public information officer.
- Hire/appoint a certified flood manager and provide flood manager training.
- Implement a bomb squad.
- Inspect water lines.
- Install computers and/or GPS in emergency vehicles.
- Maintain emergency operations center (EOC) with 24-hour capability.
- Maintain mutual aid compacts and a file system for easy access.
- Participate in a regional HAZMAT team agreement.
- Perform studies on community infrastructure and services provided.
- Place emergency response guidebooks in all emergency vehicles.
- Prohibit or limit public expenditures for capital improvements in known hazard areas.
- Purchase needed emergency response equipment (SCBA - self-contained breathing apparatus, thermal imaging system, vehicle extrication equipment, etc.).
- Purchase new fire trucks and ambulances.

- Routinely inspect fire hydrants.
- Train first responders, EMTs, firefighters, and emergency disaster responders; maintain protocols, exercises.

While all these actions are important, they are not evaluated in the remaining parts of this plan.

The following matrices include the list of potential mitigation actions that can address the Priority 1 Hazards as identified in Chapter 3. Based on numerous sources of mitigation action ideas, the following includes policies, actions, programs, and projects that impact lives, properties, and community sustainability and resilience. Only mitigation actions listed in this section are considered in the mitigation alternatives analysis/evaluation and strategies sections in the remaining chapters of this plan.

General Mitigation Alternatives Involving All Hazards:

The following table shows the identified possible mitigation actions to address all hazards in a general nature and are not specific to one or more priority hazards. This is done so the planning team does not need to evaluate each one for each hazard.

Figure 4.1: Mitigation Alternatives Involving All Hazards

Mitigation Action	Primary Category
Adopt a continuity of operations & succession plan for the jurisdiction.	Local plans and regulations
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Local plans and regulations
Encourage property owners to own adequate property insurance.	Education and awareness programs
Establish alert systems and specific outreach efforts for vulnerable populations.	Education and awareness programs
Initiate community preparedness programs.	Education and awareness programs
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	Education and awareness programs
Implement a comprehensive multi-media public education campaign for multiple hazards.	Education and awareness programs
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	Local plans and regulations
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	Local plans and regulations
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	Education and awareness programs
Participate and market the local Reverse E911 alert program.	Education and awareness programs
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	Education and awareness programs
Store digital and hard copies of public records in low-risk, offsite locations.	Local plans and regulations

Extreme Heat Mitigation Alternatives:

The following table shows the identified possible mitigation actions to address extreme heat.

Figure 4.2: Mitigation Alternatives Involving Extreme Heat

Mitigation Action	Primary Category
Bury exposed utility and communications infrastructure.	Structure and infrastructure projects
Establish backup utilities and communications infrastructure; use the latest technology.	Structure and infrastructure projects
Formally designate and stock community post disaster shelters; maintain and publicize shelter location list (cooling shelters).	Structure and infrastructure projects
Fund weatherization programs to more low-income households.	Structure and infrastructure projects
Implement tree planting programs and install shade structures in crowd centers.	Natural systems protection
Provide adequate access to safe drinking water in all public spaces, including outdoor spaces, such as parks and playgrounds.	Structure and infrastructure projects
Strengthen exposed utility and communications infrastructure.	Structure and infrastructure projects

Hazardous Materials Mitigation Alternatives:

The following table shows the identified possible mitigation actions to address hazardous materials.

Figure 4.3: Mitigation Alternatives Involving Hazardous Materials

Mitigation Action	Primary Category
Acquire and demolish or relocate buildings/infrastructure in high-risk areas.	Structure and infrastructure projects
Acquire and use conservation easements and restrictive covenants to prevent development in	Natural systems protection

Mitigation Action	Primary Category
known hazard areas.	
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Local plans and regulations
Build highway or rail overpasses to reduce intersection accidents.	Structure and infrastructure projects
Check and test water wells (clean when needed).	Structure and infrastructure projects
Clear and deepen roadside ditches	Structure and infrastructure projects
Codify restricted access procedures.	Local plans and regulations
Conduct study on possible illegal use of sump pumps and sewer lines.	Local plans and regulations
Construct and/or improve berms, levees, or floodwalls around water/sewer plants and other critical assets that must be located in hazard areas.	Structure and infrastructure projects
Construct storage facilities for pesticides, insecticides, and chemicals.	Structure and infrastructure projects
Continue hazardous materials agreements, support enforcement of Occupational Safety and Health Administration’s (OSHA) regulations, and support regional hazardous materials teams.	Local plans and regulations
Create and maintain a special needs/oxygen user registration program or inventory.	Local plans and regulations
Designate/enforce HAZMAT transportation routes.	Local plans and regulations
Develop/maintain hazardous materials inventories by location.	Local plans and regulations
Develop/update/publicize local evacuation and shelter-in-place plans.	Education and awareness programs
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	Structure and infrastructure projects
Encourage citizen purchase/use of smoke detectors and fire extinguishers with an incentive program.	Education and awareness programs
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	Structure and infrastructure projects
Encourage property owners to install sewer system backflow devices.	Education and awareness programs
Install access barriers around certain chemical tanks.	Structure and infrastructure projects
Install dry hydrants in areas without appropriate water mains and domestic fire hydrants.	Structure and infrastructure projects
Install pressure tanks/towers for potable water.	Structure and infrastructure projects
Install sprinkler systems in public buildings.	Structure and infrastructure projects
Institute alternative bus routes and plans for road closures.	Local plans and regulations
Investigate alternative water sources for fire suppression.	Local plans and regulations
Provide rail and highway safety education programs for youth.	Education and awareness programs
Purchase road closure barricades.	Local plans and regulations
Purchase stand-by portable pumps and generators.	Structure and infrastructure projects
Remove asbestos from public buildings.	Natural systems protection
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	Natural systems protection
Routinely inspect fire hydrants.	Local plans and regulations

Human Disease Mitigation Alternatives:

The following table shows the identified possible mitigation actions to address hazardous materials incidents.

Figure 4.4: Mitigation Alternatives Involving Human Disease

Mitigation Action	Primary Category
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Local plans and regulations
Check and test water wells (clean when needed).	Local plans and regulations
Codify restricted access procedures.	Local plans and regulations
Construct storage facilities for pesticides, insecticides, and chemicals.	Structure and infrastructure projects
Create and maintain a special needs/oxygen user registration program or inventory.	Local plans and regulations
Demolish abandoned properties.	Structure and infrastructure projects
Educate the public about the interconnected efforts needed to prevent and control infectious diseases and their role in protecting health.	Education and awareness programs
Encourage property owners to install sewer system backflow devices.	Education and awareness programs
Establish alert systems for vulnerable populations.	Local plans and regulations
Flush dead end water mains.	Structure and infrastructure projects
Fund weatherization programs to more low-income households.	Structure and infrastructure projects
Help community leaders and businesses to improve local public health response readiness.	Local plans and regulations
Increase community and individual engagement in disease prevention efforts.	Education and awareness programs
Modernize infectious disease surveillance to drive public health actions.	Local plans and regulations
Reduce disease transmitted by animals and insects and foodborne infections.	Local plans and regulations
Remove asbestos from public buildings.	Natural systems protection
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	Natural systems protection

Infrastructure Failure Mitigation Alternatives:

The following table shows the identified possible mitigation actions to address hazardous infrastructure failure.

Figure 4.5: Mitigation Alternatives Involving Infrastructure Failure

Mitigation Action	Primary Category
Acquire and demolish or relocate buildings/infrastructure in high-risk areas.	Structure and infrastructure projects
Acquire and use conservation easements and restrictive covenants to prevent development in known hazard areas.	Natural systems protection
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Local plans and regulations
Adopt State fire codes.	Local plans and regulations
Adopt tree-trimming ordinances.	Local plans and regulations
Bury exposed utility and communications infrastructure.	Structure and infrastructure projects
Construct and/or improve berms, levees, or floodwalls around water/sewer plants and other critical assets that must be located in hazard areas.	Structure and infrastructure projects
Construct or repair dams; develop reservoirs and lakes (flood control, water source).	Structure and infrastructure projects
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	Structure and infrastructure projects
Encourage citizen purchase/use of smoke detectors and fire extinguishers with an incentive program.	Education and awareness programs
Encourage property owners to install sewer system backflow devices.	Education and awareness programs
Encourage the use of non-combustible materials (i.e. stone, brick, etc.) for structures in wildfire hazard areas.	Education and awareness programs
Enforce multi-family housing extinguisher laws.	Local plans and regulations
Flood proof critical assets in the community.	Structure and infrastructure projects
Fund weatherization programs to more low-income households.	Structure and infrastructure projects
Harden public buildings.	Structure and infrastructure projects
Implement stream modifications/channel improvements and stream bank stabilization.	Natural systems protection
Improve capital communications technology, such as cell towers and fiber cable lines, to better withstand hazards.	Structure and infrastructure projects
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	Structure and infrastructure projects
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Structure and infrastructure projects
Install access barriers around certain chemical tanks.	Structure and infrastructure projects
Install dry hydrants in areas without appropriate water mains and domestic fire hydrants.	Structure and infrastructure projects
Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	Structure and infrastructure projects
Install sprinkler systems in public buildings.	Structure and infrastructure projects
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Structure and infrastructure projects
Maintain trees proactively on public property and ROW areas.	Local plans and regulations
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Natural systems protection
Purchase/install backup fixed power generators and pumps.	Structure and infrastructure projects
Purchase stand-by portable pumps and generators.	Structure and infrastructure projects
Require burial of utility lines in new development.	Local plans and regulations
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	Local plans and regulations
Routinely inspect fire hydrants.	Local plans and regulations
Strengthen exposed utility and communications infrastructure.	Structure and infrastructure projects

River Flood Mitigation Alternatives:

The following table shows the identified possible mitigation actions to address river flood events.

Figure 4.6: Mitigation Alternatives Involving River Flood

Mitigation Action	Primary Category
Acquire and use conservation easements and restrictive covenants to prevent development in known hazard areas.	Natural systems protection
Acquire flood prone buildings and convert to open space/green space or elevate to or above base flood elevation or above flash flood reach.	Structure and infrastructure projects
Adopt the current FIRM maps as applicable to each jurisdiction.	Local plans and regulations
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Local plans and regulations
Complete storm water drainage or watershed studies of known flood areas.	Local plans and regulations

Mitigation Action	Primary Category
Construct and/or improve berms, levees, or floodwalls around water/sewer plants and other critical assets that must be located in hazard areas.	Structure and infrastructure projects
Construct or repair dams; develop reservoirs and lakes (flood control, water source).	Structure and infrastructure projects
Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	Structure and infrastructure projects
Discourage/prohibit development in flood plain areas; join or continue participation in the NFIP.	Local plans and regulations
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	Structure and infrastructure projects
Encourage the implementation of water-saving measures, including soil and water conservation practices.	Education and awareness programs
Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	Education and awareness programs
Implement stream modifications/channel improvements and stream bank stabilization.	Natural systems protection
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	Structure and infrastructure projects
Install flood gauges.	Structure and infrastructure projects
Institute alternative bus routes and plans for road closures.	Local plans and regulations
Maintain sandbags in dry storage.	Structure and infrastructure projects
Participate in the FEMA Community Rating Service (CRS) program.	Local plans and regulations
Perform dam and levee inspections.	Local plans and regulations
Purchase road closure barricades.	Local plans and regulations
Purchase stand-by portable pumps and generators.	Structure and infrastructure projects
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	Structure and infrastructure projects

Severe Winter Storm Mitigation Alternatives:

The following table shows the identified possible mitigation actions to address severe winter storm events.

Figure 4.7: Mitigation Alternatives Involving Severe Winter Storm

Mitigation Action	Primary Category
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Local plans and regulations
Adopt tree trimming ordinances.	Local plans and regulations
Bury exposed utility and communications infrastructure.	Structure and infrastructure projects
Create and maintain a special needs/oxygen user registration program or inventory.	Local plans and regulations
Develop/enforce snow removal policies.	Local plans and regulations
Fund weatherization programs to more low-income households.	Structure and infrastructure projects
Harden public buildings.	Structure and infrastructure projects
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Structure and infrastructure projects
Install highway guardrails to keep vehicles on roadway.	Structure and infrastructure projects
Install quick-connect emergency generator hook-ups for facilities.	Structure and infrastructure projects
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Structure and infrastructure projects
Institute alternative bus routes and plans for road closures.	Local plans and regulations
Maintain trees proactively on public property and ROW areas.	Local plans and regulations
Obtain sand and salt supplies well in advance of winter.	Local plans and regulations
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Natural systems protection
Purchase road closure barricades.	Local plans and regulations
Purchase snow trucks, plows, sanders.	Structure and infrastructure projects
Purchase stand-by portable pumps and generators.	Structure and infrastructure projects
Purchase/install backup fixed power generators and pumps.	Structure and infrastructure projects
Require burial of utility lines in new development.	Local plans and regulations
Strengthen exposed utility and communications infrastructure.	Structure and infrastructure projects

Terrorism Mitigation Alternatives:

The following table shows the identified possible mitigation actions to address terrorism.

Figure 4.8: Mitigation Alternatives Involving Terrorism

Mitigation Action	Primary Category
Codify restricted access procedures.	Local plans and regulations

Mitigation Action	Primary Category
Construct storage facilities for pesticides, insecticides, and chemicals.	Structure and infrastructure projects
Create and maintain a special needs/oxygen user registration program or inventory.	Local plans and regulations
Develop/maintain hazardous materials inventories by location.	Local plans and regulations
Develop/maintain security at applicable critical assets.	Structure and infrastructure projects
Develop/update/publicize local evacuation and shelter-in-place plans.	Local plans and regulations
Harden public buildings.	Structure and infrastructure projects
Implement intensive local and regional intelligence, drills, and scenarios.	Local plans and regulations
Install air monitors.	Structure and infrastructure projects
Install and/or update anti-virus software.	Local plans and regulations
Install access barriers around certain chemical tanks.	Structure and infrastructure projects
Install dry hydrants in areas without appropriate water mains and domestic fire hydrants.	Structure and infrastructure projects
Install pressure tanks/towers for potable water.	Structure and infrastructure projects
Install sprinkler systems in public buildings.	Structure and infrastructure projects
Institute alternative bus routes and plans for road closures.	Local plans and regulations
Prepare and implement a mass casualty plan to address of terrorism and infectious disease outbreaks.	Local plans and regulations
Purchase road closure barricades.	Local plans and regulations
Purchase stand-by portable pumps and generators.	Structure and infrastructure projects
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	Natural systems protection
Strengthen existing law enforcement and security practices and personnel allocation.	Local plans and regulations

Thunderstorm/Lightning/Hail Mitigation Alternatives:

The following table shows the identified possible mitigation actions to address tornado/windstorm.

Figure 4.9: Mitigation Alternatives Involving Thunderstorm/Lighting/Hail

Mitigation Action	Primary Category
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Local plans and regulations
Adopt tree trimming ordinances.	Local plans and regulations
Bury exposed utility and communications infrastructure.	Structure and infrastructure projects
Create and maintain a special needs/oxygen user registration program or inventory.	Local plans and regulations
Demolish abandoned properties.	Structure and infrastructure projects
Fund weatherization programs to more low-income households.	Structure and infrastructure projects
Harden public buildings.	Structure and infrastructure projects
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Structure and infrastructure projects
Install hazard signs in area campgrounds, parks, and open spaces.	Education and awareness programs
Install warning siren(s).	Structure and infrastructure projects
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Structure and infrastructure projects
Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	Structure and infrastructure projects
Promote annual storm spotter training.	Education and awareness programs
Promote the value of installation of private in-home tornado safe rooms.	Education and awareness programs
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Education and awareness programs
Purchase/install backup fixed power generators and pumps.	Structure and infrastructure projects
Purchase stand-by portable pumps and generators.	Structure and infrastructure projects
Require burial of utility lines in new development.	Local plans and regulations
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	Education and awareness programs
Strengthen exposed utility and communications infrastructure.	Structure and infrastructure projects

Tornado/Windstorm Mitigation Alternatives:

The following table shows the identified possible mitigation actions to address tornado/windstorm.

Figure 4.10: Mitigation Alternatives Involving Tornado/Windstorm

Mitigation Action	Primary Category
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Local plans and regulations
Adopt manufactured home development storm shelter ordinances.	Local plans and regulations
Adopt tree trimming ordinances.	Local plans and regulations
Bury exposed utility and communications infrastructure.	Structure and infrastructure projects

Mitigation Action	Primary Category
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Structure and infrastructure projects
Construct storage facilities for pesticides, insecticides, and chemicals.	Structure and infrastructure projects
Create and maintain a special needs/oxygen user registration program or inventory.	Local plans and regulations
Demolish abandoned properties.	Structure and infrastructure projects
Distribute tornado shelter location information.	Education and awareness programs
Enforce burning restrictions.	Local plans and regulations
Fund weatherization programs to more low-income households.	Structure and infrastructure projects
Harden public buildings.	Structure and infrastructure projects
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Structure and infrastructure projects
Install hazard signs in area campgrounds, parks, and open spaces.	Education and awareness programs
Install highway guardrails to keep vehicles on roadway.	Structure and infrastructure projects
Install warning siren(s).	Structure and infrastructure projects
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Structure and infrastructure projects
Institute alternative bus routes and plans for road closures.	Local plans and regulations
Maintain trees proactively on public property and ROW areas.	Local plans and regulations
Promote annual storm spotter training.	Education and awareness programs
Promote the value of installation of private in-home tornado safe rooms.	Education and awareness programs
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Natural systems protection
Provide safe room education for builders and developers.	Education and awareness programs
Purchase road closure barricades.	Local plans and regulations
Purchase/install backup fixed power generators and pumps.	Structure and infrastructure projects
Purchase stand-by portable pumps and generators.	Structure and infrastructure projects
Require burial of utility lines in new development.	Local plans and regulations
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	Education and awareness programs
Strengthen exposed utility and communications infrastructure.	Structure and infrastructure projects

Transportation Incidents Mitigation Alternatives:

The following table shows the identified possible mitigation actions to address transportation incidents.

Figure 4.11: Mitigation Alternatives Involving Transportation Incidents

Mitigation Action	Primary Category
Build highway or rail overpasses to reduce intersection accidents.	Structure and infrastructure projects
Develop/enforce snow removal policies.	Local plans and regulations
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	Structure and infrastructure projects
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	Structure and infrastructure projects
Install highway guardrails to keep vehicles on roadway.	Structure and infrastructure projects
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Structure and infrastructure projects
Institute alternative bus routes and plans for road closures.	Local plans and regulations
Obtain sand and salt supplies well in advance of winter.	Local plans and regulations
Purchase road closure barricades.	Local plans and regulations
Purchase snow trucks, plows, sanders.	Structure and infrastructure projects
Purchase stand-by portable pumps and generators.	Structure and infrastructure projects

The above tables, while lengthy, offer a comprehensive range of actions that can address the many hazards identified in the plan. This information is the foundation for the following few chapters that outline future mitigation actions that should be undertaken by the jurisdictions participating in the plan.

4.4: Status of Mitigation Actions

Now that the planning team, with the assistance of the planning consultant, has identified the hazards most likely to cause harm to the planning area and has identified a “comprehensive range of mitigation action” to address those hazards, it is important to consider the *readiness* of the jurisdictions to address those hazards. This section addresses this aspect of the plan, which then shapes the evaluation of proposed new or carryover mitigation actions that fall within the mitigation goals and objectives of the community, as outlined in Section 4.1.

This part of the plan addresses the following Stafford Act requirement:

Section 201.6 (c)(3): The plan shall include a mitigation strategy that provides the jurisdiction’s blueprint for reducing the potential losses identified in this risk assessment, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools.

The focus of this section and Section 4.5 is the second clause of this sentence, which is italicized. Before we can create and implement future goals, it is essential to know where the jurisdictions in the planning area are and what assets or capabilities each have that can be leveraged when implementing future mitigation measures.

Ringgold County Plan Update Changes to the Capability Assessment

This section drastically changes the discussion of the current capabilities from the last plan to focus on the ability to implement mitigation actions as identified in the planning process. Mitigation actions are described in more detail, with a focus on status of mitigation actions specifically identified that address high-risk hazards. Parts of a few chapters in the old plan come together to make this section more concise.

Current Potential Mitigation Actions by Jurisdiction

This section identifies the status of existing mitigation actions identified in the “comprehensive range of mitigation actions” for at least one Priority I hazard by jurisdiction. The following matrices provide the alphabetical list along with a description of the status and their impact on new and existing structures/properties. This information is important for two reasons. First, it allows the planning team to evaluate the effectiveness of mitigation actions. Second, it helps pare down the list of future mitigation actions from among the many possible actions that address hazards affecting each jurisdiction. Results of completed and other actions not to be implemented in the planning period are described briefly, as appropriate.

Status of Potential Mitigation Actions in Rural Ringgold County:

The following table is a list of applicable mitigation actions as compiled from the comprehensive range of mitigation actions. New projects are those not listed in the previous plan to be implemented for this jurisdiction but are within the range of actions for the current list of hazards. Carryover projects are projects started in the past and are continuing or considered for continuation in the next planning period. Complete and in-place actions are those from the previous plan or new actions not in the previous plan but are in the comprehensive range of actions but are either complete or in-place and do not require specific action to ensure they continue with this plan.

Figure 4.12: Status of Potential Mitigation Actions – Rural Ringgold County

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Acquire and demolish or relocate buildings/infrastructure in high-risk areas.	Existing	New – not a previously identified issue before flood maps were in place.
Acquire and use conservation easements and restrictive covenants to prevent development in known hazard areas.	New	New – not a previously identified issue before flood maps were in place.
Acquire flood prone buildings and convert to open space/green space or elevate to or above base flood elevation or above flash flood reach.	Existing	New – not a previously identified issue before flood maps were in place.
Adopt a continuity of operations & succession plan for the jurisdiction.	N/A	Complete – in place and utilized.
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Both	Carryover – flood ordinance in place but others are not.
Adopt manufactured home development storm shelter ordinances.	Both	New
Adopt State fire codes.	Both	New
Adopt the current FIRM maps as applicable to each jurisdiction.	N/A	Complete – in place and adopted.
Adopt tree trimming ordinances.	Both	New
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Both	New
Build highway or rail overpasses to reduce intersection accidents.	Both	Not applicable to jurisdiction – no railroads or major traffic corridors justifying overpasses and interchanges.
Bury exposed utility and communications infrastructure.	Both	New
Check and test water wells (clean when needed).	Existing	In-place – process and funding are in place.
Clear and deepen roadside ditches.	Existing	Underway and – some work has been done and process to continue work is in

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Codify restricted access procedures.	N/A	place; no new action needed. In-place – County policy in place.
Complete storm water drainage or watershed studies of known flood areas.	N/A	In place - key areas of the county are studied.
Conduct study on possible illegal use of sump pumps and sewer lines.	Existing	New
Construct and/or improve berms, levees, or floodwalls around water/sewer plants and other critical assets that must be located in hazard areas.	Existing	New
Construct or repair dams; develop reservoirs and lakes (flood control, water source).	Existing	Complete – County already supports this measure through S&WCD; no larger reservoir project planned.
Construct storage facilities for pesticides, insecticides, and chemicals.	Both	Complete – issues are addressed.
Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	Both	Carryover – limited activities completed; most areas will not use curb and gutter.
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Both	Carryover
Continue hazardous materials agreements, support enforcement of Occupational Safety and Health Administration’s (OSHA) regulations, and support regional hazardous materials teams.	N/A	Carryover – an ongoing and continuing activity.
Create and maintain a special needs/oxygen user registration program or inventory.	N/A	New
Demolish abandoned properties.	Existing	New
Designate/enforce HAZMAT transportation routes.	Both	New
Develop/enforce snow removal policies.	N/A	In-place – current policies are adequate.
Develop/maintain hazardous materials inventories by location.	Existing	In-place – county has access to this information.
Develop/update/publicize local evacuation and shelter-in-place plans.	Existing	In-place – EMA and other relevant staff have prepared and practiced.
Discourage/prohibit development in flood plain areas; join or continue participation in the NFIP.	New	Complete – County is now active and has a flood plain ordinance
Distribute tornado shelter location information.	N/A	Not applicable to this jurisdiction because no shelters exist.
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	Existing	Carryover
Encourage citizen purchase/use of smoke detectors and fire extinguishers with an incentive program.	Both	New
Encourage property owners to install sewer system backflow devices.	Both	New
Encourage property owners to own adequate property insurance.	Existing	New
Encourage the implementation of water-saving measures, including soil and water conservation practices.	Existing	Carryover – some activity has occurred, but with more funds the effort can be expanded.
Encourage the use of non-combustible materials (i.e. stone, brick, etc.) for structures in wildfire hazard areas.	New	New
Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	Both	New
Enforce burning restrictions.	Existing	New
Enforce multi-family housing extinguisher laws.	Existing	New
Establish alert systems and specific outreach efforts for vulnerable populations.	N/A	In-place – substantial effort is complete and non-government sector can address.
Flood proof critical assets in the community.	Existing	New
Fund weatherization programs to more low-income households.	Existing	Carryover – some activity has occurred, but with more funds the effort can be expanded.
Harden public buildings.	Existing	Carryover
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	N/A	New
Implement a comprehensive multi-media public education campaign for multiple hazards.	N/A	Carryover – some activity has occurred, but with more funds the effort can be expanded.
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	N/A	Carryover – system in place but no hazard data is included.
Implement stream modifications/channel improvements and stream bank stabilization.	Existing	Implemented with other resources as they come available; no new action needed.

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Improve capital communications technology, such as cell towers and fiber cable lines, to better withstand hazards.	Existing	Complete - adequate technology now in place.
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	Existing	Carryover – some activity has occurred, but with more funds the effort can be expanded.
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	N/A	New
Increase production capacity; install redundant systems and (water, sewer, electric, gas).	New	New
Initiate community preparedness programs.	N/A	Carryover
Install access barriers around certain chemical tanks.	Existing	New
Install dry hydrants in areas without appropriate water mains and domestic fire hydrants.	Existing	Complete – in place; more may be warranted as funds are available.
Install flood gauges.	N/A	New
Install hazard signs in area campgrounds, parks, and open spaces.	N/A	Complete – generally addressed pertaining to the issues and hazards specific to that site.
Install highway guardrails to keep vehicles on roadway.	N/A	New
Install pressure tanks/towers for potable water.	Both	Complete – City and SIRWA towers should meet need adequately.
Install sprinkler systems in public buildings.	Existing	New
Install warning siren(s).	N/A	Carryover
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Existing	New
Institute alternative bus routes and plans for road closures.	N/A	Complete – addressed by local schools and information shared with county.
Investigate alternative water sources for fire suppression.	Both	Carryover
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	N/A	New
Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	Existing	Complete as relevant to critical assets and infrastructure.
Maintain sandbags in dry storage.	N/A	New
Maintain trees proactively on public property and ROW areas.	Both	Complete – funds budgeted and process ongoing as needed; no new action is required.
Obtain sand and salt supplies well in advance of winter.	N/A	In-place – already county policy.
Participate and market the local Reverse E911 alert program.	N/A	In-place – statewide program now in place.
Participate in the FEMA Community Rating Service (CRS) program.	Both	New
Perform dam and levee inspections.	Existing	In place – completed for all moderate and high hazard dams.
Promote annual storm spotter training.	N/A	In place – county promotes when it is in the area.
Promote the value of installation of private in-home tornado safe rooms.	Existing	Carryover
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Both	New
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	N/A	Carryover
Provide rail and highway safety education programs for youth.	N/A	In-place – annual program through schools and community events.
Provide safe room education for builders and developers.	N/A	New
Purchase road closure barricades.	N/A	Complete – adequate numbers available.
Purchase snow trucks, plows, sanders.	N/A	Complete – adequate numbers available.
Purchase stand-by portable pumps and generators.	Both	Complete – adequate supplies available.
Purchase/install backup fixed power generators and pumps.	Both	Carryover
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	Existing	Carryover
Remove asbestos from public buildings.	Existing	Complete – as identified.
Require burial of utility lines in new development.	New	New
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	New	New
Routinely inspect fire hydrants.	Existing	Complete – annually by SIRWA.
Store digital and hard copies of public records in low-risk, offsite	Existing	Complete – using electronic and, for

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
locations.		some files, offsite storage.
Strengthen exposed utility and communications infrastructure.	Existing	New – some activity has occurred, but with more funds the effort can be expanded.

Status of Potential Mitigation Actions in Benton:

The following table is a list of applicable mitigation actions as compiled from the comprehensive range of mitigation actions. New projects are those not listed in the previous plan to be implemented for this jurisdiction but are within the range of actions for the current list of hazards. Carryover projects are projects started in the past and are continuing or considered for continuation in the next planning period. Complete and in-place actions are those from the previous plan or new actions not in the previous plan but are in the comprehensive range of actions but are either complete or in-place and do not require specific action to ensure they continue with this plan.

Figure 4.13: Status of Potential Mitigation Actions – Benton

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Acquire and demolish or relocate buildings/infrastructure in high-risk areas.	Existing	New
Acquire and use conservation easements and restrictive covenants to prevent development in known hazard areas.	New	New
Acquire flood prone buildings and convert to open space/green space or elevate to or above base flood elevation or above flash flood reach.	Existing	New
Adopt a continuity of operations & succession plan for the jurisdiction.	N/A	New
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Both	Carryover
Adopt manufactured home development storm shelter ordinances.	Both	New
Adopt State fire codes.	Both	New
Adopt the current FIRM maps as applicable to each jurisdiction.	N/A	Complete – adopted in 2015.
Adopt tree trimming ordinances.	Both	New
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Both	New
Bury exposed utility and communications infrastructure.	Both	New
Complete storm water drainage or watershed studies of known flood areas.	N/A	New
Construct and/or improve berms, levees, or floodwalls around water/sewer plants and other critical assets that must be located in hazard areas.	Existing	New
Construct or repair dams; develop reservoirs and lakes (flood control, water source).	Existing	New
Construct storage facilities for pesticides, insecticides, and chemicals.	Both	New
Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	Both	New
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Both	Carryover
Create and maintain a special needs/oxygen user registration program or inventory.	N/A	New
Demolish abandoned properties.	Existing	New
Develop/enforce snow removal policies.	N/A	In-place – policies and equipment is in place.
Discourage/prohibit development in flood plain areas; join or continue participation in the NFIP.	New	Complete – adopted in 2015.
Distribute tornado shelter location information.	N/A	Not applicable to this jurisdiction because no shelters exist.
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	Existing	New
Encourage citizen purchase/use of smoke detectors and fire extinguishers with an incentive program.	Both	Carryover
Encourage property owners to install sewer system backflow devices.	Both	New
Encourage property owners to own adequate property insurance.	Existing	New
Encourage the implementation of water-saving measures, including soil and water conservation practices.	Existing	New

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Encourage the use of non-combustible materials (i.e. stone, brick, etc.) for structures in wildfire hazard areas.	New	New
Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	Both	New
Enforce burning restrictions.	Existing	In-place; an ongoing activity with polices in place and enforced when needed.
Enforce multi-family housing extinguisher laws.	Existing	New
Establish alert systems and specific outreach efforts for vulnerable populations.	N/A	In place – systems provided by non-government sector.
Flood proof critical assets in the community.	Existing	New
Fund weatherization programs to more low-income households.	Existing	Carryover
Harden public buildings.	Existing	New
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	N/A	New
Implement a comprehensive multi-media public education campaign for multiple hazards.	N/A	Carryover
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	N/A	New – system in place but no hazard data is included.
Implement stream modifications/channel improvements and stream bank stabilization.	Existing	New
Improve capital communications technology, such as cell towers and fiber cable lines, to better withstand hazards.	Existing	New
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	Existing	Carryover – work is underway but more can be done with more funding.
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	N/A	New
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Both	New
Initiate community preparedness programs.	N/A	New
Install access barriers around certain chemical tanks.	Existing	New
Install dry hydrants in areas without appropriate water mains and domestic fire hydrants.	Existing	Complete – in place; more may be warranted as funds are available.
Install flood gauges.	N/A	New
Install hazard signs in area campgrounds, parks, and open spaces.	N/A	New
Install highway guardrails to keep vehicles on roadway.	N/A	New
Install quick-connect emergency generator hook-ups for facilities.	Existing	New
Install sprinkler systems in public buildings.	Existing	New
Install warning siren(s).	N/A	Carryover
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Existing	New
Institute alternative bus routes and plans for road closures.	N/A	New
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	N/A	New
Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	Existing	New
Maintain sandbags in dry storage.	N/A	New
Maintain trees proactively on public property and ROW areas.	Both	In place – provided by city staff and utility company
Obtain sand and salt supplies well in advance of winter.	N/A	New
Participate and market the local Reverse E911 alert program.	N/A	In place – statewide program now in place.
Participate in the FEMA Community Rating Service (CRS) program.	Both	New
Perform dam and levee inspections.	Existing	New
Promote annual storm spotter training.	N/A	In place – county promotes when it is in the area.
Promote the value of installation of private in-home tornado safe rooms.	Existing	New
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Both	Carryover
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	N/A	Carryover
Provide safe room education for builders and developers.	N/A	New
Purchase road closure barricades.	N/A	New
Purchase snow trucks, plows, sanders.	N/A	New

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Purchase stand-by portable pumps and generators.	Both	Carryover
Purchase/install backup fixed power generators and pumps.	Both	Carryover
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	Existing	New
Require burial of utility lines in new development.	New	New
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	New	New
Routinely inspect fire hydrants.	Existing	Complete – ongoing effort by SIRWA
Store digital and hard copies of public records in low-risk, offsite locations.	Existing	New
Strengthen exposed utility and communications infrastructure.	Existing	New

Status of Potential Mitigation Actions in Diagonal:

The following table is a list of applicable mitigation actions as compiled from the comprehensive range of mitigation actions. New projects are those not listed in the previous plan to be implemented for this jurisdiction but are within the range of actions for the current list of hazards. Carryover projects are projects started in the past and are continuing or considered for continuation in the next planning period. Complete and in-place actions are those from the previous plan or new actions not in the previous plan but are in the comprehensive range of actions but are either complete or in-place and do not require specific action to ensure they continue with this plan.

Figure 4.14: Status of Potential Mitigation Actions – Diagonal

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Acquire and use conservation easements and restrictive covenants to prevent development in known hazard areas.	Existing	New
Acquire flood prone buildings and convert to open space/green space or elevate to or above base flood elevation or above flash flood reach.	Existing	New
Adopt a continuity of operations & succession plan for the jurisdiction.	N/A	New
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Both	New
Adopt manufactured home development storm shelter ordinances.	Both	New
Adopt the current FIRM maps as applicable to each jurisdiction.	N/A	New
Adopt tree trimming ordinances.	Both	In place and enforced as needed
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Both	New
Bury exposed utility and communications infrastructure.	Both	New
Complete storm water drainage or watershed studies of known flood areas.	N/A	New
Construct and/or improve berms, levees, or floodwalls around water/sewer plants and other critical assets that must be located in hazard areas.	Existing	New
Construct or repair dams; develop reservoirs and lakes (flood control, water source).	Existing	New
Construct storage facilities for pesticides, insecticides, and chemicals.	Both	New
Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	Both	New
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Both	Carryover
Create and maintain a special needs/oxygen user registration program or inventory.	N/A	New
Demolish abandoned properties.	Existing	New
Develop/enforce snow removal policies.	N/A	In-place – policies and equipment are in place.
Discourage/prohibit development in flood plain areas; join or continue participation in the NFIP.	New	New
Distribute tornado shelter location information.	N/A	Not applicable to this jurisdiction because no shelters exist.
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	Existing	Complete to extent identified as a local need by city leaders.
Encourage property owners to own adequate property insurance.	Existing	New
Encourage the implementation of water-saving measures, including soil	Existing	New

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
and water conservation practices.		
Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	Both	New
Enforce burning restrictions.	Existing	In-place – an ongoing activity with polices in place and enforced when needed.
Establish alert systems and specific outreach efforts for vulnerable populations.	N/A	In place – systems provided by non-government sector.
Fund weatherization programs to more low-income households.	Existing	Carryover
Harden public buildings.	Existing	New
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	N/A	New
Implement a comprehensive multi-media public education campaign for multiple hazards.	N/A	New
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	N/A	New – system in place but no hazard data is included.
Implement stream modifications/channel improvements and stream bank stabilization.	Existing	New
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	Existing	Carryover – work is underway but more can be done with more funding.
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	N/A	New
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Both	New
Initiate community preparedness programs.	N/A	New
Install flood gauges.	N/A	New
Install hazard signs in area campgrounds, parks, and open spaces.	N/A	New
Install highway guardrails to keep vehicles on roadway.	N/A	New
Install quick-connect emergency generator hook-ups for facilities.	Existing	New
Install warning siren(s).	N/A	Complete – in place in town. Not started – need modern siren at Fogle Lake.
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Existing	New
Institute alternative bus routes and plans for road closures.	N/A	New
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	N/A	New
Maintain sandbags in dry storage.	N/A	New
Maintain trees proactively on public property and ROW areas.	Both	In place – provided by public works staff and electrical provider.
Obtain sand and salt supplies well in advance of winter.	N/A	In place – policies and equipment is available.
Participate and market the local Reverse E911 alert program.	N/A	In place – statewide program now in place.
Participate in the FEMA Community Rating Service (CRS) program.	Both	New
Perform dam and levee inspections.	Existing	New
Promote annual storm spotter training.	N/A	In place – county promotes when it is in the area.
Promote the value of installation of private in-home tornado safe rooms.	Existing	New
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Both	New
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	N/A	Carryover
Provide safe room education for builders and developers.	N/A	New
Purchase road closure barricades.	N/A	Purchased and stored locally; used as needed.
Purchase snow trucks, plows, sanders.	N/A	Purchased and maintained locally; used as needed.
Purchase stand-by portable pumps and generators.	Both	Carryover
Purchase/install backup fixed power generators and pumps.	Both	Carryover
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	Existing	New
Require burial of utility lines in new development.	New	New
Require or encourage wind engineering and construction techniques:	New	New

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
anchor bolts, interlocking roof shingles, etc.		
Store digital and hard copies of public records in low-risk, offsite locations.	Existing	New
Strengthen exposed utility and communications infrastructure.	Existing	New

Status of Potential Mitigation Actions in Ellston:

The following table is a list of applicable mitigation actions as compiled from the comprehensive range of mitigation actions. New projects are those not listed in the previous plan to be implemented for this jurisdiction but are within the range of actions for the current list of hazards. Carryover projects are projects started in the past and are continuing or considered for continuation in the next planning period. Complete and in-place actions are those from the previous plan or new actions not in the previous plan but are in the comprehensive range of actions but are either complete or in-place and do not require specific action to ensure they continue with this plan.

Figure 4.15: Status of Potential Mitigation Actions – Ellston

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Adopt a continuity of operations & succession plan for the jurisdiction.	N/A	New
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Both	Carryover
Adopt manufactured home development storm shelter ordinances.	Both	New
Adopt tree trimming ordinances.	Both	New
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Both	New
Bury exposed utility and communications infrastructure.	Both	New
Construct storage facilities for pesticides, insecticides, and chemicals.	N/A	New
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Both	Carryover
Create and maintain a special needs/oxygen user registration program or inventory.	N/A	New
Demolish abandoned properties.	Existing	New
Develop/enforce snow removal policies.	N/A	In-place – policies and equipment is in place.
Distribute tornado shelter location information.	N/A	Not applicable to this jurisdiction because no shelters exist.
Encourage property owners to own adequate property insurance.	Existing	New
Enforce burning restrictions.	Existing	In-place – an ongoing activity with polices in place and enforced when needed.
Establish alert systems and specific outreach efforts for vulnerable populations.	N/A	New
Fund weatherization programs to more low-income households.	Existing	New
Harden public buildings.	Existing	New
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	N/A	New
Implement a comprehensive multi-media public education campaign for multiple hazards.	N/A	Carryover
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	N/A	New – system in place but no hazard data is included.
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	N/A	New
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Both	New
Initiate community preparedness programs.	N/A	New
Install hazard signs in area campgrounds, parks, and open spaces.	N/A	New
Install highway guardrails to keep vehicles on roadway.	N/A	New
Install quick-connect emergency generator hook-ups for facilities.	Existing	New
Install warning siren(s).	N/A	Carryover
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Existing	New
Institute alternative bus routes and plans for road closures.	N/A	New
Involve more groups in hazard mitigation (churches, chambers of	N/A	New

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
commerce, civic/service clubs, city/school employees, etc.)		
Maintain trees proactively on public property and ROW areas.	Both	In place – provided by city staff and utility company
Obtain sand and salt supplies well in advance of winter.	N/A	In place – policies and equipment is available.
Participate and market the local Reverse E911 alert program.	N/A	In place – statewide program now in place.
Promote annual storm spotter training.	N/A	In place – statewide program now in place.
Promote the value of installation of private in-home tornado safe rooms.	Existing	New
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Both	New
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	N/A	New
Provide safe room education for builders and developers.	N/A	New
Purchase road closure barricades.	N/A	New
Purchase snow trucks, plows, sanders.	N/A	New
Purchase stand-by portable pumps and generators.	Both	New
Purchase/install backup fixed power generators and pumps.	Both	New
Require burial of utility lines in new development.	New	New
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	New	New
Store digital and hard copies of public records in low-risk, offsite locations.	Existing	New
Strengthen exposed utility and communications infrastructure.	Existing	New

Status of Potential Mitigation Actions in Kellerton:

The following table is a list of applicable mitigation actions as compiled from the comprehensive range of mitigation actions. New projects are those not listed in the previous plan to be implemented for this jurisdiction but are within the range of actions for the current list of hazards. Carryover projects are projects started in the past and are continuing or considered for continuation in the next planning period. Complete and in-place actions are those from the previous plan or new actions not in the previous plan but are in the comprehensive range of actions but are either complete or in-place and do not require specific action to ensure they continue with this plan.

Figure 4.16: Status of Potential Mitigation Actions – Kellerton

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Adopt a continuity of operations & succession plan for the jurisdiction.	N/A	Carryover
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Both	Carryover
Adopt manufactured home development storm shelter ordinances.	Both	New
Adopt tree trimming ordinances.	Both	New
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Both	New
Bury exposed utility and communications infrastructure.	Both	New
Construct storage facilities for pesticides, insecticides, and chemicals.	N/A	New
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Both	Carryover
Create and maintain a special needs/oxygen user registration program or inventory.	N/A	Carryover
Demolish abandoned properties.	Existing	New
Develop/enforce snow removal policies.	N/A	In-place – policies and equipment is in place.
Distribute tornado shelter location information.	N/A	Not applicable to this jurisdiction because no shelters exist.
Encourage property owners to own adequate property insurance.	Existing	New
Enforce burning restrictions.	Existing	In-place – an ongoing activity with polices in place and enforced when needed.
Establish alert systems and specific outreach efforts for vulnerable populations.	N/A	Carryover

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Fund weatherization programs to more low-income households.	Existing	Carryover
Harden public buildings.	Existing	Carryover
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	N/A	New
Implement a comprehensive multi-media public education campaign for multiple hazards.	N/A	Carryover
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	N/A	New – system in place but no hazard data is included.
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	N/A	New
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Both	New
Initiate community preparedness programs.	N/A	Carryover
Install hazard signs in area campgrounds, parks, and open spaces.	N/A	New
Install highway guardrails to keep vehicles on roadway.	N/A	New
Install quick-connect emergency generator hook-ups for facilities.	Existing	New
Install warning siren(s).	N/A	Complete – in place and operational.
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Existing	New
Institute alternative bus routes and plans for road closures.	N/A	New
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	N/A	New
Maintain trees proactively on public property and ROW areas.	Both	In place – provided by city staff and utility company
Obtain sand and salt supplies well in advance of winter.	N/A	In place – policies and equipment is available.
Participate and market the local Reverse E911 alert program.	N/A	In place – statewide program now in place
Promote annual storm spotter training.	N/A	In place – county promotes when it is in the area.
Promote the value of installation of private in-home tornado safe rooms.	Existing	Carryover
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Both	Carryover
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	N/A	Carryover
Provide safe room education for builders and developers.	N/A	New
Purchase road closure barricades.	N/A	Complete – recently purchased.
Purchase snow trucks, plows, sanders.	N/A	New
Purchase stand-by portable pumps and generators.	Both	New
Purchase/install backup fixed power generators and pumps.	Both	Carryover
Require burial of utility lines in new development.	New	New
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	New	New
Store digital and hard copies of public records in low-risk, offsite locations.	Existing	Carryover
Strengthen exposed utility and communications infrastructure.	Existing	Carryover

Status of Potential Mitigation Actions in Maloy:

The following table is a list of applicable mitigation actions as compiled from the comprehensive range of mitigation actions. New projects are those not listed in the previous plan to be implemented for this jurisdiction but are within the range of actions for the current list of hazards. Carryover projects are projects started in the past and are continuing or considered for continuation in the next planning period. Complete and in-place actions are those from the previous plan or new actions not in the previous plan but are in the comprehensive range of actions but are either complete or in-place and do not require specific action to ensure they continue with this plan.

Figure 4.17: Status of Potential Mitigation Actions – Maloy

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Acquire and use conservation easements and restrictive covenants to	Existing	New

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
prevent development in known hazard areas.		
Acquire flood prone buildings and convert to open space/green space or elevate to or above base flood elevation or above flash flood reach.	Existing	Complete – no critical structures, other than bridges, addressed by another action, are at risk.
Adopt a continuity of operations & succession plan for the jurisdiction.	N/A	New
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Both	Complete – modern ordinances in place to address most issues/hazards.
Adopt manufactured home development storm shelter ordinances.	Both	New
Adopt the current FIRM maps as applicable to each jurisdiction.	N/A	New
Adopt tree trimming ordinances.	Both	Carryover
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Both	New
Bury exposed utility and communications infrastructure.	Both	New
Complete storm water drainage or watershed studies of known flood areas.	N/A	Complete - FIRM map and FIS covers this adequately for this community.
Construct and/or improve berms, levees, or floodwalls around water/sewer plants and other critical assets that must be located in hazard areas.	Existing	Complete – previously complete for assets that may require berms; no major levees; no major assets in hazard area.
Construct or repair dams; develop reservoirs and lakes (flood control, water source).	Existing	New
Construct storage facilities for pesticides, insecticides, and chemicals.	Both	Complete – all known hazards are addressed.
Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	Both	New
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Both	Carryover
Create and maintain a special needs/oxygen user registration program or inventory.	N/A	New
Demolish abandoned properties.	Existing	Carryover – past efforts have occurred but more issues remain.
Develop/enforce snow removal policies.	N/A	In-place – policies and equipment is in place.
Discourage/prohibit development in flood plain areas; join or continue participation in the NFIP.	New	Carryover – city has still not joined per the NFIP Status Book.
Distribute tornado shelter location information.	N/A	Not applicable to this jurisdiction because no shelters exist.
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	Existing	New
Encourage property owners to own adequate property insurance.	Existing	New
Encourage the implementation of water-saving measures, including soil and water conservation practices.	Existing	New
Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	Both	Carryover
Enforce burning restrictions.	Existing	In-place – an ongoing activity with polices in place and enforced when needed.
Establish alert systems and specific outreach efforts for vulnerable populations.	N/A	In place – systems provided by non-government sector.
Fund weatherization programs to more low-income households.	Existing	New
Harden public buildings.	Existing	New
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	N/A	New
Implement a comprehensive multi-media public education campaign for multiple hazards.	N/A	Carryover
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	N/A	New – system in place but no hazard data is included.
Implement stream modifications/channel improvements and stream bank stabilization.	Existing	Complete – major issues have been addressed previously within jurisdiction of the city.
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	Existing	Complete – roads in the city have little traffic and do not need additional major repairs in the next five years.
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	N/A	New

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Both	New
Initiate community preparedness programs.	N/A	New
Install flood gauges.	N/A	New
Install hazard signs in area campgrounds, parks, and open spaces.	N/A	Not applicable to this jurisdiction to the lack of high-population recreational areas.
Install highway guardrails to keep vehicles on roadway.	N/A	New
Install quick-connect emergency generator hook-ups for facilities.	Existing	Not applicable to this jurisdiction due to the lack of major assets that must have emergency power.
Install warning siren(s).	N/A	Complete – in place in town.
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Existing	New
Institute alternative bus routes and plans for road closures.	N/A	Complete – School District issue; City does not have role.
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	N/A	New
Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	Both	New
Maintain sandbags in dry storage.	N/A	New
Maintain trees proactively on public property and ROW areas.	Both	In place – provided by public works staff and electrical provider.
Obtain sand and salt supplies well in advance of winter.	N/A	In place – policies and equipment is available.
Participate and market the local Reverse E911 alert program.	N/A	In place – statewide program now in place.
Participate in the FEMA Community Rating Service (CRS) program.	Both	New
Perform dam and levee inspections.	Existing	Not applicable to jurisdiction due to the lack of dams and levees in the city.
Promote annual storm spotter training.	N/A	In place – county promotes when it is in the area.
Promote the value of installation of private in-home tornado safe rooms.	Existing	New
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Both	Carryover
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	N/A	Carryover
Provide safe room education for builders and developers.	N/A	New
Purchase road closure barricades.	N/A	Complete – adequate supplies available.
Purchase snow trucks, plows, sanders.	N/A	Complete – adequate vehicles available.
Purchase stand-by portable pumps and generators.	Both	Complete – adequate vehicles available.
Purchase/install backup fixed power generators and pumps.	Both	Not applicable to jurisdiction – no major assets and infrastructure that require continuous power.
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	Existing	Complete – major issues of these types have been addressed.
Require burial of utility lines in new development.	New	New
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	New	New
Store digital and hard copies of public records in low-risk, offsite locations.	Existing	Complete and in-place – procedure in place with off-site storage.
Strengthen exposed utility and communications infrastructure.	Existing	Carryover

Status of Potential Mitigation Actions in Mount Ayr:

The following table is a list of applicable mitigation actions as compiled from the comprehensive range of mitigation actions. New projects are those not listed in the previous plan to be implemented for this jurisdiction but are within the range of actions for the current list of hazards. Carryover projects are projects started in the past and are continuing or considered for continuation in the next planning period. Complete and in-place actions are those from the previous plan or new actions not in the previous plan but are in the comprehensive range of actions but are either complete or in-place and do not require specific action to ensure they continue with this plan.

Figure 4.18: Status of Potential Mitigation Actions – Mount Ayr

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Acquire and demolish or relocate buildings/infrastructure in high-risk areas.	Existing	New – not a previously identified issue before flood maps were in place.
Acquire and use conservation easements and restrictive covenants to prevent development in known hazard areas.	New	New – not a previously identified issue before flood maps were in place.
Acquire flood prone buildings and convert to open space/green space or elevate to or above base flood elevation or above flash flood reach.	Existing	New – not a previously identified issue before flood maps were in place.
Adopt a continuity of operations & succession plan for the jurisdiction.	N/A	Carryover
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Both	Carryover
Adopt manufactured home development storm shelter ordinances.	Both	New
Adopt State fire codes.	Both	Complete – already required per City code and state law for new construction.
Adopt the current FIRM maps as applicable to each jurisdiction.	N/A	Complete – in place and adopted.
Adopt tree trimming ordinances.	Both	Complete – enforced by City and assisted by Alliant Energy.
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Both	Complete – zoning is in place, and building codes meet basic needs.
Build highway or rail overpasses to reduce intersection accidents.	Both	New
Bury exposed utility and communications infrastructure.	Both	New
Check and test water wells (clean when needed).	Existing	In-place – process and funding are in place.
Clear and deepen roadside ditches	Existing	New – some work has been done but need exceeds available funds.
Codify restricted access procedures.	N/A	Carryover
Complete storm water drainage or watershed studies of known flood areas.	N/A	In place - key areas of the City are studied with engineering drawings and recommendations.
Conduct study on possible illegal use of sump pumps and sewer lines.	Existing	Complete – city addressing problem with local ordinances.
Construct and/or improve berms, levees, or floodwalls around water/sewer plants and other critical assets that must be located in hazard areas.	Existing	New
Construct or repair dams; develop reservoirs and lakes (flood control, water source).	Existing	New
Construct storage facilities for pesticides, insecticides, and chemicals.	Both	New
Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	Both	Carryover – some work has been done but more is planned as funding is available.
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Both	Carryover – two exist in Mount Ayr but there is at least one organization interested in building another one for their vulnerable population (childcare facility).
Continue hazardous materials agreements, support enforcement of Occupational Safety and Health Administration’s (OSHA) regulations, and support regional hazardous materials teams.	N/A	Carryover – an ongoing and continuing activity.
Create and maintain a special needs/oxygen user registration program or inventory.	N/A	New
Demolish abandoned properties.	Existing	Complete – has been a City activity and currently there are no true abandoned properties.
Designate/enforce HAZMAT transportation routes.	Both	New
Develop/enforce snow removal policies.	N/A	In place – current policies are adequate.
Develop/maintain hazardous materials inventories by location.	Existing	In place – county has access to this information.
Develop/update/publicize local evacuation and shelter-in-place plans.	Existing	In place – EMA, City, and other relevant staff have prepared and practiced.
Discourage/prohibit development in flood plain areas; join or continue participation in the NFIP.	New	Carryover – a very small part of the city is in a SFHA that includes the outfall of the WWTF but no private development.
Distribute tornado shelter location information.	N/A	Complete – information available locally and distributed to those in neighborhood of the pool safe room per the O&M plan.
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water	Existing	Not applicable for the jurisdiction as no

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
pumps, and other infrastructure and critical assets.		grade changes are needed.
Encourage citizen purchase/use of smoke detectors and fire extinguishers with an incentive program.	Both	Carryover
Encourage property owners to install sewer system backflow devices.	Both	Complete – much effort has been done to improve this situation, and most of the homes where problems exist have been addressed.
Encourage property owners to own adequate property insurance.	Existing	Carryover
Encourage the implementation of water-saving measures, including soil and water conservation practices.	Existing	New
Encourage the use of non-combustible materials (i.e. stone, brick, etc.) for structures in wildfire hazard areas.	New	New
Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	Both	Carryover
Enforce burning restrictions.	Existing	Complete – city code in place.
Enforce multi-family housing extinguisher laws.	Existing	In place – City has some role in enforcement of state law with fire department.
Establish alert systems and specific outreach efforts for vulnerable populations.	N/A	In place – substantial effort is complete and non-government sector can address.
Establish backup utilities and communications infrastructure; use the latest technology.	Existing	New
Flood proof critical assets in the community.	Existing	New
Formally designate and stock community post disaster shelters; maintain and publicize shelter location list (warming/cooling shelters).	Existing	Complete – designated facilities available in the city.
Fund weatherization programs to more low-income households.	Existing	Complete – City has invested in several housing rehabilitation and weatherization programs and may continue in the future, the worst need has been addressed.
Harden public buildings.	Existing	Carryover
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	N/A	New
Implement a comprehensive multi-media public education campaign for multiple hazards.	N/A	Carryover – some activity has occurred, but with more funds the effort can be expanded.
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	N/A	Carryover – system in place but no hazard data is included.
Implement stream modifications/channel improvements and stream bank stabilization.	Existing	Carryover
Implement tree planting programs and install shade structures in crowd centers.	N/A	Carryover
Improve capital communications technology, such as cell towers and fiber cable lines, to better withstand hazards.	Existing	New
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	Existing	Complete – City recently completed a \$1 million-plus street project, which addressed most of the major problem areas.
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	N/A	Complete – City has updated its comprehensive plan and CIP to include hazard elements and ideas.
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	New	Carryover
Initiate community preparedness programs.	N/A	New
Install access barriers around certain chemical tanks.	Existing	New
Install dry hydrants in areas without appropriate water mains and domestic fire hydrants.	Existing	Complete – domestic hydrants are suitable and/or are being addressed through 2018 water mains project.
Install flood gauges.	N/A	New
Install hazard signs in area campgrounds, parks, and open spaces.	N/A	Complete – The two major places with outdoor recreation are the Judge Lewis Park and School. Both have safe rooms with signage directing people to safety. No other hazard signs are needed.

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Install highway guardrails to keep vehicles on roadway.	N/A	New
Install pressure tanks/towers for potable water.	Both	Complete – City and SIRWA towers should meet need adequately.
Install sprinkler systems in public buildings.	Existing	Carryover
Install warning siren(s).	N/A	Complete – adequate numbers of sirens exist to meet current needs.
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Existing	New
Institute alternative bus routes and plans for road closures.	N/A	New
Investigate alternative water sources for fire suppression.	Both	New
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	N/A	New
Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	Existing	New
Maintain sandbags in dry storage.	N/A	New
Maintain trees proactively on public property and ROW areas.	Both	Complete – City is implementing a tree plan.
Obtain sand and salt supplies well in advance of winter.	N/A	In-place – already City policy.
Participate and market the local Reverse E911 alert program.	N/A	In-place – statewide program now in place.
Participate in the FEMA Community Rating Service (CRS) program.	Both	New
Perform dam and levee inspections.	Existing	In-place – completed for all moderate and high hazard dams.
Promote annual storm spotter training.	N/A	In-place – county promotes when it is in the area.
Promote the value of installation of private in-home tornado safe rooms.	Existing	New
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Both	Carryover
Provide adequate access to safe drinking water in all public spaces, including outdoor spaces, such as parks and playgrounds.	N/A	New
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	N/A	Carryover
Provide rail and highway safety education programs for youth.	N/A	In-place – annual program through schools and community events.
Provide safe room education for builders and developers.	N/A	New
Purchase road closure barricades.	N/A	Complete – adequate numbers available.
Purchase snow trucks, plows, sanders.	N/A	Complete – adequate numbers available.
Purchase stand-by portable pumps and generators.	Both	Carryover
Purchase/install backup fixed power generators and pumps.	Both	Carryover
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	Existing	New
Remove asbestos from public buildings.	Existing	Complete – as identified.
Require burial of utility lines in new development.	New	New
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	New	New
Routinely inspect fire hydrants.	Existing	Complete – annually by City.
Store digital and hard copies of public records in low-risk, offsite locations.	Existing	Complete – using electronic and, for some files, offsite storage.
Strengthen exposed utility and communications infrastructure.	Existing	New – some activity has occurred, but with more funds the effort can be expanded.

Status of Potential Mitigation Actions in Tingley:

The following table is a list of applicable mitigation actions as compiled from the comprehensive range of mitigation actions. New projects are those not listed in the previous plan to be implemented for this jurisdiction but are within the range of actions for the current list of hazards. Carryover projects are projects started in the past and are continuing or considered for continuation in the next planning period. Complete and in-place actions are those from the previous plan or new actions not in the previous plan but are in the comprehensive range of actions but are either complete or in-place and do not require specific action to ensure they continue with this plan.

Figure 4.19: Status of Potential Mitigation Actions – Tingley

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Adopt a continuity of operations & succession plan for the jurisdiction.	N/A	New
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Both	Carryover
Adopt manufactured home development storm shelter ordinances.	Both	New
Adopt tree trimming ordinances.	Both	New
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Both	Carryover
Bury exposed utility and communications infrastructure.	Both	New
Construct storage facilities for pesticides, insecticides, and chemicals.	N/A	New
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Both	Carryover
Create and maintain a special needs/oxygen user registration program or inventory.	N/A	New
Demolish abandoned properties.	Existing	Carryover – some work has been done but more is needed if funding is available.
Distribute tornado shelter location information.	N/A	Not applicable to this jurisdiction because no shelters exist.
Encourage property owners to own adequate property insurance.	Existing	New
Enforce burning restrictions.	Existing	Complete – city code in place.
Establish alert systems and specific outreach efforts for vulnerable populations.	N/A	In place – provided by third parties. No large population of unique populations.
Fund weatherization programs to more low-income households.	Existing	New
Harden public buildings.	Existing	Carryover
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	N/A	New
Implement a comprehensive multi-media public education campaign for multiple hazards.	N/A	Carryover
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	N/A	Carryover – system in place but no hazard data is included.
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	N/A	New
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Both	New
Initiate community preparedness programs.	N/A	Carryover
Install hazard signs in area campgrounds, parks, and open spaces.	N/A	Carryover
Install highway guardrails to keep vehicles on roadway.	N/A	New
Install warning siren(s).	N/A	Complete – functional siren in use.
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Existing	New
Institute alternative bus routes and plans for road closures.	N/A	New
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	N/A	New
Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	Both	Complete – No tall critical facilities exist or they already have necessary equipment.
Maintain trees proactively on public property and ROW areas.	Both	Complete and in-place – process in place to continue this; no new action needed.
Participate and market the local Reverse E911 alert program.	N/A	In-place – statewide program now in place.
Promote annual storm spotter training.	N/A	In-place – county promotes when it is in the area.
Promote the value of installation of private in-home tornado safe rooms.	Existing	New
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Both	Complete and in-pace – Alliant Energy provides this info to customers.
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	N/A	Carryover
Provide safe room education for builders and developers.	N/A	New
Purchase road closure barricades.	N/A	Complete – adequate supplies available.
Purchase stand-by portable pumps and generators.	Both	Carryover
Purchase/install backup fixed power generators and pumps.	Both	Carryover
Require burial of utility lines in new development.	New	Complete – city policy requires this, and

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
		new development is not likely.
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	New	New
Store digital and hard copies of public records in low-risk, offsite locations.	Existing	Complete and in-place – procedure in place with off-site storage.
Strengthen exposed utility and communications infrastructure.	Existing	Carryover

Status of Potential Mitigation Actions in Diagonal School:

The following table is a list of applicable mitigation actions as compiled from the comprehensive range of mitigation actions. New projects are those not listed in the previous plan to be implemented for this jurisdiction but are within the range of actions for the current list of hazards. Carryover projects are projects started in the past and are continuing or considered for continuation in the next planning period. Complete and in-place actions are those from the previous plan or new actions not in the previous plan but are in the comprehensive range of actions but are either complete or in-place and do not require specific action to ensure they continue with this plan.

Figure 4.20: Status of Potential Mitigation Actions – Diagonal School

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Adopt a continuity of operations & succession plan for the jurisdiction.	N/A	Carryover
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Both	New
Adopt manufactured home development storm shelter ordinances.	Both	Complete – not applicable to the school.
Adopt tree trimming ordinances.	Both	Complete – not applicable to the school.
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Both	New
Build highway or rail overpasses to reduce intersection accidents.	Both	Not applicable to this jurisdiction due to lack of major highways in proximity to school.
Bury exposed utility and communications infrastructure.	Both	New
Check and test water wells (clean when needed).	Existing	Not applicable to this jurisdiction – no water wells in the vicinity.
Codify restricted access procedures.	N/A	In place – School has such policies.
Construct storage facilities for pesticides, insecticides, and chemicals.	Both	Complete – no current issues exist.
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Both	Carryover
Create and maintain a special needs/oxygen user registration program or inventory.	N/A	Not applicable to this jurisdiction – no interaction with private property owners.
Demolish abandoned properties.	Existing	Complete – none exist.
Develop/enforce snow removal policies.	N/A	In place – only applies to roads and parking areas on campus
Distribute tornado shelter location information.	N/A	Not applicable to this jurisdiction because no shelters exist.
Educate the public about the interconnected efforts needed to prevent and control infectious diseases and their role in protecting health.	N/A	New
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	Existing	New
Encourage property owners to install sewer system backflow devices.	Both	Complete – no private properties.
Encourage property owners to own adequate property insurance.	Existing	In place – School is properly insured.
Encourage the use of non-combustible materials (i.e. stone, brick, etc.) for structures in wildfire hazard areas.	New	New
Enforce burning restrictions.	Existing	In place – restrictions enforced locally.
Establish alert systems and specific outreach efforts for vulnerable populations.	N/A	Underway – process begun with use of technology.
Flush dead end water mains.	N/A	Complete - Already completed by the City of Diagonal.
Fund weatherization programs to more low-income households.	Existing	Not applicable to jurisdiction – no private residential.
Harden public buildings.	Existing	New
Help community leaders and businesses to improve local public health response readiness.	N/A	New
Hold annual meetings in each jurisdiction to review plan progress and	N/A	New

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
prepare a strategy for the coming fiscal year.		
Implement a comprehensive multi-media public education campaign for multiple hazards.	N/A	Carryover
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	N/A	New– system in place but no hazard data is included.
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	Existing	New
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	N/A	New
Increase community and individual engagement in disease prevention efforts.	N/A	New
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	New	New
Initiate community preparedness programs.	N/A	New
Install hazard signs in area campgrounds, parks, and open spaces.	N/A	Complete – none of these exist.
Install highway guardrails to keep vehicles on roadway.	N/A	Not applicable to jurisdiction – no highways exist on campus.
Install quick-connect emergency generator hook-ups for facilities.	Existing	New
Install warning siren(s).	N/A	Complete – functional siren exists.
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Existing	New
Institute alternative bus routes and plans for road closures.	N/A	In place – reviewed, approved, and updated annually and then publicized.
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	N/A	New
Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	Existing	New
Maintain trees proactively on public property and ROW areas.	Both	In place – practice in place and is carried out when needed.
Modernize infectious disease surveillance to drive public health actions.	N/A	In place – School already works with Ringgold Co. Public Health on this issue.
Obtain sand and salt supplies well in advance of winter.	N/A	In place – school policy provides for this.
Participate and market the local Reverse E911 alert program.	N/A	In place – statewide program now in place.
Promote annual storm spotter training.	N/A	In place – county promotes when it is in the area.
Promote the value of installation of private in-home tornado safe rooms.	Existing	Complete – no private residential.
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Both	Complete – no private residential.
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	N/A	New
Provide safe room education for builders and developers.	N/A	New
Purchase road closure barricades.	N/A	Not applicable to jurisdiction – no major public streets impacted.
Purchase snow trucks, plows, sanders.	N/A	Complete – vehicles in place.
Purchase stand-by portable pumps and generators.	Both	New
Purchase/install backup fixed power generators and pumps.	Both	New
Reduce disease transmitted by animals and insects and foodborne infections.	N/A	New
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	Existing	Complete – all these hazards have been removed or addressed.
Remove asbestos from public buildings.	Existing	New
Require burial of utility lines in new development.	New	Not applicable to this jurisdiction – no interaction with private property owners.
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	New	Complete – no private residential.
Store digital and hard copies of public records in low-risk, offsite locations.	Existing	Complete – School has system in place.
Strengthen exposed utility and communications infrastructure.	Existing	New

Status of Potential Mitigation Actions in Mount Ayr Schools:

The following table is a list of applicable mitigation actions as compiled from the comprehensive range of mitigation actions. New projects are those not listed in the previous plan to be implemented for this jurisdiction but are within the range of actions for the current list of hazards. Carryover projects are projects started in the past and are continuing or considered for continuation in the next planning period. Complete and in-place actions are those from the previous plan or new actions not in the previous plan but are in the comprehensive range of actions but are either complete or in-place and do not require specific action to ensure they continue with this plan.

Figure 4.21: Status of Potential Mitigation Actions – Mount Ayr Schools

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Adopt a continuity of operations & succession plan for the jurisdiction.	N/A	Complete – now in place; shared with other parties at EMA level.
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Both	Complete – as needed or applicable to school properties.
Adopt manufactured home development storm shelter ordinances.	Both	Complete – not applicable to the school.
Adopt tree trimming ordinances.	Both	Complete – not applicable to the school.
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	Both	Complete – building standards in place; architect procured for any construction.
Bury exposed utility and communications infrastructure.	Both	Complete – all utilities are buried on site.
Check and test water wells (clean when needed).	Existing	Complete – school relies on no water wells. SIRWA tests regional water.
Codify restricted access procedures.	N/A	Complete – policies in place.
Construct storage facilities for pesticides, insecticides, and chemicals.	Both	Complete – no such chemicals are exposed on campus.
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Both	Carryover – one exists at the middle-high school but not at elementary building.
Create and maintain a special needs/oxygen user registration program or inventory.	N/A	Complete – this policy does not apply to school; district has records of chemicals used.
Demolish abandoned properties.	Existing	Complete – none exist.
Develop/maintain hazardous materials inventories by location.	Existing	Complete – school inventory exists.
Develop/maintain security at applicable critical assets.	Existing	Complete – adequately addressed.
Develop/update/publicize local evacuation and shelter-in-place plans.	Existing	Complete – in place and practiced.
Distribute tornado shelter location information.	N/A	Complete – public and school officials are educated on this per the O&M plan.
Educate the public about the interconnected efforts needed to prevent and control infectious diseases and their role in protecting health.	N/A	In place – ongoing or annual activity or as needed.
Encourage property owners to install sewer system backflow devices.	Both	Complete – no private properties.
Encourage property owners to own adequate property insurance.	Existing	In place – School is properly insured.
Enforce burning restrictions.	Existing	In place – restrictions enforced locally.
Establish alert systems and specific outreach efforts for vulnerable populations.	N/A	Underway – process begun with use of technology.
Flush dead end water mains.	N/A	Complete – annual activity performed by City of Mount Ayr with school support.
Fund weatherization programs to more low-income households.	Existing	Complete – no private residential.
Harden public buildings.	Existing	New
Help community leaders and businesses to improve local public health response readiness.	N/A	In place – ongoing or annual activity or as needed.
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	N/A	New
Implement a comprehensive multi-media public education campaign for multiple hazards.	N/A	Carryover
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	N/A	New
Implement intensive local and regional intelligence, drills, and scenarios.	N/A	In place – ongoing or annual activity or as needed.
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	N/A	New
Increase community and individual engagement in disease prevention efforts.	N/A	New
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	New	Complete for any levels of service necessary on campus.
Initiate community preparedness programs.	N/A	New
Install access barriers around certain chemical tanks.	Existing	Complete – not applicable to school

Mitigation Action	Existing or New Structures	Status – Notes As Appropriate
Install air monitors.	Existing	property. New
Install and/or update anti-virus software.	N/A	In place – school keeps these updated.
Install dry hydrants in areas without appropriate water mains and domestic fire hydrants.	Both	Complete – domestic hydrants serve area and City of Mount Ayr maintains these.
Install hazard signs in area campgrounds, parks, and open spaces.	N/A	Complete – none of these exist.
Install highway guardrails to keep vehicles on roadway.	N/A	Complete – no major roadways exist on campus.
Install pressure tanks/towers for potable water.	Both	Complete – city provides good water pressure to the area.
Install sprinkler systems in public buildings.	Both	Complete as required by applicable standards.
Install warning siren(s).	N/A	Complete – functional siren exists.
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Existing	New
Institute alternative bus routes and plans for road closures.	N/A	In place and amended as needed.
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	N/A	New
Maintain trees proactively on public property and ROW areas.	Both	Complete - Existing trees and plants are managed adequately; tree planting projects are desired as funds allow.
Modernize infectious disease surveillance to drive public health actions.	N/A	New
Participate and market the local Reverse E911 alert program.	N/A	In place – statewide program now in place.
Prepare and implement a mass casualty plan to address of terrorism and infectious disease outbreaks.	N/A	New
Promote annual storm spotter training.		In place – county promotes when it is in the area.
Promote the value of installation of private in-home tornado safe rooms.	N/A	Complete – no private residential.
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Both	Complete – no private properties.
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	N/A	Complete – radios on school campus.
Provide safe room education for builders and developers.	N/A	New
Purchase road closure barricades.	N/A	Complete – adequate supply available.
Purchase stand-by portable pumps and generators.	Both	Complete – adequate supply available.
Purchase/install backup fixed power generators and pumps.	Both	Complete – adequate supply available.
Reduce disease transmitted by animals and insects and foodborne infections.	N/A	New
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	Existing	Complete – all these hazards have been removed or addressed.
Remove asbestos from public buildings.	Existing	Complete – asbestos hazards removed.
Require burial of utility lines in new development.	New	In place – policy established for development of utilities on school property.
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	New	Complete – no private residential.
Store digital and hard copies of public records in low-risk, offsite locations.	Existing	Carryover
Strengthen existing law enforcement and security practices and personnel allocation.	N/A	Complete – working with Sheriff proactively
Strengthen exposed utility and communications infrastructure.	Existing	Complete as it pertains to infrastructure on campus.

4.5: Capability Assessment by Jurisdiction for Possible Future Mitigation Actions

This section elaborates on the evaluation factors of exiting jurisdictional capabilities and evaluates possible future mitigation actions to determine which ones should be considered for implementation in the next five years.

Review Category: Existing Authorities

Existing authorities are the governments, staffing, and other legal entities that have authority to undertake a specific mitigation action to address identified hazards. Generally, in Ringgold County the primary authority is the specific jurisdiction in which the action will be undertaken. However, as listed in the tables in this chapter, sometimes the targeted jurisdiction is partnering, secondary, or simply affected by someone else's authority. An example is the City of Benton, which has delegated authority to supply water and to treat wastewater to SIRWA and electricity to Alliant Energy. Some mitigation actions that might make a lot of sense for a jurisdiction can be eliminated from the final strategy because the jurisdiction lacks authority to implement it and the existing authority has no interest.

Other authorities include FEMA and other State and Federal agencies. These authorities might implement a project without local input as to whether it should be included in the local plan. For this reason, some mitigation actions might be implemented or cancelled depending on these external authorities that are beyond the scope of the local planning process. The authorities are also described in the tables of this plan.

The relationship between authorities and the actions in this strategy can be expounded so that capabilities are improved if all parties read and accept the strategy outlined in this plan. While external authorities are not required to adopt the plan, they can accept the strategy and include projects and ideas in their budgets and policies. Also, through potential changes in State and Federal laws and regulations, local authorities can have more power to implement projects, through such things as expanded local taxation powers and ability to be more flexible with local budgets and program funding. Local staff limitations, especially in small jurisdictions, also are significant.

Review Category: Existing Policies

Existing policies have been created to address mitigation issues. Most local jurisdictions' policies are geared toward other elements of the emergency management: response and recovery. Less local emphasis in policies is found in preparedness and mitigation, leaving much of that emphasis to FEMA, the State of Iowa, and other agencies. There are notable exceptions, usually where hazard mitigation is incidental to other local priorities. For example, some jurisdictions have building codes or zoning to address general quality of life issues. These ordinances do not necessarily consider modern mitigation best practices for things like wildfire prevention and wind protection. However, as a mitigation action, jurisdictions should consider such best practices when reviewing and updating ordinances. In the area of public warning and education, the jurisdictions have policies in place directed toward mitigation. These policies are more easily implemented because of the modest cost.

Locally, the key inhibitions to policymaking for mitigation are as follows: a) financial, b) under-appreciation of hazard risks, c) lack of political will to implement something new or not specifically mandated by another level of government, d) lack of awareness of the policy option and need for it, and e) lack of staffing and expertise to carry out the policy. Several of these inhibitions can be overcome by participating in the planning process and reading the final plan. Others, such as the staffing and financial concerns, will take more support from FEMA, the State, and other organizations to overcome. The tables in this chapter also detail some of the policy issues for the various mitigation actions.

Review Category: Existing Programs

Locally, there are relatively few existing programs, and most of them that exist are operated by the Ringgold County Emergency Management Agency. As opposed to projects, which are often one-time investments in things like infrastructure and are implemented by all jurisdictions, mitigation programs tend to be recurring or continuous, and many of these are among the "carryover" actions listed in the first part of the chapter. The EMA is responsible for coordinating numerous agencies, staff and volunteers, funding mechanisms, and programs, many of which have State and Federal resources.

With appropriate funding and staffing, local jurisdictions can initiate and implement substantial programs that can continuously and sustainably mitigate hazards. These might include training and educational efforts, permitting and certification programs, and other recurring activities. Without funding and staffing, local jurisdictions lack the means to expand these capabilities. Grant funds from various agencies, often focused on projects because elected officials and staff see tangible benefits from them, should also be used to develop and sustain long-term programs that can potentially affect more people. It takes much time and effort to put these into effect, often longer than the terms of existing elected officials. When this is the case, outside assistance is often necessary to motivate action and coordinate the effort.

Review Category: Existing Resources

Often, the greatest limitation to local hazard mitigation strategy implementation is the lack of local funding. Iowa’s property and sales tax laws are the primary methods for funding local government operations, including Cities, Counties, School Districts, and others. Some organizations, such as schools and hospitals, also receive fees for services. Increasingly, due to the many now antiquated laws for these taxes, local governments have had to become more creative in raising funding, such as the imposition of local option taxes, tax increment financing for infrastructure projects, special taxing districts, a growing array of fees and enterprise funds, investments, bonding in increasing amounts, and government sharing. Similarly, old laws that require certain offices in each jurisdiction and a growing range of State and Federal mandates and regulations also make normal operations more difficult for small communities.

One feature of this plan update is the elimination of many of the “response-oriented” projects from consideration. These are not actually mitigation projects but rather are capabilities that should be met outside of the mitigation plan. For example, purchasing fire equipment or building an EMS station adds to the capabilities of the jurisdiction to mitigate hazards. Having equipment, training, personnel, and related resources enables the jurisdiction to implement mitigation actions related to certain hazards, particularly fires, human disease incidents, and infrastructure failures. These same resources can be channeled into natural hazard response, recovery, and mitigation. For example, the same fire personnel can be used as storm spotters, public education experts about all hazards, and building inspectors, all of which can prevent hazards and alert the public to threats, as well as emergency response we often imagine. Chapter 2 details many of these kinds of capabilities. This section identifies how these resources are limited or are available for use in specific applicable mitigation actions.

Capabilities for Mitigation By Jurisdiction

Now that a foundation is laid through the discussion of mitigation review categories, the next step is to take these ideas and evaluate specific mitigation actions in light of special jurisdictional characteristics. The following tables are designed to accomplish this in a brief description. For this assessment, the planning team assumes that existing mitigation actions that are complete, underway/in progress (to be complete soon), and in-place and are supported by enough capabilities do not need to be re-addressed in this plan update. In the next update, these projects will be re-assessed.

Mitigation Capability Analysis by Action in Rural Ringgold County

The following table lists “New” and “Carryover” mitigation actions and corresponding capabilities that can be expanded by action as well as capability limitations. Also, a brief conclusion is provided, whether the individual action should be considered in cost-benefit review or should be eliminated from further review.

Figure 4.22: Capability Analysis of Mitigation Actions – Rural Ringgold County

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Acquire and demolish or relocate buildings/infrastructure in high-risk areas.	FEMA strongly supports action with funding programs; Official flood maps exist but other site-specific hazards are not well analyzed.	This can apply to many hazards, including flooding. Funding is limited, but projects can be prioritized based on a BCA.	No – Local officials really cannot identify properties where this makes sense.	Eliminate
Acquire and use conservation easements and restrictive covenants to prevent development in known hazard areas.	County has authority to do this and it is relatively low-cost to acquire easements on undeveloped property; flood information is known.	Other hazard boundaries are not really defined; there is not much political will or local resources to take on this kind of project.	No – Local officials really cannot identify properties where this makes sense.	Eliminate
Acquire flood prone buildings and convert to open space/green space or elevate to or above base flood elevation or above flash flood reach.	FEMA strongly supports action with funding programs; FIRM maps are in place and adopted by the county.	There appears to be no actual homes in the flood hazard area. Such programs are costly to implement and may not meet BCA.	No – While a relevant action, local officials have not identified significant structures in the SFHA.	Eliminate
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Relatively low cost option to undertake with next code update.	Requires assistance from professionals skilled in law and policy.	Yes – can address multiple hazards.	Consider
Adopt manufactured home	Is legal and can improve	There is no zoning in place,	No – no existing major	Eliminate

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
development storm shelter ordinances.	mitigation of hazards in these areas if proper standards are used.	so this may be more difficult to implement; not politically popular.	MH developments exist and none are likely to be developed.	
Adopt State fire codes.	Is legal and can improve mitigation of hazards in these areas if proper standards are used; not costly or technically difficult.	Might require assistance from local fire departments not in County’s authority to carry them out.	Yes – Can reduce fire losses where new development is occurring.	Consider
Adopt tree trimming ordinances.	County has legal authority; not a costly action.	Generally unnecessary on public ROW areas; there is little will to have County enforcement on private property.	No – No real need for rural areas outside of developed areas at Sun Valley Lake that have some standards.	Eliminate
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	County has legal authority. Organizations like SICOG are available to help prepare documents.	Some aspects of code enforcement require specialized skills, which can be costly. So far there is no or very little will to implement and no zoning commission.	No - Not many homes are being built and there are no plans for major developments. Sun Valley Lake has some land use policies.	Eliminate
Bury exposed utility and communications infrastructure.	County has no authority; REC and Alliant are strong partners in the planning process; FEMA has funded some work on high-voltage lines, but not burial.	Cost is very high compared to need, so priorities must be identified. Alliant rep on planning team indicates it is a mid- or long-term priority due to the cost.	Yes – however, strengthening overhead lines may make more sense in rural areas due to densities involved.	Eliminate
Conduct study on possible illegal use of sump pumps and sewer lines.	Resources are available to County; study can be affordable if targeted.	Difficult to enforce and administer in rural areas.	No - Not a strong need; sewer lines are not common in rural areas.	Eliminate
Construct and/or improve berms, levees, or floodwalls around water/sewer plants and other critical assets that must be located in hazard areas.	Is a State and FEMA priority but funding is limited at this time.	Local resources are lacking for an expensive project.	No – the county cannot identify major critical assets in rural areas to which this applies.	Eliminate
Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	Secondary roads could be involved in design and the installation process.	Local resources are lacking for an expensive project; no funding mechanism in place for rural infrastructure of this type.	No – other than at Sun Valley Lake, there are no areas where this makes sense.	Eliminate
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Is a State and FEMA priority but funding is limited at this time; SICOG is available to assist with application process.	Requires engineering and is expensive compared to normal construction; FEMA funding is very limited at this time.	Yes – in campgrounds and development areas like Sun Valley Lake.	Consider
Continue hazardous materials agreements, support enforcement of Occupational Safety and Health Administration’s (OSHA) regulations, and support regional hazardous materials teams.	Continuing hazardous materials agreements is beneficial and desirable.	OSHA compliance is not in the range of local capabilities and jurisdiction.	Yes – can reduce costs, property damages, and health issues, and can reduce liabilities.	Consider
Create and maintain a special needs/oxygen user registration program or inventory.	Offers benefits to utilities, EMTs, fire, and other emergency responders and would not be too costly to administer.	Can be a legal problem if it is not voluntary due to HIPPA laws; little political will at county level; fire departments and utility companies can handle more strategically.	Yes – but not in the jurisdiction of the county.	Eliminate
Demolish abandoned properties.	Need is limited, so it is not likely to be expensive compared to some actions.	In rural areas, the low density means that abandoned properties don’t pose a major hazard. Resources are limited. There is little political will to implement on private property.	Yes – but the need is minimal compared to more densely built areas, like municipalities.	Eliminate
Designate/enforce HAZMAT	County has authority.	Administratively difficult in	Yes – Large number of	Eliminate

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
transportation routes.		rural areas; requires enhanced law enforcement; burden on farmers.	farmers who use chemicals; most stay in major roads or in fields, where humans less affected.	
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	Many of these projects are complete but needs have exceeded funding.	No known exceptional roadway flood areas; very costly; funding is very competitive.	Yes – Many bridges and roads are still at risk.	Consider
Encourage citizen purchase/use of smoke detectors and fire extinguishers with an incentive program.	May be a fire department effort not directly involving County; funding for incentives can involve County; EMA can have a countywide role.	Makes sense only to be led by the municipalities with fire departments/stations.	Yes – while led by fire departments; county has interest and will to assist.	Consider
Encourage property owners to install sewer system backflow devises.	Encouragement is not expensive; EMA can have a countywide role.	Would be most effective with policy calling for removal of storm water from sewer, which is not in place.	No - Very little need in the rural area due to the lack of municipal sewers.	Eliminate
Encourage property owners to own adequate property insurance.	Relatively low-cost effort that can be done anytime; EMA can have a countywide role.	Nearly requires partnerships with insurance industry.	Maybe –Losses can be reduced with good insurance, but this measure is voluntary.	Consider
Encourage the implementation of water-saving measures, including soil and water conservation practices.	Relatively low-cost effort that can be done anytime. Resources on practices are available; staff available.	Nearly requires partnerships with conservation groups to provide information to the right people.	Yes – if people participate in available programs and technical resources.	Consider
Encourage the use of non-combustible materials (i.e. stone, brick, etc.) for structures in wildfire hazard areas.	Relatively low-cost effort that can be done anytime. Resources are increasingly available.	No one has strong, precise data on where wildfire risk is highest; would require political will to implement zoning-like policies.	Maybe – but not a significant problem in this county.	Eliminate
Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	Relatively low-cost effort that can be done anytime. Resources are increasingly available; projects are popular, and becoming more viable.	Few local or regional examples of some of these practices; requires support of applicable professionals and outside resources.	Yes – serves a dual function of storm water control and water quality improvement.	Consider
Enforce burning restrictions.	County has authority to issue targeted burn bans and other regulations. Minimal resources are needed.	No formal policy is in place.	Yes – but only during the severest droughts and high wind days.	Consider
Enforce multi-family housing extinguisher laws.	Policy already in place at the State level; County can have a role in enforcing.	County’s role would be minimal, and fire departments are volunteer.	No – there is no known multi-family housing in rural areas.	Eliminate
Flood proof critical assets in the community.	General – allows for flexible projects; Strong FEMA funding priority.	Can be expensive and must be based on specific identified need.	Yes – once assets are clearly delineated, more for flash flood.	Consider
Fund weatherization programs to more low-income households.	Existing programs are available; can improve property tax base.	County would want a limited role and allow other partners to carry out programs on private property.	Yes – with dual result: weatherizing homes and improving living conditions.	Consider
Harden public buildings.	Existing building information is available to some degree.	Can be very expensive; consultants will be needed to identify scope of work and priorities.	Yes – with dual result: improved safety and longer overall building life.	Eliminate
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	FEMA and State mandated part of the planning process that is simple to complete because jurisdiction meets regularly.	Requires someone to remind them to discuss the plan and the coming year’s projects during their meetings.	Yes – because carrying out the plan requires diligence and proactive effort.	Consider
Implement a comprehensive multi-media public education campaign for multiple hazards.	EMA would be natural leader for this; there are many resources and examples.	People tend to ignore efforts unless they are interesting. Sustained multi-media efforts can work.	Yes – people are generally unaware of this plan and updated info about each hazard.	Consider

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	County already has GIS in place but is managed by a third party. Flood maps are included.	Just of matter of SICOG sending shapefiles of plan data to the GIS provider. County would need to have a staff person to share hazard event data in the future.	Yes – if data is updated and used to make decisions.	Consider
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	Extensive local resources are in place to make this happen: staff, budgets, bonding capacity. Always a high local priority.	Expensive and will require prioritization.	Yes – road repairs are a very large part of the county’s budget.	Consider
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	Groups like SICOG and engineering firms can prepare these plans for a fee.	Plans come at a cost for the county and require public participation. Will require champions within the county.	Yes – planning is needed generally.	Consider
Increase production capacity; install redundant systems and (water, sewer, electric, gas).	Can make response, recover, and mitigation easier and reduce long-term risks for the public. Some third parties owning utilities have resources outside of grant funding.	With limited County resources, it is difficult to justify redundancy in many cases; most utilities not County owned and operated.	Yes – but not compared to the cost, beyond what is already done to address looping and redundancy.	Eliminate
Initiate community preparedness programs.	State and FEMA resources available to assist local officials.	Formal programs for the public take time and public funds.	Yes – but only if the public participates.	Eliminate
Install access barriers around certain chemical tanks.	Laws in place allow the County to have some oversight on this issue.	More of a law enforcement and property insurance issue, with little County involvement.	Maybe – but theft of fuel and drug materials has declined. Unsure if there are exposed tanks.	Eliminate
Install flood gauges.	State and FEMA interest area.	County does not really have a role.	No – if there were need for a flood gauge in county, it would be installed already.	Eliminate
Install highway guardrails to keep vehicles on roadway.	IDOT has some funding for high priority areas.	Requires C/B justification before DOT investment; no County role on primary highways.	No – guardrails already installed where needed; traffic does not justify further investments.	Eliminate
Install sprinkler systems in public buildings.	Would apply to specific highly occupied buildings, none in rural areas.	Not required for most structures and would be expensive to retrofit.	No – unneeded in the types and sizes of rural buildings.	Eliminate
Install warning siren(s).	Already at Fogle Lake; can be triggered by County and local fire officials; traditional project, easy to implement.	Not expensive but requires maintenance and must be triggered.	Maybe – but rural area is low-density and phone alerts (reverse E911) and weather radio make more sense.	Eliminate
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Vegetation options offer dual purpose with little maintenance; temporary options can be inexpensive; if voluntary, can be easy to install at prioritized locations.	If permanent requires permanent access; seasonal requires temporary access; need to identify locations and priorities; maintenance issues.	Yes – especially natural windbreaks, which can have long-term impact at low cost and can add beauty to the area.	Consider
Investigate alternative water sources for fire suppression.	With SIRWA in place, the basic resources to address this problem exist.	Costs and time to come up with a solution and then fund the solution; County’s role is minimal.	Yes – rural water mains are not designed for fire suppression needs.	Consider
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	The planning team can serve as a nucleus for such efforts. Effort can be low cost.	Engaging them consistently over time will require major effort by County officials.	Yes – because many people from these organization can provide resources.	Consider
Maintain sandbags in dry storage.	County Secondary Roads	Cost and space needed to	No – No major areas	Eliminate

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
	has storage facilities, but space is limited.	maintain the sandbags if filled at all times.	where it makes sense to deploy them; in major emergency, they are likely available from State.	
Participate in the FEMA Community Rating Service (CRS) program.	County already in NFIP and has basic ordinances in place.	Requires more administrative effort than simple NFIP participation.	Maybe – if all measures taken, but only minor impact.	Eliminate
Promote the value of installation of private in-home tornado safe rooms.	More suppliers are available for these; EMA can lead a low cost encouragement activity.	Requires time and administrative effort.	Yes – as many homes are without sturdy basements, home safe rooms, or community safe rooms near to them.	Consider
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Low-cost encouragement activity; County and non-County resources available.	Requires administrative effort and time by all parties.	Yes – as long as effort is sustained and well designed.	Consider
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	While a previous funding mechanism existed for a rebate program or free radios, the funds are now too limited; encouragement actions are not expensive.	Incentive program is expensive.	Yes – if they are used; other alert systems are often supplanting this in use and popularity.	Eliminate
Provide safe room education for builders and developers.	Information is readily available via FEMA 361 guidance. EMA can lead a low cost educational activity.	County lacks interest in providing the actual program but is not opposed to it. Safe room funding is limited at this time. New emergency management coordinator could work with State.	Yes – it could result in enhanced construction practices or more in-home safe rooms installed.	Consider
Purchase/install backup fixed power generators and pumps.	Offers permanent option to ensure County capabilities are maintained during/after hazard event.	Requires maintenance and upkeep; can be expensive if a large generator needed.	No – no rural buildings require full-time power; assets that do require this are already served.	Eliminate
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	Has little bearing on County capabilities; IDNR is often involved.	Unsure of extent of need; low political will to invest on private property; however, County leaders are concerned about hazardous materials.	Yes – leaking tanks are regulated, but other issues listed need more investment.	Consider
Require burial of utility lines in new development.	County has authority but no direct control over utility line placement.	Can be like zoning; requires some administrative activity.	Yes – but only when new development is built, which is not likely, except at Sun Valley Lake.	Consider
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	Can be part of building codes, which are not yet adopted; State/FEMA has resources to identify issues and offer solutions.	Inspector is needed; existing staff expertise is not in place. Political will for these kinds of activities on private property is limited.	Yes – if buildings are actually built to this standard. Encouragement is more likely to be used.	Consider
Strengthen exposed utility and communications infrastructure.	Has been started by partner organizations; FEMA funding is available; is an Alliant Energy priority.	Expensive and requires priorities as to where investment is needed most.	Yes – most of the rural overhead utilities are aging.	Consider

Mitigation Capability Analysis by Action in Benton

The following table lists “New” and “Carryover” mitigation actions and corresponding capabilities that can be expanded by action as well as capability limitations. Also, a brief conclusion is provided, whether the individual action should be considered in cost-benefit review or should be eliminated from review.

It should be noted before reviewing this table that Benton is a very small community of less than 100 people. While there may be some interest and certainly some need to do many of the following projects, the City elects to include only

a relatively few as “consider” actions for the final step in the STAPLE-E evaluation process simply because there are too few resources to take on additional projects.

Figure 4.23: Capability Analysis of Mitigation Actions – Benton

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Acquire and demolish or relocate buildings/infrastructure in high-risk areas.	FEMA strongly supports action with funding programs; Official flood maps exist but other site-specific hazards are not well analyzed.	This can apply to many hazards, including flooding. Funding is limited, but projects can be prioritized based on a BCA.	No – Local officials really cannot identify properties where this makes sense.	Eliminate
Acquire and use conservation easements and restrictive covenants to prevent development in known hazard areas.	City has authority to do this and it is relatively low-cost to acquire easements on undeveloped property; flood information is known.	Other hazard boundaries are not really defined; there is not much political will or local resources to take on this kind of project.	No – Local officials really cannot identify properties where this makes sense.	Eliminate
Acquire flood prone buildings and convert to open space/green space or elevate to or above base flood elevation or above flash flood reach.	FEMA strongly supports action with funding programs; FIRM maps are in place and adopted by the city.	There appears to be no actual homes in the flood hazard area. Such programs are costly to implement and may not meet BCA.	No – While a relevant action, local officials have not identified significant structures in the SFHA.	Eliminate
Adopt a continuity of operations & succession plan for the jurisdiction.	Some State/FEMA technical assistance available and can be County coordinated.	Will not make sense to go through process if much expense.	Yes – should be low cost and provide a plan in case of disaster.	Consider
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Relatively low cost option to undertake with next code update.	Requires assistance from professionals skilled in law and policy.	Yes – can address multiple hazards.	Consider
Adopt manufactured home development storm shelter ordinances.	Is legal and can improve mitigation of hazards in these areas if proper standards are used.	There is no zoning in place, so this may be more difficult to implement; not politically popular.	No – no existing major MH developments exist and none are likely to be developed.	Eliminate
Adopt State fire codes.	Is legal and can improve mitigation of hazards in these areas if proper standards are used; not costly or technically difficult.	Might require assistance from local fire departments not in City’s authority to carry them out.	No – does not make sense in this small community with little new development potential.	Eliminate
Adopt tree trimming ordinances.	City has legal authority; not a costly action.	Generally unnecessary on public ROW areas; there is little will to have City enforcement on private property.	No – No real need for this action on a major scale and the city has little means to enforce.	Eliminate
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	City has legal authority. Organizations like SICOG are available to help prepare documents.	Some aspects of code enforcement require specialized skills, which can be costly. So far there is no or very little will to implement and no zoning commission.	No - Not many homes are being built and there are no plans for major developments.	Eliminate
Bury exposed utility and communications infrastructure.	Because of the franchise with Alliant, City has no authority; REC and Alliant are strong partners in the planning process; FEMA has funded some work on high-voltage lines, but not burial.	Cost is very high compared to need, so priorities must be identified. Alliant rep on planning team indicates it is a mid- or long-term priority due to the cost.	Yes – however, strengthening overhead lines may make more sense in a town of this size with such low density.	Eliminate
Complete storm water drainage or watershed studies of known flood areas.	Some ideas and information on this issue is known from past FEMA funds given, etc. Some community leaders have high interest.	Will require outside consultation to identify the full extend of the problem to prevent future losses.	Yes – City has received FEMA PA funds in the past because of flash flooding on streets.	Consider
Construct and/or improve berms, levees, or floodwalls around water/sewer plants and other critical assets that must be located	Is a State and FEMA priority but funding is limited at this time.	Local resources are lacking for an expensive project.	No – the city cannot identify major critical assets affecting the town to which this	Eliminate

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
in hazard areas.			applies.	
Construct or repair dams; develop reservoirs and lakes (flood control, water source).	Can provide reliable water for fire suppression close to home.	Requires large amounts of land and is very expensive; water source already available so political will is limited; too few resources.	No – Not a feasible project within the boundaries or directly adjacent to the city.	Eliminate
Construct storage facilities for pesticides, insecticides, and chemicals.	May not cost too much to do.	Could be expensive if large volume; would need to be involved with private property owners.	No – limited impact; unsure if a need even exists or if these hazards are present.	Eliminate
Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	Secondary roads could be involved in design and the installation process; may be able to achieve some grants; city has legal authority.	Can become expensive; lack of city staff to build and maintain; facilities would be limited and targeted only, not full curb/gutter throughout.	Yes – city is highly interested in this project and it could prevent significant losses to streets.	Consider
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Is a State and FEMA priority but funding is limited at this time; SICOG is available to assist with application process.	Requires engineering and is expensive compared to normal construction; FEMA funding is very limited at this time.	Yes – City is interested when a new facility (such as community building) is built.	Consider
Create and maintain a special needs/oxygen user registration program or inventory.	Offers benefits to utilities, EMTs, fire, and other emergency responders and would not be too costly to administer.	Can be a legal problem if it is not voluntary due to HIPPA laws; little political will at city level; fire departments and utility companies can handle more strategically.	No – There is no fire or emergency service based in the city; no local role.	Eliminate
Demolish abandoned properties.	City has authority.	Can be expensive and involves private property.	No – there is some need, but not a critical mitigation action.	Eliminate
Distribute tornado shelter location information.	City has authority; low cost.	Not useful until safe rooms are available in the area.	No – No need or relevance at this time.	Eliminate
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	City has authority; can get Secondary Roads to assist.	Expensive; Little local resources.	No – No need or problem at this time within flood areas that calls for elevation.	Eliminate
Encourage citizen purchase/use of smoke detectors and fire extinguishers with an incentive program.	Many good examples exist; city has authority	No fire department in the city, so the City would have no direct role except maybe financially; resources for incentive are limited.	Yes – if the Mount Ayr department would do a program within the city.	Consider
Encourage property owners to install sewer system backflow devises.	Encouragement is not expensive; EMA can have a countywide role.	Would be most effective with policy calling for removal of storm water from sewer, which is not in place.	No – Not strong need; new system installed by SIRWA; SIRWA can address this.	Eliminate
Encourage property owners to own adequate property insurance.	Relatively low-cost effort that can be done anytime; EMA can have a countywide role.	Nearly requires partnerships with insurance industry; small city like this lacks political will and resources.	Maybe –Losses can be reduced with good insurance, but this measure is voluntary.	Eliminate
Encourage the implementation of water-saving measures, including soil and water conservation practices.	Relatively low-cost effort that can be done anytime. Resources on practices are available outside of the city.	Requires partnerships with conservation groups to provide information to the right people; city lacks resources.	Not likely – very little area in the city would participate in a watershed partnership strategy.	Eliminate
Encourage the use of non-combustible materials (i.e. stone, brick, etc.) for structures in wildfire hazard areas.	Relatively low-cost effort that can be done anytime. Resources are increasingly available.	No one has strong, precise data on where wildfire risk is highest; would require political will to implement zoning-like policies.	Maybe – but not a significant problem in this city.	Eliminate
Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	Relatively low-cost effort that can be done anytime. Resources are increasingly available; projects are popular, and becoming more viable.	Few local or regional examples of some of these practices; requires support of applicable professionals and outside resources.	Yes – serves a dual function of storm water control and water quality improvement.	Consider
Enforce multi-family housing	Policy already in place at the	City has very few resources	No – there is no multi-	Eliminate

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
extinguisher laws.	State level; City can have a role in enforcing.	to administer.	family housing in Benton.	
Flood proof critical assets in the community.	General – allows for flexible projects; Strong FEMA funding priority.	Can be expensive and must be based on specific identified need.	No – no major building assets, listed in plan, are in the SFHA.	Eliminate
Fund weatherization programs to more low-income households.	Existing programs are available; can improve property tax base.	City would want a limited role and allow other partners to carry out programs on private property.	Yes – with dual result: weatherizing homes and improving living conditions.	Consider
Harden public buildings.	Existing building information is available to some degree.	Can be very expensive; consultants will be needed to identify scope of work and priorities; too few local resources.	Yes – with dual result: improved safety and longer overall building life; few long-term assets would benefit.	Eliminate
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	FEMA and State mandated part of the planning process that is simple to complete because jurisdiction meets regularly.	Requires someone to remind them to discuss the plan and the coming year’s projects during their meetings.	Yes – because carrying out the plan requires diligence and proactive effort.	Consider
Implement a comprehensive multi-media public education campaign for multiple hazards.	EMA would be natural leader for this; there are many resources and examples.	People tend to ignore efforts unless they are interesting. Sustained multi-media efforts can work.	Yes – people are generally unaware of this plan and updated info about each hazard.	Consider
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	County already has GIS in place but is managed by a third party. Flood maps are included.	Just of matter of SICOG sending shapefiles of plan data to the GIS provider. County would need to have a staff person to share hazard event data in the future.	Not really – unlikely to have a major decision-making impact on a very small town.	Eliminate
Implement stream modifications/channel improvements and stream bank stabilization.	May be a County or District level project; some grant resources and staffing at county level exist.	Lack of resources in the city for any project, and even then the impact would really be downstream.	No – only a very small stretch of the river or any streams pass through the city, and those segments do not pose a serious risk.	Eliminate
Improve capital communications technology, such as cell towers and fiber cable lines, to better withstand hazards.	Outside firms invest in infrastructure and have some of their own resources.	No city jurisdiction or involvement; very expensive.	No – few of these assets and technologies exist within the city; no central systems based in city.	Eliminate
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	Always a high local priority and some resources are available; Secondary Roads can assist with planning and design.	Expensive and will require prioritization; city has too few resources to fully modernize roads.	Yes – this is always a need for safe roads and can reduce some hazard losses to roadways and ROWs.	Consider
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	Groups like SICOG and engineering firms can prepare these plans for a fee.	Plans come at a cost for the city and require public participation. Will require champions within the city.	Not really – while planning makes sense, the town is too small to justify a stand-alone plan of this nature.	Eliminate
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Can make response, recover, and mitigation easier and reduce long-term risks for the public. Some third parties owning utilities have resources outside of grant funding.	With limited City resources, it is difficult to justify redundancy in many cases; all utilities not City owned and operated.	Yes – but not compared to the cost, beyond what is already done to address looping and redundancy.	Eliminate
Initiate community preparedness programs.	State and FEMA resources available to assist local officials.	Formal programs for the public take time and public funds; few local staff and resources to carry out.	Yes – but only if the public participates.	Eliminate
Install access barriers around certain chemical tanks.	Laws in place allow the City to have some oversight on this issue.	More of a law enforcement and property insurance issue, with little City involvement.	Maybe – but theft of fuel and drug materials has declined. Unsure if	Eliminate

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Install flood gauges.	State and FEMA interest area.	City does not really have a role.	there are exposed tanks. No – if there were need for a flood gauge in city, it would be installed already.	Eliminate
Install hazard signs in area campgrounds, parks, and open spaces.	City has authority; not overly expensive.	Requires maintenance.	No – no largely populated recreational areas and public areas with unique hazards.	Eliminate
Install highway guardrails to keep vehicles on roadway.	IDOT has some funding for high priority areas.	Requires C/B justification before DOT investment; no City role on primary highways.	No – guardrails already installed where needed; traffic does not justify further investments.	Eliminate
Install quick-connect emergency generator hook-ups for facilities.	Can be less expensive than permanent fixed generators; can implement with any reasonably modern public asset	Requires access or availability of portable generator.	Yes – but there are no considerable modern public assets in the city; no major designated shelter in town.	Eliminate
Install sprinkler systems in public buildings.	Would apply to specific highly occupied buildings, none in Benton.	Not required for most structures and would be expensive to retrofit.	No – unneeded in the types and sizes of Benton.	Eliminate
Install warning siren(s).	Can be triggered by County officials; traditional project, easy to implement.	Expensive compared to resources available; no local control.	Maybe – but Benton area is low-density and phone alerts (reverse E911) and weather radio make more sense.	Eliminate
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Vegetation options offer dual purpose with little maintenance; temporary options can be inexpensive; if voluntary, can be easy to install at prioritized locations.	If permanent requires permanent access; seasonal requires temporary access; need to identify locations and priorities; maintenance issues.	Not really – at least on public spaces; very little need within the City.	Eliminate
Institute alternative bus routes and plans for road closures.	No cost for the City.	City has no authority or role; owns no buses.	No – not an issue for the City; not needed within corporate limits.	Eliminate
Investigate alternative water sources for fire suppression.	With SIRWA in place, the basic resources to address this problem exist; Mount Ayr Fire can assist.	Costs and time to come up with a solution and then fund the solution; City’s role is minimal; USDA will not fund larger water mains.	Yes – rural water mains are not designed for fire suppression needs; this is a City priority.	Consider
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	Little or no cost; promotes collaboration as a policy.	Requires sustained effort to keep groups engaged.	No – there are few true groups in the city and those are already engaged.	Eliminate
Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	Can be a low-cost retrofit if the building is modern; City authority if City owned.	Expensive, especially for older buildings without modern electrical elements.	No – no buildings over 2 stories in the city.	Eliminate
Maintain sandbags in dry storage.	County Secondary Roads has storage facilities, but space is limited.	Cost and space needed to maintain the sandbags if filled at all times.	No – No major areas where it makes sense to deploy them; in major emergency, they are likely available from State.	Eliminate
Obtain sand and salt supplies well in advance of winter.	City has authority;	Little or no space for storage; too little ordered in small town to justify special procurement; County cleans roads.	Maybe – but City is not involved in its own road clearing; does not make sense to individually procure.	Eliminate
Participate in the FEMA Community Rating Service (CRS)	City already in NFIP and has basic ordinances in	Requires more administrative effort than simple NFIP	Maybe – if all measures taken, but	Eliminate

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
program. Perform dam and levee inspections.	place. City may have authority for any dams in the city or could allow access to IDNR, etc.	participation. Lack of local technical ability; possible costs.	only minor impact. No – no dams and levees in the city.	Eliminate
Promote the value of installation of private in-home tornado safe rooms.	More suppliers are available for these; EMA can lead a low cost encouragement activity.	Requires time and administrative effort.	Yes – as many homes are without sturdy basements, home safe rooms, or community safe rooms near them.	Consider
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Low-cost encouragement activity; energy companies can provide this information.	Requires administrative effort and time by all parties.	Yes – as long as effort is sustained and well designed, but City would not a role in a purely local program.	Eliminate
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	While a previous funding mechanism existed for a rebate program or free radios, the funds are now too limited; encouragement actions are not expensive.	Incentive program is expensive.	Yes – if they are used; other alert systems are often supplanting this in use and popularity.	Eliminate
Provide safe room education for builders and developers.	Information is readily available via FEMA 361 guidance. EMA can lead a low cost educational activity.	City lacks interest/staffing in providing the actual program but is not opposed to it. Safe room funding is limited at this time.	Yes – it could result in enhanced construction practices or more in-home safe rooms installed.	Eliminate
Purchase road closure barricades.	City has authority.	Lack of staffing to enforce closures; little space to store; requires maintenance.	No – few roads; most likely to be County or construction company that will close and provide barricades.	Eliminate
Purchase snow trucks, plows, sanders.	City has authority.	Lack of staffing to use and maintain; expensive; requires space to store.	Maybe – but it makes more sense for the County or private contractors to provide this service.	Eliminate
Purchase stand-by portable pumps and generators.	City has authority; does not take excessive space or require high level staffing and maintenance.	Requires ability to connect to buildings and means for City to transport and fuel.	Maybe – but it makes more sense if the City has considerable assets and a public shelter.	Eliminate
Purchase/install backup fixed power generators and pumps.	Permanent solution compared to a portable generator; City has authority.	Can be expensive, depending on the site.	Yes – City has interest in this with a goal of providing shelter at the community building.	Consider
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	Has little bearing on City capabilities; IDNR is often involved.	Unsure of extent of need; low political will to invest on private property.	Maybe – leaking tanks are regulated, but there are no major issues in Benton.	Eliminate
Require burial of utility lines in new development.	City has authority but no direct control over utility line placement.	Can be like zoning; requires some administrative activity; little political will.	Yes – but only if new development of any magnitude is likely.	Eliminate
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	Can be part of building codes, which are not yet adopted; State/FEMA has resources to identify issues and offer solutions.	Inspector is needed; existing staff expertise is not in place. Political will for these kinds of activities on private property is limited.	Yes – if buildings are actually built to this standard. New development is unlikely.	Eliminate
Store digital and hard copies of public records in low-risk, offsite locations.	Low cost measure; city has authority.	Requires a policy as to who has access; requires dedicate space.	Yes – to an extent; if there are vital records.	Consider
Strengthen exposed utility and communications infrastructure.	Has been started by partner organizations; FEMA funding is available; is an Alliant Energy priority.	Expensive and requires priorities as to where investment is needed most.	Yes – most of the local overhead utilities are aging.	Consider

Mitigation Capability Analysis by Action in Diagonal

The following table lists “New” and “Carryover” mitigation actions and corresponding capabilities that can be expanded by action as well as capability limitations. Also, a brief conclusion is provided, whether the individual action should be considered in cost-benefit review or should be eliminated from review.

Diagonal was not involved in reviewing and analyzing mitigation actions. While there may be some interest and certainly a need to do many of the following projects, the City elects to include only a relatively few as “consider” actions for the final step in the STAPLE-E evaluation process.

Figure 4.24: Capability Analysis of Mitigation Actions – Diagonal

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Acquire and use conservation easements and restrictive covenants to prevent development in known hazard areas.	City has authority to do this and it is relatively low-cost to acquire easements on undeveloped property; flood information is known.	Other hazard boundaries are not really defined; there is not much political will or local resources to take on this kind of project.	No – Local officials really cannot identify properties where this makes sense.	Eliminate
Acquire flood prone buildings and convert to open space/green space or elevate to or above base flood elevation or above flash flood reach.	FEMA strongly supports action with funding programs; FIRM maps are in place and adopted by the city.	There appears to be no actual homes in the flood hazard area. Such programs are costly to implement and may not meet BCA.	No – While a relevant action, local officials have not identified significant structures in the SFHA.	Eliminate
Adopt a continuity of operations & succession plan for the jurisdiction.	Some State/FEMA technical assistance available and can be County coordinated.	Will not make sense to go through process if much expense.	Yes – should be low cost and provide a plan in case of disaster.	Consider
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Relatively low cost option to undertake with next code update.	Requires assistance from professionals skilled in law and policy.	Yes – can address multiple hazards.	Consider
Adopt manufactured home development storm shelter ordinances.	Is legal and can improve mitigation of hazards in these areas if proper standards are used.	There is no zoning in place, so this may be more difficult to implement; not politically popular.	No – no existing major MH developments exist and none are likely to be developed.	Eliminate
Adopt the current FIRM maps as applicable to each jurisdiction.	City has authority and FEMA/State sees this is priority. Low or no real cost.	This action implies the City will implement the NFIP, which has some level of administrative investment.	Yes – Necessary to implement the NFIP.	Consider
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	City has legal authority. Organizations like SICOG are available to help prepare documents.	Some aspects of code enforcement require specialized skills, which can be costly. So far there is no or very little will to implement and no zoning commission.	No - Not many homes are being built and there are no plans for major developments.	Eliminate
Bury exposed utility and communications infrastructure.	Because of the franchise with Alliant, City has no authority; REC and Alliant are strong partners in the planning process; FEMA has funded some work on high-voltage lines, but not burial.	Cost is very high compared to need, so priorities must be identified. Alliant rep on planning team indicates it is a mid- or long-term priority due to the cost.	Yes – however, strengthening overhead lines may make more sense in a town of this size with such low density.	Eliminate
Complete storm water drainage or watershed studies of known flood areas.	Some ideas and information on this issue is known from past FEMA funds given, etc. Some community leaders have high interest.	Will require outside consultation to identify the full extend of the problem to prevent future losses.	Yes – Town is hilly and streets have been washed out by heavy rains; part of town is in alluvial plain.	Consider
Construct and/or improve berms, levees, or floodwalls around water/sewer plants and other critical assets that must be located in hazard areas.	Is a State and FEMA priority but funding is limited at this time.	Local resources are lacking for an expensive project.	No – the city cannot identify major critical assets affecting the town to which this applies.	Eliminate
Construct or repair dams; develop reservoirs and lakes (flood control, water source).	Can provide reliable water for fire suppression close to home; can serve dry hydrants; city already owns	New construction is very expensive, but existing dam exists.	Yes – inspecting dam makes sense to warn of possible failures.	Consider

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Construct storage facilities for pesticides, insecticides, and chemicals.	a dam and administers. May not cost too much to do.	Could be expensive if large volume; would need to be involved with private property owners.	No – limited impact; unsure if a need even exists or if these hazards are present.	Eliminate
Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	Secondary roads could be involved in design and the installation process; may be able to achieve some grants; city has legal authority.	Can become expensive; lack of city staff to build and maintain; facilities would be limited and targeted only, not full curb/gutter throughout.	Yes – it could prevent significant losses to streets and yard flooding.	Consider
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Is a State and FEMA priority but funding is limited at this time; SICOG is available to assist with application process.	Requires engineering and is expensive compared to normal construction; FEMA funding is very limited at this time.	Yes – when any new community facility is built.	Consider
Create and maintain a special needs/oxygen user registration program or inventory.	Offers benefits to utilities, EMTs, fire, and other emergency responders and would not be too costly to administer.	Can be a legal problem if it is not voluntary due to HIPPA laws; little political will at city level; fire departments and utility companies can handle more strategically.	Yes – but local fire department has not expressed interest.	Eliminate
Demolish abandoned properties.	City has authority.	Can be expensive and involves private property.	No – there is some need, but not a critical mitigation action.	Eliminate
Discourage/prohibit development in flood plain areas; join or continue participation in the NFIP.	Is a FEMA/State mandate if desiring FEMA/State funds.	Requires political will and some administrative capacity.	Yes – can prevent some future flooding hazards and grants access to funding, even if new development is not likely.	Consider
Distribute tornado shelter location information.	City has authority; low cost.	Not useful until safe rooms are available in the area.	No – No need or relevance at this time.	Eliminate
Encourage property owners to own adequate property insurance.	Relatively low-cost effort that can be done anytime; EMA can have a countywide role.	Nearly requires partnerships with insurance industry; small city like this lacks political will and resources.	Maybe – Losses can be reduced with good insurance, but this measure is voluntary.	Eliminate
Encourage the implementation of water-saving measures, including soil and water conservation practices.	Relatively low-cost effort that can be done anytime. Resources on practices are available outside of the city.	Requires partnerships with conservation groups to provide information to the right people; city lacks resources.	Not likely – very little area in the city would participate in a watershed partnership strategy.	Eliminate
Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	Relatively low-cost effort that can be done anytime. Resources are increasingly available; projects are popular, and becoming more viable.	Few local or regional examples of some of these practices; requires support of applicable professionals and outside resources.	Yes – serves a dual function of storm water control and water quality improvement.	Consider
Fund weatherization programs to more low-income households.	Existing programs are available; can improve property tax base.	City would want a limited role and allow other partners to carry out programs on private property.	Yes – with dual result: weatherizing homes and improving living conditions.	Consider
Harden public buildings.	Existing building information is available to some degree.	Can be very expensive; consultants will be needed to identify scope of work and priorities; too few local resources.	Yes – with dual result: improved safety and longer overall building life; few long-term assets would benefit.	Eliminate
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	FEMA and State mandated part of the planning process that is simple to complete because jurisdiction meets regularly.	Requires someone to remind them to discuss the plan and the coming year's projects during their meetings.	Yes – because carrying out the plan requires diligence and proactive effort.	Consider
Implement a comprehensive multi-media public education campaign for multiple hazards.	EMA would be natural leader for this; there are many resources and examples.	People tend to ignore efforts unless they are interesting. Sustained multi-media efforts can work.	Yes – people are generally unaware of this plan and updated info about each hazard.	Consider

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	County already has GIS in place but is managed by a third party. Flood maps are included.	Just of matter of SICOG sending shapefiles of plan data to the GIS provider. County would need to have a staff person to share hazard event data in the future.	Not really – unlikely to have a major decision-making impact on a small town.	Eliminate
Implement stream modifications/channel improvements and stream bank stabilization.	May be a County or District level project; some grant resources and staffing at county level exist.	Lack of resources in the city for any project, and even then the impact would really be downstream.	No – only a very small stretch of the river or any streams pass through the city, and those segments do not pose a serious risk.	Eliminate
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	Always a high local priority and some resources are available; Secondary Roads can assist with planning and design.	Expensive and will require prioritization; city has too few resources to fully modernize roads.	Yes – this is always a need for safe roads and can reduce some hazard losses to roadways and ROWs.	Consider
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	Groups like SICOG and engineering firms can prepare these plans for a fee.	Plans come at a cost for the city and require public participation. Will require champions within the city.	Yes – but town would benefit from only a few of these options and does not have interest at this time.	Eliminate
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Can make response, recover, and mitigation easier and reduce long-term risks for the public. Some third parties owning utilities have resources outside of grant funding.	With limited City resources, it is difficult to justify redundancy in many cases; all utilities not City owned and operated.	Yes – but not compared to the cost, beyond what is already done to address looping and redundancy.	Eliminate
Initiate community preparedness programs.	State and FEMA resources available to assist local officials.	Formal programs for the public take time and public funds; few local staff and resources to carry out.	Yes – but only if the public participates.	Eliminate
Install flood gauges.	State and FEMA interest area.	City does not really have a role.	No – if there were need for a flood gauge in city, it would be installed already.	Eliminate
Install hazard signs in area campgrounds, parks, and open spaces.	City has authority; not overly expensive.	Requires maintenance.	Yes – it may make sense at Fogle Lake.	Consider
Install highway guardrails to keep vehicles on roadway.	IDOT has some funding for high priority areas.	Requires C/B justification before DOT investment; no City role on primary highways.	No – guardrails already installed where needed; traffic does not justify further investments.	Eliminate
Install quick-connect emergency generator hook-ups for facilities.	Can be less expensive than permanent fixed generators; can implement with any reasonably modern public asset	Requires access or availability of portable generator.	Yes – may make sense at the community building; however, City has not planned this activity.	Eliminate
Install warning siren(s).	Can be triggered by county and local fire department officials; traditional project, easy to implement.	Expensive compared to resources available.	Maybe for Fogle Lake area. However, phone alerts (reverse E911) and weather radio may make more sense. Yet, city officials are highly interested in a siren.	Consider
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Vegetation options offer dual purpose with little maintenance; temporary options can be inexpensive; if voluntary, can be easy to install at prioritized locations.	If permanent requires permanent access; seasonal requires temporary access; need to identify locations and priorities; maintenance issues.	Not really – at least on public spaces; very little need within the City.	Eliminate
Institute alternative bus routes and	No cost for the City.	City has no authority or role;	No – not an issue for	Eliminate

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
plans for road closures.		owns no buses.	the City; not needed within corporate limits.	
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	Little or no cost; promotes collaboration as a policy.	Requires sustained effort to keep groups engaged.	No – there are few true groups in the city and those are already engaged.	Eliminate
Maintain sandbags in dry storage.	County Secondary Roads has storage facilities, but space is limited.	Cost and space needed to maintain the sandbags if filled at all times.	No – No major areas where it makes sense to deploy them; in major emergency, they are likely available from State.	Eliminate
Participate in the FEMA Community Rating Service (CRS) program.	City already in NFIP and has basic ordinances in place.	Requires more administrative effort than simple NFIP participation.	Maybe – if all measures taken, but only minor impact.	Eliminate
Perform dam and levee inspections.	City may have authority for any dams in the city or could allow access to IDNR, etc.	Lack of local technical ability; possible costs.	No – no dams and levees in the city.	Eliminate
Promote the value of installation of private in-home tornado safe rooms.	More suppliers are available for these; EMA can lead a low cost encouragement activity.	Requires time and administrative effort.	Yes – as many homes are without sturdy basements, home safe rooms, or community safe rooms near them.	Consider
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Low-cost encouragement activity; energy companies can provide this information.	Requires administrative effort and time by all parties.	Yes – as long as effort is sustained and well designed, but City would not a role in a purely local program.	Eliminate
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	While a previous funding mechanism existed for a rebate program or free radios, the funds are now too limited; encouragement actions are not expensive.	Incentive program is expensive.	Yes – if they are used; other alert systems are often supplanting this in use and popularity.	Eliminate
Provide safe room education for builders and developers.	Information is readily available via FEMA 361 guidance. EMA can lead a low cost educational activity.	City lacks interest/staffing in providing the actual program but is not opposed to it. Safe room funding is limited at this time.	Yes – it could result in enhanced construction practices or more in-home safe rooms installed.	Eliminate
Purchase stand-by portable pumps and generators.	City has authority; does not take excessive space or require high level staffing and maintenance.	Requires ability to connect to buildings and means for City to transport and fuel.	Yes – for storm water, wastewater, and other infrastructure management efforts.	Consider
Purchase/install backup fixed power generators and pumps.	Permanent solution compared to a portable generator; City has authority.	Can be expensive, depending on the site.	Yes – but City has not expressed interest of providing shelter at the community building.	Eliminate
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	Has little bearing on City capabilities; IDNR is often involved.	Unsure of extent of need; low political will to invest on private property.	Maybe – leaking tanks are regulated, but there are no major issues in Diagonal.	Eliminate
Require burial of utility lines in new development.	City has authority but no direct control over utility line placement.	Can be like zoning; requires some administrative activity; little political will.	Yes – but only if new development of any magnitude is likely.	Eliminate
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	Can be part of building codes, which are not yet adopted; State/FEMA has resources to identify issues and offer solutions.	Inspector is needed; existing staff expertise is not in place. Political will for these kinds of activities on private property is limited.	Yes – if buildings are actually built to this standard. New development is unlikely.	Eliminate
Store digital and hard copies of public records in low-risk, offsite locations.	Low cost measure; city has authority.	Requires a policy as to who has access; requires dedicate space.	Yes – to an extent; if there are vital records.	Consider
Strengthen exposed utility and communications infrastructure.	Has been started by partner organizations; FEMA	Expensive and requires priorities as to where	Yes – most of the local overhead utilities are	Consider

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
	funding is available; is an Alliant Energy priority.	investment is needed most.	aging.	

Mitigation Capability Analysis by Action in Ellston

The following table lists “New” and “Carryover” mitigation actions and corresponding capabilities that can be expanded by action as well as capability limitations. Also, a brief conclusion is provided, whether the individual action should be considered in cost-benefit review or should be eliminated from review.

It should be noted before reviewing this table that Ellston is a very small community of less than 100 people. While there may be some interest and certainly some need to do many of the following projects, the City elects to include only a relatively few as “consider” actions for the final step in the STAPLE-E evaluation process simply because there are too few resources to take on additional projects.

Figure 4.25: Capability Analysis of Mitigation Actions – Ellston

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Adopt a continuity of operations & succession plan for the jurisdiction.	Some State/FEMA technical assistance available and can be County coordinated.	Will not make sense to go through process if much expense.	Yes – should be low cost and provide a plan in case of disaster.	Consider
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Relatively low cost option to undertake with next code update.	Requires assistance from professionals skilled in law and policy.	Yes – can address multiple hazards.	Consider
Adopt manufactured home development storm shelter ordinances.	Is legal and can improve mitigation of hazards in these areas if proper standards are used.	There is no zoning in place, so this may be more difficult to implement; not politically popular.	No – no existing major MH developments exist and none are likely to be developed.	Eliminate
Adopt tree trimming ordinances.	City has legal authority; not a costly action.	Generally unnecessary on public ROW areas; there is little will to have City enforcement on private property.	No – No real need for this action on a major scale and the city has little means to enforce.	Eliminate
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	City has legal authority. Organizations like SICOG are available to help prepare documents.	Some aspects of code enforcement require specialized skills, which can be costly. So far there is no or very little will to implement and no zoning commission.	No - Not many homes are being built and there are no plans for major developments.	Eliminate
Bury exposed utility and communications infrastructure.	Because of the franchise with Alliant, City has no authority; REC and Alliant are strong partners in the planning process; FEMA has funded work on high-voltage lines, but not burial.	Cost is very high compared to need, so priorities must be identified. Alliant rep on planning team indicates it is a mid- or long-term priority due to the cost.	Yes – however, strengthening overhead lines may make more sense in a town of this size with such low density.	Eliminate
Construct storage facilities for pesticides, insecticides, and chemicals.	May not cost too much to do.	Could be expensive if large volume; would need to be involved with private property owners.	No – limited impact; unsure if a need even exists or if these hazards are present.	Eliminate
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Is a State and FEMA priority but funding is limited at this time; SICOG is available to assist with application process.	Requires engineering and is expensive compared to normal construction; FEMA funding is very limited at this time.	Yes – but the city is small and there is little interest in pursuing a public safe room.	Eliminate
Create and maintain a special needs/oxygen user registration program or inventory.	Offers benefits to utilities, EMTs, fire, and other emergency responders and would not be too costly to administer.	Can be a legal problem if it is not voluntary due to HIPPA laws; little political will at city level; fire departments and utility companies can handle more strategically.	No – There is no fire or emergency service based in the city; no local role.	Eliminate
Demolish abandoned properties.	City has authority.	Can be expensive and	No – there is some	Eliminate

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
		involves private property.	need, but not a critical mitigation action.	
Develop/enforce snow removal policies.	City has authority.	Requires some law enforcement, provided by County.	Yes – it can help with traffic safety.	Consider
Distribute tornado shelter location information.	City has authority; low cost.	Not useful until safe rooms are available in the area.	No – No need or relevance at this time.	Eliminate
Encourage property owners to own adequate property insurance.	Encouragement is not expensive; EMA can have a countywide role.	Would be most effective with policy calling for removal of storm water from sewer, which is not in place.	No – Not strong need; new system installed by SIRWA; SIRWA can address this.	Eliminate
Establish alert systems and specific outreach efforts for vulnerable populations.	City has authority; can work with public health and hospital leadership/staff.	Requires administrative effort and costs; unsure how best to reach such populations.	No – no real populations exist other than the general public.	Eliminate
Fund weatherization programs to more low-income households.	Existing programs are available; can improve property tax base.	City would want a limited role and allow other partners to carry out programs on private property.	Yes – with dual result: weatherizing homes and improving living conditions.	Consider
Harden public buildings.	Existing building information is available to some degree.	Can be very expensive; consultants will be needed to identify scope of work and priorities; too few local resources.	Yes – with dual result: improved safety and longer overall building life; few long-term assets would benefit.	Eliminate
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	FEMA and State mandated part of the planning process that is simple to complete because jurisdiction meets regularly.	Requires someone to remind them to discuss the plan and the coming year’s projects during their meetings.	Yes – because carrying out the plan requires diligence and proactive effort.	Consider
Implement a comprehensive multi-media public education campaign for multiple hazards.	EMA would be natural leader for this; there are many resources and examples.	People tend to ignore efforts unless they are interesting. Sustained multi-media efforts can work.	Yes – people are generally unaware of this plan and updated info about each hazard.	Consider
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	Groups like SICOG and engineering firms can prepare these plans for a fee.	Plans come at a cost for the city and require public participation. Will require champions within the city.	Not really – while planning makes sense, the town is too small to justify a stand-alone plan of this nature.	Eliminate
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Can make response, recover, and mitigation easier and reduce long-term risks for the public. Some third parties owning utilities have resources outside of grant funding.	With limited City resources, it is difficult to justify redundancy in many cases; all utilities not City owned and operated.	Yes – but not compared to the cost, beyond what is already done to address looping and redundancy.	Eliminate
Initiate community preparedness programs.	State and FEMA resources available to assist local officials.	Formal programs for the public take time and public funds; few local staff and resources to carry out.	Yes – but only if the public participates.	Eliminate
Install hazard signs in area campgrounds, parks, and open spaces.	City has authority; not overly expensive.	Requires maintenance.	No – no largely populated recreational areas and public areas with unique hazards.	Eliminate
Install highway guardrails to keep vehicles on roadway.	IDOT has some funding for high priority areas.	Requires C/B justification before DOT investment; no City role on primary highways.	No – guardrails already installed where needed; traffic does not justify further investments.	Eliminate
Install quick-connect emergency generator hook-ups for facilities.	Can be less expensive than permanent fixed generators; can implement with any reasonably modern public asset	Requires access or availability of portable generator.	Yes – but there are no considerable modern public assets in the city; no major designated shelter in town.	Eliminate
Install warning siren(s).	Can be triggered by County	Expensive compared to	Maybe – but Ellston	Consider

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
	officials; traditional project, easy to implement.	resources available; no local control.	area is low-density and phone alerts (reverse E911) and weather radio make more sense. Yet, city is interested in a siren.	
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Vegetation options offer dual purpose with little maintenance; temporary options can be inexpensive; if voluntary, can be easy to install at prioritized locations.	If permanent requires permanent access; seasonal requires temporary access; need to identify locations and priorities; maintenance issues.	Not really – at least on public spaces; very little need within the City.	Eliminate
Institute alternative bus routes and plans for road closures.	No cost for the City.	City has no authority or role; owns no buses.	No – not an issue for the City; not needed within corporate limits.	Eliminate
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	Little or no cost; promotes collaboration as a policy.	Requires sustained effort to keep groups engaged.	No – there are few true groups in the city and those are already engaged.	Eliminate
Promote the value of installation of private in-home tornado safe rooms.	More suppliers are available for these; EMA can lead a low cost encouragement activity.	Requires time and administrative effort.	Yes – as many homes are without sturdy basements, home safe rooms, or community safe rooms near them.	Consider
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Low-cost encouragement activity; energy companies can provide this information.	Requires administrative effort and time by all parties.	Yes – as long as effort is sustained and well designed, but City would not a role in a purely local program.	Eliminate
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	While a previous funding mechanism existed for a rebate program or free radios, the funds are now too limited; encouragement actions are not expensive.	Incentive program is expensive.	Yes – if they are used; other alert systems are often supplanting this in use and popularity. However, the city has interest in this action.	Consider
Provide safe room education for builders and developers.	Information is readily available via FEMA 361 guidance. EMA can lead a low cost educational activity.	City lacks interest/staffing in providing the actual program but is not opposed to it. Safe room funding is limited at this time.	Yes – it could result in enhanced construction practices or more in-home safe rooms installed.	Eliminate
Purchase road closure barricades.	City has authority.	Lack of staffing to enforce closures; little space to store; requires maintenance.	No – few roads; most likely to be County or construction company that will close and provide barricades.	Eliminate
Purchase snow trucks, plows, sanders.	City has authority.	Lack of staffing to use and maintain; expensive; requires space to store.	Maybe – but it makes more sense for the County or private contractors to provide this service.	Eliminate
Purchase stand-by portable pumps and generators.	City has authority; does not take excessive space or require high level staffing and maintenance.	Requires ability to connect to buildings and means for City to transport and fuel.	Maybe – but it makes more sense if the City has considerable assets and a public shelter.	Eliminate
Purchase/install backup fixed power generators and pumps.	Permanent solution compared to a portable generator; City has authority.	Can be expensive, depending on the site.	Yes – at the community center, which serves to a degree as a shelter.	Consider
Require burial of utility lines in new development.	City has authority but no direct control over utility line placement.	Can be like zoning; requires some administrative activity; little political will.	Yes – but only if new development of any magnitude is likely.	Eliminate
Require or encourage wind engineering and construction techniques: anchor bolts,	Can be part of building codes, which are not yet adopted; State/FEMA has	Inspector is needed; existing staff expertise is not in place. Political will for these kinds	Yes – if buildings are actually built to this standard. New	Eliminate

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
interlocking roof shingles, etc.	resources to identify issues and offer solutions.	of activities on private property is limited.	development is unlikely.	
Store digital and hard copies of public records in low-risk, offsite locations.	Low cost measure; city has authority.	Requires a policy as to who has access; requires dedicate space.	Yes – to an extent; if there are vital records.	Consider
Strengthen exposed utility and communications infrastructure.	Has been started by partner organizations; FEMA funding is available; is an Alliant Energy priority.	Expensive and requires priorities as to where investment is needed most.	Yes – most of the local overhead utilities are aging.	Consider

Mitigation Capability Analysis by Action in Kellerton

The following table lists “New” and “Carryover” mitigation actions and corresponding capabilities that can be expanded by action as well as capability limitations. Also, a brief conclusion is provided, whether the individual action should be considered in cost-benefit review or should be eliminated from review.

Figure 4.26: Capability Analysis of Mitigation Actions – Kellerton

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Adopt a continuity of operations & succession plan for the jurisdiction.	Some State/FEMA technical assistance available and can be County coordinated.	Will not make sense to go through process if much expense.	Yes – should be low cost and provide a plan in case of disaster.	Consider
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Relatively low cost option to undertake with next code update.	Requires assistance from professionals skilled in law and policy.	Yes – can address multiple hazards.	Consider
Adopt manufactured home development storm shelter ordinances.	Is legal and can improve mitigation of hazards in these areas if proper standards are used.	There is no zoning in place, so this may be more difficult to implement; not politically popular.	No – no existing major MH developments exist and none are likely to be developed.	Eliminate
Adopt tree trimming ordinances.	City has legal authority; not a costly action.	Generally unnecessary on public ROW areas; there is little will to have City enforcement on private property.	No – No real need for this action on a major scale and the city has little means to enforce.	Eliminate
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	City has legal authority. Organizations like SICOG are available to help prepare documents.	Some aspects of code enforcement require specialized skills, which can be costly. So far there is no or very little will to implement and no zoning commission.	No - Not many homes are being built and there are no plans for major developments.	Eliminate
Bury exposed utility and communications infrastructure.	Because of the franchise with Alliant, City has no authority; REC and Alliant are strong partners in the planning process; FEMA has funded some work on high-voltage lines, but not burial.	Cost is very high compared to need, so priorities must be identified. Alliant rep on planning team indicates it is a mid- or long-term priority due to the cost.	Yes – however, strengthening overhead lines may make more sense in a town of this size with such low density.	Eliminate
Construct storage facilities for pesticides, insecticides, and chemicals.	May not cost too much to do.	Could be expensive if large volume; would need to be involved with private property owners.	No – limited impact; unsure if a need even exists or if these hazards are present.	Eliminate
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Is a State and FEMA priority but funding is limited at this time; SICOG is available to assist with application process.	Requires engineering and is expensive compared to normal construction; FEMA funding is very limited at this time.	Yes – when any new community facility is built; a local community organization has expressed interest.	Consider
Create and maintain a special needs/oxygen user registration program or inventory.	Offers benefits to utilities, EMTs, fire, and other emergency responders and would not be too costly to administer.	Can be a legal problem if it is not voluntary due to HIPPA laws; little political will at city level; fire departments and utility companies can	Yes – but local fire department has expressed very little interest.	Eliminate

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Demolish abandoned properties.	City has authority.	handle more strategically. Can be expensive and involves private property.	Yes – there is some need, but not a critical mitigation action; City has expressed interest.	Consider
Distribute tornado shelter location information.	City has authority; low cost.	Not useful until safe rooms are available in the area.	No – No need or relevance at this time.	Eliminate
Encourage property owners to own adequate property insurance.	Relatively low-cost effort that can be done anytime; EMA can have a countywide role.	Nearly requires partnerships with insurance industry; small city like this lacks political will and resources.	Maybe – Losses can be reduced with good insurance, but this measure is voluntary.	Eliminate
Establish alert systems and specific outreach efforts for vulnerable populations.	City has authority; can work with public health and hospital leadership/staff.	Requires administrative effort and costs; unsure how best to reach such populations.	No – no real populations exist other than the general public.	Eliminate
Fund weatherization programs to more low-income households.	Existing programs are available; can improve property tax base.	City would want a limited role and allow other partners to carry out programs on private property.	Yes – with dual result: weatherizing homes and improving living conditions.	Consider
Harden public buildings.	Existing building information is available to some degree.	Can be very expensive; consultants will be needed to identify scope of work and priorities; too few local resources.	Yes – with dual result: improved safety and longer overall building life; few long-term assets would benefit.	Eliminate
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	FEMA and State mandated part of the planning process that is simple to complete because jurisdiction meets regularly.	Requires someone to remind them to discuss the plan and the coming year’s projects during their meetings.	Yes – because carrying out the plan requires diligence and proactive effort.	Consider
Implement a comprehensive multi-media public education campaign for multiple hazards.	EMA would be natural leader for this; there are many resources and examples.	People tend to ignore efforts unless they are interesting. Sustained multi-media efforts can work.	Yes – people are generally unaware of this plan and updated info about each hazard.	Consider
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	County already has GIS in place but is managed by a third party. Flood maps are included.	Just of matter of SICOG sending shapefiles of plan data to the GIS provider. County would need to have a staff person to share hazard event data in the future.	Not really – unlikely to have a major decision-making impact on a small town.	Eliminate
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	Groups like SICOG and engineering firms can prepare these plans for a fee.	Plans come at a cost for the city and require public participation. Will require champions within the city.	Yes – but town would benefit from only a few of these options and does not have interest at this time.	Eliminate
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Can make response, recover, and mitigation easier and reduce long-term risks for the public. Some third parties owning utilities have resources outside of grant funding.	With limited City resources, it is difficult to justify redundancy in many cases; all utilities not City owned and operated.	Yes – but not compared to the cost, beyond what is already done to address looping and redundancy.	Eliminate
Initiate community preparedness programs.	State and FEMA resources available to assist local officials.	Formal programs for the public take time and public funds; few local staff and resources to carry out.	Yes – but only if the public participates.	Eliminate
Install hazard signs in area campgrounds, parks, and open spaces.	City has authority; not overly expensive.	Requires maintenance.	No – no largely populated recreational areas and public areas with unique hazards.	Eliminate
Install highway guardrails to keep vehicles on roadway.	IDOT has some funding for high priority areas.	Requires C/B justification before DOT investment; no City role on primary highways.	No – guardrails already installed where needed; traffic does not justify further investments.	Eliminate
Install quick-connect emergency	Can be less expensive than	Requires access or	Yes – may make sense	Eliminate

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
generator hook-ups for facilities.	permanent fixed generators; can implement with any reasonably modern public asset	availability of portable generator.	at the community building; however, City has not planned this activity.	
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Vegetation options offer dual purpose with little maintenance; temporary options can be inexpensive; if voluntary, can be easy to install at prioritized locations.	If permanent requires permanent access; seasonal requires temporary access; need to identify locations and priorities; maintenance issues.	Not really – at least on public spaces; very little need within the City.	Eliminate
Institute alternative bus routes and plans for road closures.	No cost for the City.	City has no authority or role; owns no buses.	No – not an issue for the City; not needed within corporate limits.	Eliminate
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	Little or no cost; promotes collaboration as a policy.	Requires sustained effort to keep groups engaged.	No – there are few true groups in the city and those are already engaged.	Eliminate
Promote the value of installation of private in-home tornado safe rooms.	More suppliers are available for these; EMA can lead a low cost encouragement activity.	Requires time and administrative effort.	Yes – as many homes are without sturdy basements, home safe rooms, or community safe rooms near them.	Consider
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Low-cost encouragement activity; energy companies can provide this information.	Requires administrative effort and time by all parties.	Yes – as long as effort is sustained and well designed, but City role may be limited.	Eliminate
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	While a previous funding mechanism existed for a rebate program or free radios, the funds are now too limited; encouragement actions are not expensive.	Incentive program is expensive.	Yes – if they are used; other alert systems are often supplanting this in use and popularity.	Eliminate
Provide safe room education for builders and developers.	Information is readily available via FEMA 361 guidance. EMA can lead a low cost educational activity.	City lacks interest/staffing in providing the actual program but is not opposed to it. Safe room funding is limited at this time.	Yes – it could result in enhanced construction practices or more in-home safe rooms installed.	Eliminate
Purchase snow trucks, plows, sanders.	City has authority.	Lack of staffing to use and maintain; expensive; requires space to store.	Maybe – but it may make more sense for the County or private contractors to provide this service.	Eliminate
Purchase stand-by portable pumps and generators.	City has authority; does not take excessive space or require high level staffing and maintenance.	Requires ability to connect to buildings and means for City to transport and fuel.	Yes – for storm water, wastewater, and other infrastructure management efforts.	Consider
Purchase/install backup fixed power generators and pumps.	Permanent solution compared to a portable generator; City has authority.	Can be expensive, depending on the site.	Yes – but City has not expressed interest of providing shelter at the community building.	Eliminate
Require burial of utility lines in new development.	City has authority but no direct control over utility line placement.	Can be like zoning; requires some administrative activity; little political will.	Yes – but only if new development of any magnitude is likely.	Eliminate
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	Can be part of building codes, which are not yet adopted; State/FEMA has resources to identify issues and offer solutions.	Inspector is needed; existing staff expertise is not in place. Political will for these kinds of activities on private property is limited.	Yes – if buildings are actually built to this standard. New development is unlikely.	Eliminate
Store digital and hard copies of public records in low-risk, offsite locations.	Low cost measure; city has authority.	Requires a policy as to who has access; requires dedicate space.	Yes – to an extent; if there are vital records.	Consider
Strengthen exposed utility and communications infrastructure.	Has been started by partner organizations; FEMA funding is available; is an	Expensive and requires priorities as to where investment is needed most.	Yes – most of the local overhead utilities are aging.	Consider

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
	Alliant Energy priority.			

Mitigation Capability Analysis by Action in Maloy

The following table lists “New” and “Carryover” mitigation actions and corresponding capabilities that can be expanded by action as well as capability limitations. Also, a brief conclusion is provided, whether the individual action should be considered in cost-benefit review or should be eliminated from review.

It should be noted before reviewing this table that Maloy is a very small community of less than 100 people. While there may be some interest and certainly some need to do many of the following projects, the City elects to include only a relatively few as “consider” actions for the final step in the STAPLE-E evaluation process simply because there are too few resources to take on additional projects.

Figure 4.27: Capability Analysis of Mitigation Actions – Maloy

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Acquire and use conservation easements and restrictive covenants to prevent development in known hazard areas.	City has authority to do this and it is relatively low-cost to acquire easements on undeveloped property; flood information is known.	Other hazard boundaries are not really defined; there is not much political will or local resources to take on this kind of project.	No – Local officials really cannot identify properties where this makes sense.	Eliminate
Adopt a continuity of operations & succession plan for the jurisdiction.	Some State/FEMA technical assistance available and can be County coordinated.	Will not make sense to go through process if much expense.	Yes – should be low cost and provide a plan in case of disaster.	Consider
Adopt manufactured home development storm shelter ordinances.	Is legal and can improve mitigation of hazards in these areas if proper standards are used.	There is no zoning in place, so this may be more difficult to implement; not politically popular.	No – no existing major MH developments exist and none are likely to be developed.	Eliminate
Adopt the current FIRM maps as applicable to each jurisdiction.	City has authority and FEMA/State sees this is priority. Low or no real cost.	This action implies the City will implement the NFIP, which has some level of administrative investment.	Yes – Necessary to implement the NFIP.	Consider
Adopt tree trimming ordinances.	City has legal authority; not a costly action; example ordinances exist.	Generally unnecessary on public ROW areas; there is little will to have City enforcement on private property.	Yes – if support provided by energy company.	Consider
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	City has legal authority. Organizations like SICOG are available to help prepare documents.	Some aspects of code enforcement require specialized skills, which can be costly. So far there is no or very little will to implement and no zoning commission.	No - Not many homes are being built and there are no plans for major developments.	Eliminate
Bury exposed utility and communications infrastructure.	Because of the franchise with Alliant, City has no authority; REC and Alliant are strong partners in the planning process; FEMA has funded some work on high-voltage lines, but not burial.	Cost is very high compared to need, so priorities must be identified. Alliant rep on planning team indicates it is a mid- or long-term priority due to the cost.	Yes – however, strengthening overhead lines may make more sense in a town of this size with such low density.	Eliminate
Construct or repair dams; develop reservoirs and lakes (flood control, water source).	Can provide reliable water for fire suppression close to home.	Requires large amounts of land and is very expensive; water source already available so political will is limited; too few resources.	No – Not a feasible project within the boundaries or directly adjacent to the city.	Eliminate
Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	Secondary roads could be involved in design and the installation process; may be able to achieve some grants; city has legal authority.	Can become expensive; lack of city staff to build and maintain; facilities would be limited and targeted only, not full curb/gutter throughout.	Yes – but there is limited political will/funds to go to this level of investment on streets.	Eliminate

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Is a State and FEMA priority but funding is limited at this time; SICOG is available to assist with application process.	Requires engineering and is expensive compared to normal construction; FEMA funding is very limited at this time.	Yes – city has interest in this action when any future community asset it built.	Consider
Create and maintain a special needs/oxygen user registration program or inventory.	Offers benefits to utilities, EMTs, fire, and other emergency responders and would not be too costly to administer.	Can be a legal problem if it is not voluntary due to HIPPA laws; little political will at city level; fire departments and utility companies can handle more strategically.	No – There is no fire or emergency service based in the city; no local role.	Eliminate
Demolish abandoned properties.	City has authority.	Need is considerable, so cost is likely to be high; city lacks resources.	Maybe but the City lacks resources and political will when reviewing the final project list.	Eliminate
Discourage/prohibit development in flood plain areas; join or continue participation in the NFIP.	Is a FEMA/State mandate if desiring FEMA/State funds.	Requires political will and some administrative capacity.	Yes – can prevent some future flooding hazards and grants access to funding, even if new development is not likely.	Consider
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	County Secondary Roads may have a role with the county highway bridge.	City may be required to help fund embankment repairs to bridge and has limited funds.	Yes – County highway bridge was identified as a local asset subject to flood damage.	Consider
Encourage property owners to own adequate property insurance.	Relatively low-cost effort that can be done anytime; EMA can have a countywide role.	Nearly requires partnerships with insurance industry.	Maybe – Losses can be reduced with good insurance, but this measure is voluntary.	Consider
Encourage the implementation of water-saving measures, including soil and water conservation practices.	Relatively low-cost effort that can be done anytime. Resources on practices are available outside of the city.	Requires partnerships with conservation groups to provide information to the right people; city lacks resources.	Not likely – very little area in the city would participate in a watershed partnership strategy.	Eliminate
Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	Relatively low-cost effort that can be done anytime. Resources are increasingly available; projects are popular, and becoming more viable.	Few local or regional examples of some of these practices; requires support of applicable professionals and outside resources.	Maybe, but the City does not find areas where this is strongly needed and makes sense.	Eliminate
Fund weatherization programs to more low-income households.	Existing programs are available; can improve property tax base.	City would want a limited role and allow other partners to carry out programs on private property.	Yes – with dual result: weatherizing homes and improving living conditions, but City lacks resources to be involved.	Eliminate
Harden public buildings.	Existing building information is available to some degree.	Can be very expensive; consultants will be needed to identify scope of work and priorities.	Yes – with dual result: improved safety and longer overall building life.	Eliminate
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	FEMA and State mandated part of the planning process that is simple to complete because jurisdiction meets regularly.	Requires someone to remind them to discuss the plan and the coming year’s projects during their meetings.	Yes – because carrying out the plan requires diligence and proactive effort.	Consider
Implement a comprehensive multi-media public education campaign for multiple hazards.	EMA would be natural leader for this; there are many resources and examples.	People tend to ignore efforts unless they are interesting. Sustained multi-media efforts can work.	Yes – people are generally unaware of this plan and updated info about each hazard.	Consider
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	County already has GIS in place but is managed by a third party. Flood maps are included.	Just of matter of SICOG sending shapefiles of plan data to the GIS provider. County would need to have a staff person to share hazard	Not really – unlikely to have a major decision-making impact on a very small town.	Eliminate

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	Groups like SICOG and engineering firms can prepare these plans for a fee.	event data in the future. Plans come at a cost for the city and require public participation. Will require champions within the city.	Not really – while planning makes sense, the town is too small to justify a stand-alone plan of this nature.	Eliminate
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Can make response, recover, and mitigation easier and reduce long-term risks for the public. Some third parties owning utilities have resources outside of grant funding.	With limited City resources, it is difficult to justify redundancy in many cases; all utilities not City owned and operated.	Yes – but not compared to the cost, beyond what is already done to address looping and redundancy.	Eliminate
Initiate community preparedness programs.	State and FEMA resources available to assist local officials.	Formal programs for the public take time and public funds; few local staff and resources to carry out.	Yes – but only if the public participates. City has some interest in such an effort.	Consider
Install flood gauges.	State and FEMA interest area.	City does not really have a role.	No – if there were need for a flood gauge in city, it would be installed already.	Eliminate
Install highway guardrails to keep vehicles on roadway.	IDOT has some funding for high priority areas.	Requires C/B justification before DOT investment; no City role on primary highways.	No – guardrails already installed where needed; traffic does not justify further investments.	Eliminate
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Vegetation options offer dual purpose with little maintenance; temporary options can be inexpensive; if voluntary, can be easy to install at prioritized locations.	If permanent requires permanent access; seasonal requires temporary access; need to identify locations and priorities; maintenance issues.	Maybe – limited need on public property but can offer some wind protect to structures; city lacks interest in this option.	Eliminate
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	Little or no cost; promotes collaboration as a policy.	Requires sustained effort to keep groups engaged.	No – there are few true groups in the city and those are already engaged.	Eliminate
Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	Can be a low-cost retrofit if the building is modern; City authority if City owned.	Expensive, especially for older buildings without modern electrical elements.	No – no buildings over 2 stories in the city.	Eliminate
Maintain sandbags in dry storage.	County Secondary Roads has storage facilities, but space is limited.	Cost and space needed to maintain the sandbags if filled at all times.	No – No major areas where it makes sense to deploy them; in major emergency, they are likely available from State.	Eliminate
Participate in the FEMA Community Rating Service (CRS) program.	City has the necessary information to join NFIP but has not done it yet.	Requires more administrative effort than simple NFIP participation.	Maybe – if all measures taken, but only minor impact.	Eliminate
Promote the value of installation of private in-home tornado safe rooms.	More suppliers are available for these; EMA can lead a low cost encouragement activity.	Requires time and administrative effort.	Yes – as many homes are without sturdy basements, home safe rooms, or community safe rooms near them.	Consider
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Low-cost encouragement activity; County and insurance industry resources available.	Requires administrative effort and time by all parties.	Yes – as long as effort is sustained and well designed.	Consider
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	While a previous funding mechanism existed for a rebate program or free radios, the funds are now too limited; encouragement actions are not expensive.	Incentive program is expensive.	Yes – if they are used; other alert systems are often supplanting this in use and popularity; City has interest in this activity.	Consider
Provide safe room education for	Information is readily	Safe room funding is limited	Yes – it could result in	Eliminate

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
builders and developers.	available via FEMA 361 guidance. EMA can lead a low cost educational activity.	at this time.	more in-home safe rooms installed; however, City lacks resources to carry out.	
Require burial of utility lines in new development.	City has authority but no direct control over utility line placement.	Can be like zoning; requires some administrative activity.	Yes – but only when new development is built, which is not likely.	Eliminate
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	Can be part of building codes, which are not yet adopted; State/FEMA has resources to identify issues and offer solutions.	Inspector is needed; existing staff expertise is not in place. Political will for these kinds of activities on private property is limited.	Yes – if buildings are actually built to this standard. Encouragement is more likely to be used.	Eliminate
Strengthen exposed utility and communications infrastructure.	Has been started by partner organizations; FEMA funding is available; is an Alliant Energy priority.	Expensive and requires priorities as to where investment is needed most.	Yes – most of the rural overhead utilities are aging.	Consider

Mitigation Capability Analysis by Action in Mount Ayr

The following table lists “New” and “Carryover” mitigation actions and corresponding capabilities that can be expanded by action as well as capability limitations. Also, a brief conclusion is provided, whether the individual action should be considered in cost-benefit review or should be eliminated from review.

Figure 4.28: Capability Analysis of Mitigation Actions – Mount Ayr

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Acquire and demolish or relocate buildings/infrastructure in high-risk areas.	FEMA strongly supports action with funding programs; Official flood maps exist but other site-specific hazards are not well analyzed.	This can apply to many hazards, including flooding. Funding is limited, but projects can be prioritized based on a BCA.	No – Local officials really cannot identify properties where this makes sense.	Eliminate
Acquire and use conservation easements and restrictive covenants to prevent development in known hazard areas.	City has authority to do this and it is relatively low-cost to acquire easements on undeveloped property; flood information is known.	Other hazard boundaries are not really defined; there is not much political will or local resources to take on this kind of project.	No – Local officials really cannot identify properties where this makes sense.	Eliminate
Acquire flood prone buildings and convert to open space/green space or elevate to or above base flood elevation or above flash flood reach.	FEMA strongly supports action with funding programs; FIRM maps are in place and adopted by the county.	There appears to be no actual homes in the flood hazard area. Such programs are costly to implement and may not BCA.	No – While a relevant action, local officials have not identified significant structures in the SFHA.	Eliminate
Adopt a continuity of operations & succession plan for the jurisdiction.	Some State/FEMA technical assistance available and can be County coordinated.	Will not make sense to go through process if much expense.	Yes – should be low cost and provide a plan in case of disaster.	Consider
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Relatively low cost option to undertake with next code update.	Requires assistance from professionals skilled in law and policy.	Yes – can address multiple hazards.	Consider
Adopt manufactured home development storm shelter ordinances.	Is legal and can improve mitigation of hazards in these areas if proper standards are used.	Ordinances for zoning and mobile homes exist; however, requirements for sheltering are minimal.	Yes – while new mobile home “parks” are not likely, existing MHs exist.	Consider
Build highway or rail overpasses to reduce intersection accidents.	City has authority and some road standards; admin staffing exists; consulting engineers available for technical staff.	Very expensive and has only modest mitigation value unless traffic is high.	No – No area with enough traffic to justify.	Eliminate
Bury exposed utility and communications infrastructure.	Because of the franchise with Alliant, City has no authority; REC and Alliant are strong partners in the planning process; FEMA	Cost is very high compared to need, so priorities must be identified. Alliant rep on planning team indicates it is a mid- or long-term priority	Yes – as a longer-term project, it can make a difference in a town the size of Mount Ayr.	Consider

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
	has funded some work on high-voltage lines, but not burial.	due to the cost.		
Clear and deepen roadside ditches.	City has authority and can perform much of the work; street plan has already been developed; City has storm water utility to fund this.	Some outside equipment and engineering may be needed.	Yes – when it is not possible to build more modern and permanent infrastructure, such as curb and gutter	Consider
Codify restricted access procedures.	City has some authority on certain properties. State can provide assistance.	Can result in legal challenges; difficult to enforce; City may not be the best entity to implement this measure.	Yes – but only in unique situations, such as flooding and following terrorist attacks.	Eliminate
Construct and/or improve berms, levees, or floodwalls around water/sewer plants and other critical assets that must be located in hazard areas.	Is a State and FEMA priority but funding is limited at this time.	Local resources are lacking for an expensive project.	No – the City cannot identify major critical assets in the city to which this applies.	Eliminate
Construct or repair dams; develop reservoirs and lakes (flood control, water source).	Can provide reliable water for fire suppression close to home; one dam already exists and is inspected with no major problems found; was water source lake but infrastructure has been removed.	Water source already available so political will is limited; too few resources; would take much work and permitting to bring the city lake back online for water; dry hydrant can be tapped for fire needs in the area.	Maybe – but the project would require more land than can be dedicated or development outside of the city.	Eliminate
Construct storage facilities for pesticides, insecticides, and chemicals.	May not cost too much to do.	Could be expensive if large volume; would need to be involved with private property owners.	No – limited impact; unsure if a need even exists or if these hazards are present.	Eliminate
Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	City has interest and with storm water utility has some resources; city staff available; County and State have technical resources.	Requires prioritization of projects due to the magnitude of cost; will require outside engineers for much of design.	Yes – a survey of conditions showed great need for this kind of infrastructure along many streets and in yards.	Consider
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Is a State and FEMA priority but funding is limited at this time; SICOG is available to assist with application process.	Requires engineering and is expensive compared to normal construction; FEMA funding is very limited at this time.	Yes – while some exist, other entities may want to build them for shelter of their populations.	Consider
Continue hazardous materials agreements, support enforcement of Occupational Safety and Health Administration’s (OSHA) regulations, and support regional hazardous materials teams.	Continuing hazardous materials agreements is beneficial and desirable.	OSHA compliance is not in the range of local capabilities and jurisdiction.	Yes – can reduce costs, property damages, and health issues, and can reduce liabilities.	Consider
Create and maintain a special needs/oxygen user registration program or inventory.	Offers benefits to utilities, EMTs, fire, and other emergency responders and would not be too costly to administer.	Can be a legal problem if it is not voluntary due to HIPPA laws; little political will at county level; fire departments and utility companies can handle more strategically.	Yes – but only if utility companies and fire departments are interested; interest level is low at this time.	Eliminate
Designate/enforce HAZMAT transportation routes.	City has some administrative staff and political will; authority exists.	Requires enforcement beyond the costs of signage and notifications.	Yes – if enforced, they can reduce losses; traffic of such materials needs to justify.	Consider
Discourage/prohibit development in flood plain areas; join or continue participation in the NFIP.	This is a FEMA/State mandate if desiring FEMA/State funds.	Requires political will and some administrative capacity.	Yes – can prevent some future flooding hazards and grants access to funding, even if only a very small undevelopable part of the city is in the	Consider

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Encourage citizen purchase/use of smoke detectors and fire extinguishers with an incentive program.	Local fire department exists that can implement the project; funding for incentives can involve City; EMA can assist.	Incentive program can quickly become expensive.	SFHA. Yes – with local city and county partnership.	Consider
Encourage property owners to own adequate property insurance.	Relatively low-cost effort that can be done anytime; EMA can have a countywide role.	Requires partnerships with insurance industry and sustained effort.	Maybe – Losses can be reduced with good insurance, but this measure is voluntary.	Consider
Encourage the implementation of water-saving measures, including soil and water conservation practices.	Relatively low-cost effort that can be done anytime. Resources on practices are available outside of the city.	Requires partnerships with conservation groups to provide information to the right people; city lacks resources.	Not likely – very little area in the city would participate in a watershed partnership strategy.	Eliminate
Encourage the use of non-combustible materials (i.e. stone, brick, etc.) for structures in wildfire hazard areas.	Relatively low-cost effort that can be done anytime. Resources are increasingly available; zoning and subdivision regulations already exist; FEMA has example regulations.	No one has strong, precise data on where wildfire risk is highest; would require amendment to existing ordinances.	Maybe – on some fringe areas of town where some development is occurring.	Consider
Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	City has interest and with storm water utility has some resources; city staff available; County and State have technical resources; grant funds available.	Few local or regional examples of some of these practices; requires support of applicable professionals and outside resources.	Yes – serves a dual function of storm water control and water quality improvement.	Consider
Establish backup utilities and communications infrastructure; use the latest technology.	Technology and resources are increasingly available and affordable; city has a base of staff to carry out.	Maintenance of communications is expensive; requires IT budget and additional technical resources.	Yes – can save lives and reduce losses and allows connection with out-of county resources.	Consider
Flood proof critical assets in the community.	General – allows for flexible projects; Strong FEMA funding priority.	Can be expensive and must be based on specific identified need.	Yes – once assets are clearly delineated, more for flash flood.	Consider
Harden public buildings.	Existing building information is available to some degree.	Can be very expensive; consultants will be needed to identify scope of work and priorities.	Yes – with dual result: improved safety and longer overall building life.	Eliminate
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	FEMA and State mandated part of the planning process that is simple to complete because jurisdiction meets regularly.	Requires someone to remind them to discuss the plan and the coming year’s projects during their meetings.	Yes – because carrying out the plan requires diligence and proactive effort.	Consider
Implement a comprehensive multi-media public education campaign for multiple hazards.	EMA would be natural leader for this; there are many resources and examples.	People tend to ignore efforts unless they are interesting. Sustained multi-media efforts can work.	Yes – people are generally unaware of this plan and updated info about each hazard.	Consider
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	County already has GIS in place but is managed by a third party. Flood maps are included.	Just of matter of SICOG sending shapefiles of plan data to the GIS provider. County would need to have a staff person to share hazard event data in the future.	Yes – if data is updated and used to make decisions.	Consider
Implement stream modifications/channel improvements and stream bank stabilization.	City has resources in the form of the storm water utility; some grant resources and staffing at county level exist; some stream bank improvements have been engineer designed.	Limited resources unless grants are obtained; requires permits.	Yes – while no major flood areas, small streams can be improved and stop soil erosion.	Consider
Implement tree planting programs and install shade structures in crowd centers.	City is working on such a program in the city park, but it limited.	Resources to expand are necessarily in order to have a true result.	Yes – if strategically planted and the proper varieties for hardiness	Consider

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Improve capital communications technology, such as cell towers and fiber cable lines, to better withstand hazards.	Outside firms invest in infrastructure and have some of their own resources.	No city jurisdiction or involvement; very expensive.	and shade. Maybe – depending on durability of existing towers and technologies.	Eliminate
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Can make response, recover, and mitigation easier and reduce long-term risks for the public. Some third parties owning utilities have resources outside of grant funding.	Limited financial resources are available for the magnitude of possible projects. Would require some grants, third-party investments, and priorities.	Yes – when targeted based on infrastructure studies.	Consider
Initiate community preparedness programs.	State and FEMA resources available to assist local officials.	Formal programs for the public take time and public funds; few local staff and resources to carry out.	Yes – but only if the public participates; being the largest town, it may make sense.	Consider
Install access barriers around certain chemical tanks.	Laws in place allow the City to have some oversight on this issue.	More of a law enforcement and property insurance issue, with little City involvement.	Maybe – but theft of fuel and drug materials has declined. Some exposed tanks exist.	Eliminate
Install flood gauges.	State and FEMA interest area.	City does not really have a role.	No – if there were need for a flood gauge in city, it would be installed already.	Eliminate
Install highway guardrails to keep vehicles on roadway.	IDOT has some funding for high priority areas.	Requires C/B justification before DOT investment; no County role on primary highways.	No – guardrails already installed where needed; traffic does not justify further investments.	Eliminate
Install sprinkler systems in public buildings.	Would apply to specific highly occupied buildings, including some where sprinklers are not required or were not required when originally built.	Not required for most structures and would be expensive to retrofit.	Yes – some buildings could benefit from this measure, even if not required by law.	Consider
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Vegetation options offer dual purpose with little maintenance; temporary options can be inexpensive; if voluntary, can be easy to install at prioritized locations.	If permanent, requires permanent access; seasonal requires temporary access; need to identify locations and priorities; maintenance issues.	Not really – at least on public spaces; very little need within the City.	Eliminate
Institute alternative bus routes and plans for road closures.	No cost for the City.	City has no authority or role.	No – not an issue for the City; not needed within corporate limits.	Eliminate
Investigate alternative water sources for fire suppression.	With SIRWA in place, the basic resources to address this problem exist.	Costs and time to come up with a solution and then fund the solution; County’s role is minimal.	Yes – even though the City has larger water mains and fire hydrants, additional resources make sense.	Consider
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	Little or no cost; promotes collaboration as a policy.	Requires sustained effort to keep groups engaged.	Yes – enough groups exist in Mount Ayr to be worth engaging.	Consider
Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	Can be a low-cost retrofit if the building is modern; City authority if City owned.	Expensive, especially for older buildings without modern electrical elements.	Maybe – unsure what buildings may have need; only about a dozen structures over 25’ in height.	Consider
Maintain sandbags in dry storage.	City has some storage space, but space is limited.	Cost and space needed to maintain the sandbags if filled at all times.	No – No major areas where it makes sense to deploy them; in major emergency, they are likely available from State.	Eliminate

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Participate in the FEMA Community Rating Service (CRS) program.	City has the necessary information to join NFIP but has not done it yet.	Requires more administrative effort than simple NFIP participation.	Maybe – if all measures taken, but only minor impact.	Eliminate
Promote the value of installation of private in-home tornado safe rooms.	More suppliers are available for these; EMA can lead a low cost encouragement activity.	Requires time and administrative effort.	Yes – as many homes are without sturdy basements or home safe rooms. Some are more than 5 minutes walk from the community/school safe room.	Consider
Promote to property owners the importance of tree and vegetation maintenance on private properties.	Low-cost encouragement activity; Government and insurance industry resources available.	Requires administrative effort and time by all parties.	Yes – as long as effort is sustained and well designed.	Consider
Provide adequate access to safe drinking water in all public spaces, including outdoor spaces, such as parks and playgrounds.	Grants may be available; city has authority on public property; water mains already exist.	May require some administration, design, and maintenance.	Yes – in any un-served areas of city parks that have regular use.	Consider
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	While a previous funding mechanism existed for a rebate program or free radios, the funds are now too limited; encouragement actions are not expensive.	Incentive program is expensive.	Yes – if they are used; other alert systems are often supplanting this in use and popularity; City has interest in this activity.	Consider
Provide safe room education for builders and developers.	Information is readily available via FEMA 361 guidance. EMA can lead a low cost educational activity. The city pool safe room can be used as case study.	Safe room funding is limited at this time; would require some expert to offer the on-site training.	Yes – it could result in enhanced construction practices or more in-home safe rooms installed.	Consider
Purchase stand-by portable pumps and generators.	City has authority; does not take excessive space or require high level staffing and maintenance.	Requires ability to connect to buildings and means for City to transport and fuel.	Yes – in Mount Ayr, the number of assets would justify city maintaining more of this equipment.	Consider
Purchase/install backup fixed power generators and pumps.	Offers permanent option to ensure City capabilities are maintained during/after hazard event.	Requires maintenance and upkeep; can be expensive if a large generator needed.	Yes – possible need for a fixed generator at a few assets not yet served.	Consider
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	Has little bearing on City capabilities; IDNR is often involved.	Unsure of extent of need; low political will to invest on private property; however, City leaders are concerned about hazardous materials.	Yes – leaking tanks are regulated, but other issues listed need more investment.	Consider
Require burial of utility lines in new development.	City has authority but no direct control over utility line placement; zoning and subdivision regulations are in place and city has building official.	Requires some administrative capacity.	Yes – but only when new development is built, which is somewhat likely on a small scale.	Consider
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	Can be part of building codes, which are adopted; State/FEMA has resources to identify issues and offer solutions.	Inspector with this expertise is needed. Political will for these kinds of activities on private property is limited.	Yes – if buildings are actually built to this standard. Encouragement is a feasible option to subdivision design requirements.	Consider
Strengthen exposed utility and communications infrastructure.	Has been started by partner organizations; FEMA funding is available; is an Alliant Energy priority.	Expensive and requires priorities as to where investment is needed most.	Yes – most of the city’s overhead utilities are aging.	Consider

Mitigation Capability Analysis by Action in Tingley

The following table lists “New” and “Carryover” mitigation actions and corresponding capabilities that can be expanded by action as well as capability limitations. Also, a brief conclusion is provided, whether the individual action should be considered in cost-benefit review or should be eliminated from review.

It should be noted before reviewing this table that Tingley is a very small community of less than 200 people. While there may be some interest and certainly some need to do many of the following projects, the City elects to include only a relatively few as “consider” actions for the final step in the STAPLE-E evaluation process simply because there are too few resources to take on additional projects.

Figure 4.29: Capability Analysis of Mitigation Actions – Tingley

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Adopt a continuity of operations & succession plan for the jurisdiction.	Some State/FEMA technical assistance available and can be County coordinated.	Will not make sense to go through process if much expense.	Yes – should be low cost and provide a plan in case of disaster.	Consider
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	Relatively low cost option to undertake with next code update.	Requires assistance from professionals skilled in law and policy.	Yes – can address multiple hazards.	Consider
Adopt manufactured home development storm shelter ordinances.	Is legal and can improve mitigation of hazards in these areas if proper standards are used.	There is no zoning in place, so this may be more difficult to implement; not politically popular.	No – no existing major MH developments exist and none are likely to be developed.	Eliminate
Adopt tree trimming ordinances.	City has legal authority; not a costly action.	Generally unnecessary on public ROW areas; there is little will to have City enforcement on private property.	No – No real need for this action on a major scale and the city has little means to enforce.	Eliminate
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	City has legal authority. Organizations like SICOG are available to help prepare documents.	Some aspects of code enforcement require specialized skills, which can be costly. So far there is no or very little will to implement and no zoning commission.	No - Not many homes are being built and there are no plans for major developments.	Eliminate
Bury exposed utility and communications infrastructure.	Because of the franchise with Alliant, City has no authority; REC and Alliant are strong partners in the planning process; FEMA has funded some work on high-voltage lines, but not burial.	Cost is very high compared to need, so priorities must be identified. Alliant rep on planning team indicates it is a mid- or long-term priority due to the cost.	Yes – however, strengthening overhead lines may make more sense in a town of this size with such low density.	Eliminate
Construct storage facilities for pesticides, insecticides, and chemicals.	May not cost too much to do.	Could be expensive if large volume; would need to be involved with private property owners.	No – limited impact; unsure if a need even exists or if these hazards are present.	Eliminate
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Is a State and FEMA priority but funding is limited at this time; SICOG is available to assist with application process.	Requires engineering and is expensive compared to normal construction; FEMA funding is very limited at this time.	Yes – city has interest in this action when any future community asset it built.	Consider
Create and maintain a special needs/oxygen user registration program or inventory.	Offers benefits to utilities, EMTs, fire, and other emergency responders and would not be too costly to administer.	Can be a legal problem if it is not voluntary due to HIPPA laws; little political will at county level; fire departments and utility companies can handle more strategically.	Yes – but not in the jurisdiction of the county.	Eliminate
Demolish abandoned properties.	City has authority.	Need is considerable, so cost is likely to be high.	Yes – need is considerable and local interest is high; offers due role of also increasing property values.	Consider
Encourage property owners to own	Relatively low-cost effort	Nearly requires partnerships	Maybe –Losses can be	Consider

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
adequate property insurance.	that can be done anytime; EMA can have a countywide role.	with insurance industry.	reduced with good insurance, but this measure is voluntary.	
Fund weatherization programs to more low-income households.	Existing programs are available; can improve property tax base.	City would want a limited role and allow other partners to carry out programs on private property.	Yes – with dual result: weatherizing homes and improving living conditions.	Consider
Harden public buildings.	Existing building information is available to some degree.	Can be very expensive; consultants will be needed to identify scope of work and priorities.	Yes – with dual result: improved safety and longer overall building life.	Eliminate
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	FEMA and State mandated part of the planning process that is simple to complete because jurisdiction meets regularly.	Requires someone to remind them to discuss the plan and the coming year’s projects during their meetings.	Yes – because carrying out the plan requires diligence and proactive effort.	Consider
Implement a comprehensive multi-media public education campaign for multiple hazards.	EMA would be natural leader for this; there are many resources and examples.	People tend to ignore efforts unless they are interesting. Sustained multi-media efforts can work.	Yes – people are generally unaware of this plan and updated info about each hazard.	Consider
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	County already has GIS in place but is managed by a third party. Flood maps are included.	Just of matter of SICOG sending shapefiles of plan data to the GIS provider. County would need to have a staff person to share hazard event data in the future. City lacks interest in being involved.	Yes – if data is updated and used to make decisions.	Eliminate
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	Groups like SICOG and engineering firms can prepare these plans for a fee.	Plans come at a cost for the county and require public participation. Will require champions within the county.	Yes – planning is needed generally.	Consider
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Can make response, recover, and mitigation easier and reduce long-term risks for the public. Some third parties owning utilities have resources outside of grant funding.	With limited City resources, it is difficult to justify redundancy in many cases; most utilities not City owned and operated.	Yes – but only in specific situations where need is great, not necessarily all utilities.	Consider
Initiate community preparedness programs.	State and FEMA resources available to assist local officials.	Formal programs for the public take time and public funds; few local staff and resources to carry out.	Yes – but only if the public participates.	Eliminate
Install hazard signs in area campgrounds, parks, and open spaces.	City has authority; not overly expensive.	Requires maintenance.	No – no largely populated recreational areas and public areas with unique hazards.	Eliminate
Install highway guardrails to keep vehicles on roadway.	IDOT has some funding for high priority areas.	Requires C/B justification before DOT investment; no City role on primary highways.	No – guardrails already installed where needed; traffic does not justify further investments.	Eliminate
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Vegetation options offer dual purpose with little maintenance; temporary options can be inexpensive; if voluntary, can be easy to install at prioritized locations.	If permanent requires permanent access; seasonal requires temporary access; need to identify locations and priorities; maintenance issues.	Yes – Tingley is located on the top of a ridge, where wind is an issue; can reduce damages and utility costs; City has some interest.	Consider
Institute alternative bus routes and plans for road closures.	No cost for the City.	City has no authority or role.	No – not an issue for the City; not needed within corporate limits.	Eliminate
Involve more groups in hazard mitigation (churches, chambers of	Little or no cost; promotes collaboration as a policy.	Requires sustained effort to keep groups engaged.	Maybe – there are not many groups in the	Consider

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
commerce, civic/service clubs, city/school employees, etc.)			city, but the City has interest in engaging those that exist.	
Promote the value of installation of private in-home tornado safe rooms	More suppliers are available for these; EMA can lead a low cost encouragement activity.	Requires time and administrative effort.	Yes – as many homes are without sturdy basements, home safe rooms, or community safe rooms near them.	Consider
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	While a previous funding mechanism existed for a rebate program or free radios, the funds are now too limited; encouragement actions are not expensive.	Incentive program is expensive.	Yes – if they are used; other alert systems are often supplanting this in use and popularity; City has some interest.	Consider
Provide safe room education for builders and developers.	Information is readily available via FEMA 361 guidance. EMA can lead a low cost educational activity.	City lacks interest in providing the actual program but is not opposed to it. Safe room funding is limited at this time.	Yes – it could result in enhanced construction practices or more in-home safe rooms installed.	Eliminate
Purchase stand-by portable pumps and generators.	City has authority; does not take excessive space or require high level staffing and maintenance.	Requires ability to connect to buildings and means for City to transport and fuel.	Maybe – but it makes more sense if the City has considerable assets and a public shelter.	Eliminate
Purchase/install backup fixed power generators and pumps.	Offers permanent option to ensure City capabilities are maintained during/after hazard event.	Requires maintenance and upkeep; can be expensive if a large generator needed.	No – no buildings require full-time power; assets that do require this are already served.	Eliminate
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	Can be part of building codes, which are not yet adopted; State/FEMA has resources to identify issues and offer solutions.	Inspector is needed; existing staff expertise is not in place. Political will for these kinds of activities on private property is limited.	Not really – very little development anticipated.	Eliminate
Strengthen exposed utility and communications infrastructure.	Has been started by partner organizations; FEMA funding is available; is an Alliant Energy priority.	Expensive and requires priorities as to where investment is needed most.	Yes – most of the rural overhead utilities are aging.	Consider

Mitigation Capability Analysis by Action in Diagonal School

The following table lists “New” and “Carryover” mitigation actions and corresponding capabilities that can be expanded by action as well as capability limitations. Also, a brief conclusion is provided, whether the individual action should be considered in cost-benefit review or should be eliminated from review.

It should be noted before reviewing this table that Diagonal School is one of the smallest in Iowa. While there may be some interest and certainly some need to do many of the following projects, the District elects to include only a relatively few as “consider” actions for the final step in the STAPLE-E evaluation process simply because there are too few resources to take on additional projects.

It should also be reminded that these mitigation actions are analyzed based only on impact the School District property and assets (buildings, land, and buses, for example), not the entire land of the school district.

Figure 4.30: Capability Analysis of Mitigation Actions – Diagonal School

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Adopt a continuity of operations & succession plan for the jurisdiction.	Some State/FEMA technical assistance available and can be County coordinated.	Will not make sense to go through process if much expense.	Yes – should be low cost and provide a plan in case of disaster.	Consider
Adopt and/or update a full range of local codes and policies to address	Relatively low cost option to undertake with next code	Requires assistance from professionals skilled in law	Yes – can address multiple hazards.	Consider

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
a range of hazard mitigation issues.	update.	and policy.		
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	School has legal authority. Organizations like SICOG are available to help prepare documents.	Some aspects of code enforcement require specialized skills, which can be costly. School not in role to practice zoning.	Yes – but school building design standards only; no zoning and land use regulations.	Consider
Bury exposed utility and communications infrastructure.	Because of the franchise with Alliant, School has little authority; Alliant is strong partner in the planning process; FEMA has funded some work on high-voltage lines, but not burial.	Cost is very high compared to need, so priorities must be identified. Alliant rep on planning team indicates it is a low or long-term priority due to the cost.	Yes – however, strengthening overhead lines may make more sense because not many lines come onto school property.	Eliminate
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Is a State and FEMA priority but funding is limited at this time; SICOG is available to assist with application process.	Requires engineering and is expensive compared to normal construction; FEMA funding is very limited at this time.	Yes – within existing school building or when any addition is proposed	Consider
Educate the public about the interconnected efforts needed to prevent and control infectious diseases and their role in protecting health.	Is a State priority; school is a natural partner because of education focus.	Requires some administrative effort; would rely on support and information from the State and County.	Yes – due to the large number of sick children annually and confined space that can breed infections.	Consider
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	Is a FEMA/State priority; can prevent flooding and deterioration of infrastructure.	Is expensive; requires administrative and technical staff.	Not really – there are no known issues on the campus where these activities are needed.	Eliminate
Encourage the use of non-combustible materials (i.e. stone, brick, etc.) for structures in wildfire hazard areas.	Relatively low-cost effort that can be done anytime. Resources are increasingly available.	No one has strong, precise data on where wildfire risk is highest; school would not have role in “encouragement” efforts on private properties.	Maybe – but School already builds to this standard on any permanent improvement.	Eliminate
Harden public buildings.	Existing building information is available to some degree.	Can be very expensive; consultants will be needed to identify scope of work and priorities.	Yes – with dual result: improved safety and longer overall building life.	Consider
Help community leaders and businesses to improve local public health response readiness.	Is a State priority; school is a natural partner because of education focus.	Requires some administrative effort; would rely on support and information from the State and County.	Yes – school is likely to benefit from all parties being ready for health hazards.	Consider
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	FEMA and State mandated part of the planning process that is simple to complete because jurisdiction meets regularly.	Requires someone to remind them to discuss the plan and the coming year’s projects during their meetings.	Yes – because carrying out the plan requires diligence and proactive effort.	Consider
Implement a comprehensive multi-media public education campaign for multiple hazards.	EMA would be natural leader for this and school can provide a venue; there are many resources and examples.	People tend to ignore efforts unless they are interesting. Sustained multi-media efforts can work.	Yes – people are generally unaware of this plan and updated info about each hazard.	Consider
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	County already has GIS in place but is managed by a third party. Flood maps are included.	Just of matter of SICOG sending shapefiles of plan data to the GIS provider. County would need to have a staff person to share hazard event data in the future.	Maybe, but not likely to have a dramatic impact or value to the school on its own.	Eliminate
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	Always an important local priority, but not many roads are actually on campus; therefore, not extremely expensive.	Resources to invest in any road improvements are difficult; requires technical resources.	Yes – but these improvements are not likely needed in the next five years.	Eliminate
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic	A school design or construction management firm can prepare these plans	Plans come at a cost for the school and require public participation. Will require	Yes – planning is needed generally.	Consider

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
plan, or other planning mechanisms.	for a fee.	champions within the school.		
Increase community and individual engagement in disease prevention efforts.	Is a State priority; school is a natural partner because of education focus.	Requires some administrative effort; would rely on support and information from the State and County.	Yes – aware and alert parents and families will reduce exposures to disease at school	Consider
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	Can make response, recover, and mitigation easier and reduce long-term risks for the public. Some third parties owning utilities have resources outside of grant funding.	With limited District resources, it is difficult to justify redundancy in many cases; most utilities not District owned and operated.	Yes – but not compared to the cost, beyond what is already done to address looping and redundancy.	Eliminate
Initiate community preparedness programs.	State and FEMA resources available to assist local officials.	Formal programs for the public take time and public funds; few local staff and resources to carry out.	Yes – but only if the public participates; school may not be best partner for major role.	Eliminate
Install quick-connect emergency generator hook-ups for facilities.	Can be less expensive than permanent fixed generators; can implement with any reasonably modern public asset.	Requires access or availability of portable generator.	Yes – school should have a fixed generator because of its size and the need to protect a specific population	Eliminate
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Vegetation options offer dual purpose with little maintenance; temporary options can be inexpensive; if voluntary, can be easy to install at prioritized locations.	If permanent requires permanent access; seasonal requires temporary access; need to identify locations and priorities; maintenance issues.	Not really – at least on school property; some wind protection exists.	Eliminate
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	Little or no cost; promotes collaboration as a policy.	Requires sustained effort to keep groups engaged.	Yes – with the school being a key partner and even hosting events.	Consider
Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	Can be a low-cost retrofit if the building is modern; School authority on campus.	Expensive, especially for older buildings without modern electrical elements.	Yes – school is one of the tallest buildings in Diagonal.	Consider
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	Incentive program does not make sense but purchasing them for each building and occupied bus may be a low-cost option.	Requires some administrative and technical support.	Maybe – at least for the school building and all occupied buses; District recognizes many use cell-based alerts, but cell service can fail.	Consider
Provide safe room education for builders and developers.	Schools could be natural partner; FEMA/State resources available.	Diagonal school has limited resources and little technical experience in this area; may be able to help students but not private contractors.	Maybe – but the school being involved just does not make sense.	Eliminate
Purchase stand-by portable pumps and generators.	District has authority; does not take excessive space or require high level staffing and maintenance.	Requires ability to connect to buildings and means for District to transport and fuel.	Yes – any school should have permanent reliable power supplies; also serves as a shelter.	Consider
Purchase/install backup fixed power generators and pumps.	District permanent option to ensure District capabilities are maintained during/after hazard event.	Requires maintenance and upkeep; can be expensive if a large generator needed.	Yes – any school should have permanent reliable power supplies; also serves as a shelter.	Consider
Reduce disease transmitted by animals and insects and foodborne infections.	District may have a small role as it pertains to the school food service.	Requires some administrative support.	Yes – due to the number of children participating in school breakfasts and lunches.	Consider
Remove asbestos from public buildings.	School staffers have pretty good idea of where any wrapped asbestos is.	Can be expensive but hazard is contained and can be left as is until remodeling in future	Yes – when needed during any remodeling projects; existing is not	Consider

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Strengthen exposed utility and communications infrastructure.	Has been started by partner organizations; FEMA funding is available; is an Alliant Energy priority.	disturbs it. Expensive and requires priorities as to where investment is needed most.	a major hazard right now. Yes – most of the overhead utilities in the area are aging.	Consider

Mitigation Capability Analysis by Action in Mount Ayr Schools

The following table lists “New” and “Carryover” mitigation actions and corresponding capabilities that can be expanded by action as well as capability limitations. Also, a brief conclusion is provided, whether the individual action should be considered in cost-benefit review or should be eliminated from review.

It should also be reminded that these mitigation actions are analyzed based only on impact the School District property and assets (buildings, land, and buses, for example), not the entire land of the school district.

Figure 4.31: Capability Analysis of Mitigation Actions – Mount Ayr Schools

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
Construct/integrate public safe rooms in or near existing and future community assets and parks.	Is a State and FEMA priority but funding is limited at this time; SICOG is available to assist with application process; School district has experience with safe rooms.	Requires engineering and is expensive compared to normal construction; FEMA funding is very limited at this time.	Yes – while one exists at the Middle/High School, the Elementary building is separated and does not have its own safe room.	Consider
Harden public buildings.	Existing building information is available to some degree.	Can be very expensive; consultants will be needed to identify scope of work and priorities.	Yes – with dual result: improved safety and longer overall building life, but only in weak areas of the envelope.	Consider
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	FEMA and State mandated part of the planning process that is simple to complete because jurisdiction meets regularly.	Requires someone to remind them to discuss the plan and the coming year’s projects during their meetings.	Yes – because carrying out the plan requires diligence and proactive effort.	Consider
Implement a comprehensive multi-media public education campaign for multiple hazards.	EMA would be natural leader for this; there are many resources and examples; school is natural partner.	People tend to ignore efforts unless they are interesting. Sustained multi-media efforts can work.	Yes – people are generally unaware of this plan and updated info about each hazard.	Consider
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	County already has GIS in place but is managed by a third party. Flood maps are included.	Just of matter of SICOG sending shapefiles of plan data to the GIS provider. County would need to have a staff person to share hazard event data in the future.	Maybe, but not likely to have a dramatic impact or value to the school on its own.	Eliminate
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	A school design or construction management firm can prepare these plans for a fee.	Plans come at a cost for the school and require public participation. Will require champions within the school.	Yes – planning is needed generally.	Consider
Increase community and individual engagement in disease prevention efforts.	Is a State priority; school is a natural partner because of education focus.	Requires some administrative effort; would rely on support and information from the State and County.	Yes – aware and alert parents and families will reduce exposures to disease at school	Consider
Initiate community preparedness programs.	State and FEMA resources available to assist local officials.	Formal programs for the public take time and public funds; few local staff and resources to carry out.	Yes – but only if the public participates; school may not be best partner for major role.	Eliminate
Install air monitors.	DHS and State priority to address chemical and	Could be expensive.	Yes – as the school could be a domestic	Consider

Mitigation Action	Significant Capabilities	Significant Shortcomings	Solves a Problem or Addresses a Need?	Result
	biological weapons; likely State/Fed technical assistance.		terrorism target.	
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	Vegetation options offer dual purpose with little maintenance; temporary options can be inexpensive; if voluntary, can be easy to install at prioritized locations.	If permanent requires permanent access; seasonal requires temporary access; need to identify locations and priorities; maintenance issues.	Not really – at least on school property; some wind protection exists.	Eliminate
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	Little or no cost; promotes collaboration as a policy.	Requires sustained effort to keep groups engaged.	Yes – with the school being a key partner and even hosting events.	Consider
Modernize infectious disease surveillance to drive public health actions.	School has some staffing and existing partnerships with parents and County and State health officials.	HIPPA concerns exist; depends on complexity of administrative effort.	Yes – due to the number of children in close proximity and the ease of transmission.	Consider
Prepare and implement a mass casualty plan to address of terrorism and infectious disease outbreaks.	State and Federal priority and assistance available; partnerships in place with local and regional authorities.	Can be complex and difficult to implement; will require many partners to create a meaningful plan.	Yes – if terrorism or other mass casualty event occurs, this should reduce losses and restore order more quickly.	Consider
Provide safe room education for builders and developers.	Schools could be natural partner; FEMA/State resources available.	Diagonal school has limited resources and little technical experience in this area; may be able to help students but not private contractors.	Maybe – but the school being involved just does not make sense.	Eliminate
Reduce disease transmitted by animals and insects and foodborne infections.	District may have a small role as it pertains to the school food service.	Requires some administrative support.	Yes – due to the number of children participating in school breakfasts and lunches.	Consider
Store digital and hard copies of public records in low-risk, offsite locations.	State priority; can be low cost, inclusive of the “cloud” and off-site hard copies.	Can be expensive depending on the magnitude of data managed; would require extra administrative step.	Yes – at least with the most critical data.	Consider

4.6: Selection of Alternative Mitigation Measures by Jurisdiction

As a means of implementing the goals and objectives, in this section, the alternative measures selected by jurisdiction are listed for further consideration later in the implementation strategy.

This part of the plan addresses the following Stafford Act requirement:

Section 201.6 (c)(3)(iv): For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval of the plan.

This section addresses the selected mitigation actions, showing that multiple actions are selected for each jurisdiction.

Ringgold County Plan Update Actions Included in the Previous Plan

This section is almost identical to Section 9.1.1 of the previous plan. However, the list of actions to be included has changed notably as a result of the modified review process described throughout this chapter.

The following matrix shows the alphabetized list of mitigation actions that are included in at least one jurisdiction’s strategy. The checkmarks indicate the jurisdictions that have selected the particular mitigation action as a new or carryover project for this plan. Those actions are detailed by jurisdiction in the remaining parts of the chapter. Note that the following list does not limit the types of actions that can be undertaken but rather lists those that the jurisdictions (local governments, schools, and other key stakeholder organizations in the county) seek to implement in the next five years from among the comprehensive list of alternatives provided.

Figure 4.32: Multi-jurisdictional List of Selected Mitigation Actions

Mitigation Action	Ringgold Co.	Benton	Diagonal	Ellston	Kellerton	Maloy	Mount Ayr	Tingley	Diagonal Schools	Mount Ayr Schools
Adopt a continuity of operations & succession plan for the jurisdiction.		✓	✓	✓	✓	✓	✓	✓	✓	
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Adopt manufactured home development storm shelter ordinances.							✓			
Adopt State fire codes.	✓									
Adopt the current FIRM maps as applicable to each jurisdiction.						✓				
Adopt tree trimming ordinances.						✓				
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.									✓	
Bury exposed utility and communications infrastructure.							✓			
Clear and deepen roadside ditches.							✓			
Complete storm water drainage or watershed studies of known flood areas.		✓	✓							
Construct or repair dams; develop reservoirs and lakes (flood control, water source).			✓							
Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.		✓	✓				✓			
Construct/integrate public safe rooms in or near existing and future community assets and parks.	✓	✓	✓		✓	✓	✓		✓	✓
Continue hazardous materials agreements, support enforcement of Occupational Safety and Health Administration’s (OSHA) regulations, and support regional hazardous materials teams.	✓						✓			
Demolish abandoned properties.					✓			✓		
Designate/enforce HAZMAT transportation routes.							✓			
Develop/enforce snow removal policies.				✓						
Discourage/prohibit development in flood plain areas; join or continue participation in the NFIP			✓			✓	✓			
Educate the public about the interconnected efforts needed to prevent and control infectious diseases and their role in protecting health.									✓	
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	✓					✓				
Encourage citizen purchase/use of smoke detectors and fire extinguishers with an incentive program.	✓	✓					✓			
Encourage property owners to own adequate property insurance.	✓					✓	✓	✓		
Encourage the implementation of water-saving measures, including soil and water conservation practices.	✓									
Encourage the use of non-combustible materials (i.e. stone, brick, etc.) for structures in wildfire hazard areas.							✓			
Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	✓	✓	✓				✓			
Enforce burning restrictions.	✓									
Establish backup utilities and communications infrastructure; use the latest technology.							✓			
Flood proof critical assets in the community.	✓									
Fund weatherization programs to more low-income households.	✓	✓	✓	✓	✓		✓	✓		
Harden public buildings.									✓	✓
Help community leaders and businesses to improve local public health response readiness.									✓	
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Implement a comprehensive multi-media public education campaign for multiple hazards.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	✓						✓			
Implement stream modifications/channel improvements and stream bank stabilization.							✓			

Mitigation Action	Ringgold Co.	Benton	Diagonal	Ellston	Kellerton	Maloy	Mount Ayr	Tingley	Diagonal Schools	Mount Ayr Schools
Implement tree planting programs and install shade structures in crowd centers.						✓				
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	✓	✓	✓							
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	✓							✓	✓	✓
Increase community and individual engagement in disease prevention efforts.									✓	✓
Increase production capacity; install redundant systems and (water, sewer, electric, gas).						✓	✓			
Initiate community preparedness programs.						✓	✓			
Install air monitors.										✓
Install hazard signs in area campgrounds, parks, and open spaces.			✓							
Install sprinkler systems in public buildings.						✓				
Install warning siren(s).			✓	✓						
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	✓							✓		
Investigate alternative water sources for fire suppression.	✓	✓				✓				
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	✓					✓	✓	✓		✓
Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.						✓		✓		
Modernize infectious disease surveillance to drive public health actions.										✓
Prepare and implement a mass casualty plan to address of terrorism and infectious disease outbreaks.										✓
Promote the value of installation of private in-home tornado safe rooms.	✓	✓	✓	✓	✓	✓	✓	✓		
Promote to property owners the importance of tree and vegetation maintenance on private properties.	✓					✓	✓			
Provide adequate access to safe drinking water in all public spaces, including outdoor spaces, such as parks and playgrounds.							✓			
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.				✓		✓	✓	✓	✓	
Provide safe room education for builders and developers.	✓					✓				
Purchase stand-by portable pumps and generators.			✓		✓	✓			✓	
Purchase/install backup fixed power generators and pumps.		✓		✓		✓			✓	
Reduce disease transmitted by animals and insects and foodborne infections.									✓	✓
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	✓					✓				
Remove asbestos from public buildings.									✓	
Require burial of utility lines in new development.	✓					✓				
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	✓					✓				
Store digital and hard copies of public records in low-risk, offsite locations.		✓	✓	✓	✓					✓
Strengthen exposed utility and communications infrastructure.	✓	✓	✓	✓	✓	✓	✓	✓	✓	

4.7: Evaluation Process for Alternative Mitigation Measures

All participating jurisdictions were involved in the identification of possible mitigation actions, as outlined in the handouts used in Appendix B and contents of the this chapter. The jurisdictions covered in the plan also helped with the evaluation of mitigation alternatives listed in this chapter through the prescribed process, as outlined in the next section.

This part of the plan addresses the following Stafford Act requirement:

Section 201.6 (c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

Earlier in this chapter the planning team identified by jurisdiction the mitigation actions that should be considered in the analysis and that are not complete, underway, or in place. At the sixth planning meeting, the planning team reviewed each alternative for further discussion. The individual jurisdictions analyzed each action during this phase and some were eliminated from further consideration in some jurisdictions simply because they made no sense with the demographics and capabilities of the area. The following tables are measures that have been listed locally for further consideration, where investments of time and other resources would be expected to make the greatest impact on protecting each jurisdiction from one or more Priority I hazards.

Using FEMA and State of Iowa guidance publications, the planning team met during the spring of 2018 to evaluate each of the proposed alternatives to determine which ones to remove from further consideration and to prioritize the remaining actions or measures.

Each action was reviewed according to STAPLE-E criteria: **Social, Technical, Administrative, Political, Legal, Economic, and Environmental considerations**. The planning team has reviewed each of the proposed hazard mitigation alternatives and scored them on several factors for each STAPLE-E criteria. The planning team created 11 questions that are designed to comprehensively evaluate each mitigation action in terms of costs and benefits. Each alternative action is evaluated on a plus scale. Questions are designed to ensure a yes or not applicable answer. Each question gets two points for a strong positive answer in scientific or technical terms and two points based on public input in that jurisdiction (if public input is made). To the right of the chart is a locally determined rating for overall priority, as given by public input, with “high” being given 5 points, “moderate” being given 3 points, and “low” being given 1 point. The totals are to the right. The raw spreadsheets used to calculate the scores are in Appendix **XXXX**.

The maximum score is 49 (4 times 11 plus 5 for a high interest item). Overall, the highest priority items have the highest scores.

The evaluation process does not necessarily pit two similar mitigation actions for one hazard and then selects one over the other. This is mainly because most mitigation measures impact many different hazards. The planning team wanted the scores to be independent of one another, with all projects being evaluated on their own merit.

Ringgold County Plan Update – STAPLE-E

The prioritization process in this chapter/plan differs extensively from the previous plan. Looking at other approved plans in the State of Iowa, the planning team used a simpler review sheet that simplified the process for the reviewers at the meeting and had fewer analytic questions on which scores were based.

4.8: Evaluation Results of Alternative Mitigation Measures

The following tables provide the summary of the analysis of the proposed mitigation actions by jurisdiction, which will be used for creating a formal strategy for each jurisdiction in the next section of this plan. Please note that the local evaluation of actions means that an action may have differing scores for varying jurisdictions. For example, in one jurisdiction, the initiation and updating of zoning to include mitigation ideas may be considered more administratively feasible and politically acceptable than another community, even though the need in terms of hazard mitigation for zoning may be equal in both communities.

Rural Ringgold County Alternative Mitigation Measure Scores

Ringgold County officials and staff, with the assistance of the countywide planning team, participated in the evaluation of a list of alternative mitigation measures. The following matrix shows the resulting scores and the identification of projects to be prioritized as a future mitigation measures, outlined in the next section.

Figure 4.33: STAPLE-E Score and Relative Priority – Rural Ringgold County

Mitigation Action	STAPLE-E Score	Relative Priority
Enforce burning restrictions.	47	High
Encourage citizen purchase/use of smoke detectors and fire extinguishers with an incentive program.	46	High
Flood proof critical assets in the community.	45	High
Require burial of utility lines in new development.	44	Moderate
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and	43	High

Mitigation Action	STAPLE-E Score	Relative Priority
replace deteriorated infrastructure.		
Promote the value of installation of private in-home tornado safe rooms.	43	High
Encourage property owners to own adequate property insurance.	42	High
Fund weatherization programs to more low-income households.	42	High
Promote to property owners the importance of tree and vegetation maintenance on private properties.	42	High
Strengthen exposed utility and communications infrastructure.	41	High
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	39	High
Implement a comprehensive multi-media public education campaign for multiple hazards.	39	High
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	38	Moderate
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	38	Moderate
Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	37	Moderate
Adopt State fire codes.	36	Moderate
Encourage the implementation of water-saving measures, including soil and water conservation practices.	36	Moderate
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	36	Low
Construct/integrate public safe rooms in or near existing and future community assets and parks.	35	Moderate
Continue hazardous materials agreements, support enforcement of Occupational Safety and Health Administration's (OSHA) regulations, and support regional hazardous materials teams.	34	Moderate
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	34	Moderate
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	33	Moderate
Install windbreaks (permanent and seasonal). Use snow fences or "living snow fences" (e.g. rows of trees or other vegetation) to limit wind effects.	32	Moderate
Investigate alternative water sources for fire suppression.	29	Low
Provide safe room education for builders and developers.	27	Low
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	26	Moderate
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	24	Low

City of Benton Alternative Mitigation Measure Scores

City of Benton officials and staff, with the assistance of the countywide planning team, participated in the evaluation of a list of alternative mitigation measures. The following matrix shows the resulting scores and the identification of projects to be prioritized as a future mitigation measures, outlined in the next section.

Figure 4.34: STAPLE-E Score and Relative Priority – City of Benton

Mitigation Action	STAPLE-E Score	Relative Priority
Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	39	High
Encourage citizen purchase/use of smoke detectors and fire extinguishers with an incentive program.	36	High
Construct/integrate public safe rooms in or near existing and future community assets and parks.	35	High
Purchase/install backup fixed power generators and pumps.	33	High
Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	32	Moderate
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	32	High
Investigate alternative water sources for fire suppression.	32	High
Complete storm water drainage or watershed studies of known flood areas.	30	Moderate
Promote the value of installation of private in-home tornado safe rooms.	30	Moderate
Fund weatherization programs to more low-income households.	29	Moderate
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	29	Moderate
Strengthen exposed utility and communications infrastructure.	29	Moderate
Store digital and hard copies of public records in low-risk, offsite locations.	28	Moderate
Adopt a continuity of operations & succession plan for the jurisdiction.	27	Low
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	25	Low

Mitigation Action	STAPLE-E Score	Relative Priority
Implement a comprehensive multi-media public education campaign for multiple hazards.	24	Low

City of Diagonal Alternative Mitigation Measure Scores

City of Diagonal officials and staff, with the assistance of the countywide planning team, participated in the evaluation of a list of alternative mitigation measures. The following matrix shows the resulting scores and the identification of projects to be prioritized as a future mitigation measures, outlined in the next section.

Figure 4.35: STAPLE-E Score and Relative Priority – City of Diagonal

Mitigation Action	STAPLE-E Score	Relative Priority
Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	33	High
Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	31	High
Purchase stand-by portable pumps and generators.	30	High
Construct/integrate public safe rooms in or near existing and future community assets and parks.	27	Moderate
Install warning sirens (at Fogle Lake).	27	Moderate
Fund weatherization programs to more low-income households.	25	Moderate
Promote the value of installation of private in-home tornado safe rooms.	24	Moderate
Strengthen exposed utility and communications infrastructure.	23	Moderate
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	22	Moderate
Discourage/prohibit development in flood plain areas; join or continue participation in the NFIP.	20	Moderate
Install hazard signs in area campgrounds, parks, and open spaces.	20	Moderate
Store digital and hard copies of public records in low-risk, offsite locations.	20	Low
Implement a comprehensive multi-media public education campaign for multiple hazards.	18	Low
Construct or repair dams; develop reservoirs and lakes (flood control, water source).	17	Low
Adopt a continuity of operations & succession plan for the jurisdiction.	16	Low
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	16	Low
Complete storm water drainage or watershed studies of known flood areas.	16	Low
Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	16	Low

City of Ellston Alternative Mitigation Measure Scores

City of Ellston officials and staff, with the assistance of the countywide planning team, participated in the evaluation of a list of alternative mitigation measures. The following matrix shows the resulting scores and the identification of projects to be prioritized as a future mitigation measures, outlined in the next section.

Figure 4.36: STAPLE-E Score and Relative Priority – City of Ellston

Mitigation Action	STAPLE-E Score	Relative Priority
Develop/enforce snow removal policies.	20	Moderate
Install warning sirens.	20	High
Fund weatherization programs to more low-income households.	19	Moderate
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	19	Moderate
Purchase/install backup fixed power generators and pumps.	19	Moderate
Strengthen exposed utility and communications infrastructure.	19	Moderate
Promote the value of installation of private in-home tornado safe rooms.	18	Low
Adopt a continuity of operations & succession plan for the jurisdiction.	16	Low
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	16	Low
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	16	Low
Implement a comprehensive multi-media public education campaign for multiple hazards.	15	Low
Store digital and hard copies of public records in low-risk, offsite locations.	15	Low

City of Kellerton Alternative Mitigation Measure Scores

City of Kellerton officials and staff, with the assistance of the countywide planning team, participated in the evaluation of a list of alternative mitigation measures. The following matrix shows the resulting scores and the identification of projects to be prioritized as a future mitigation measures, outlined in the next section.

Figure 4.37: STAPLE-E Score and Relative Priority – City of Kellerton

Mitigation Action	STAPLE-E Score	Relative Priority
Purchase stand-by portable pumps and generators.	20	High
Fund weatherization programs to more low-income households.	19	Moderate
Strengthen exposed utility and communications infrastructure.	19	Moderate
Construct/integrate public safe rooms in or near existing and future community assets and parks.	18	Moderate
Promote the value of installation of private in-home tornado safe rooms.	18	Moderate
Demolish abandoned properties.	17	Moderate
Adopt a continuity of operations & succession plan for the jurisdiction.	16	Low
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	16	Low
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	16	Low
Implement a comprehensive multi-media public education campaign for multiple hazards.	15	Low
Store digital and hard copies of public records in low-risk, offsite locations.	15	Low

City of Maloy Alternative Mitigation Measure Scores

City of Maloy officials and staff, with the assistance of the countywide planning team, participated in the evaluation of a list of alternative mitigation measures. The following matrix shows the resulting scores and the identification of projects to be prioritized as a future mitigation measures, outlined in the next section.

Figure 4.38: STAPLE-E Score and Relative Priority – City of Maloy

Mitigation Action	STAPLE-E Score	Relative Priority
Adopt tree trimming ordinances.	45	High
Construct/integrate public safe rooms in or near existing and future community assets and parks.	44	High
Promote the value of installation of private in-home tornado safe rooms.	42	High
Adopt a continuity of operations & succession plan for the jurisdiction.	40	High
Promote to property owners the importance of tree and vegetation maintenance on private properties.	40	Moderate
Adopt the current FIRM maps as applicable to each jurisdiction.	39	Moderate
Implement a comprehensive multi-media public education campaign for multiple hazards.	39	High
Initiate community preparedness programs.	36	Moderate
Encourage property owners to own adequate property insurance.	35	Moderate
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	35	High
Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	30	Moderate
Strengthen exposed utility and communications infrastructure.	29	Moderate
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	27	Moderate
Discourage/prohibit development in flood plain areas; join or continue participation in the NFIP.	23	Moderate

City of Mount Ayr Alternative Mitigation Measure Scores

City of Mount Ayr officials and staff, with the assistance of the countywide planning team, participated in the evaluation of a list of alternative mitigation measures. The following matrix shows the resulting scores and the identification of projects to be prioritized as a future mitigation measures, outlined in the next section.

Figure 4.39: STAPLE-E Score and Relative Priority – City of Mount Ayr

Mitigation Action	STAPLE-E Score	Relative Priority
Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	45	High
Purchase stand-by portable pumps and generators.	41	High
Adopt a continuity of operations & succession plan for the jurisdiction.	40	High
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	40	High
Promote the value of installation of private in-home tornado safe rooms.	38	Moderate

Mitigation Action	STAPLE-E Score	Relative Priority
Purchase/install backup fixed power generators and pumps.	38	High
Adopt manufactured home development storm shelter ordinances.	37	Moderate
Implement tree planting programs and install shade structures in crowd centers.	36	Moderate
Clear and deepen roadside ditches	35	High
Designate/enforce HAZMAT transportation routes.	35	Moderate
Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	35	Moderate
Install sprinkler systems in public buildings.	35	Moderate
Establish backup utilities and communications infrastructure; use the latest technology.	34	Moderate
Initiate community preparedness programs.	34	Moderate
Promote to property owners the importance of tree and vegetation maintenance on private properties.	34	Moderate
Strengthen exposed utility and communications infrastructure.	34	Moderate
Continue hazardous materials agreements, support enforcement of Occupational Safety and Health Administration’s (OSHA) regulations, and support regional hazardous materials teams.	33	Moderate
Discourage/prohibit development in flood plain areas; join or continue participation in the NFIP.	33	Low
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	33	Moderate
Investigate alternative water sources for fire suppression.	33	Low
Provide adequate access to safe drinking water in all public spaces, including outdoor spaces, such as parks and playgrounds.	33	Moderate
Bury exposed utility and communications infrastructure.	32	Moderate
Construct/integrate public safe rooms in or near existing and future community assets and parks.	32	Moderate
Encourage citizen purchase/use of smoke detectors and fire extinguishers with an incentive program.	32	Moderate
Encourage the use of non-combustible materials (i.e. stone, brick, etc.) for structures in wildfire hazard areas.	32	Low
Flood proof critical assets in the community.	32	Low
Implement stream modifications/channel improvements and stream bank stabilization.	32	Moderate
Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	32	Low
Require burial of utility lines in new development.	32	Moderate
Encourage property owners to own adequate property insurance.	31	Low
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	29	Low
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	28	Moderate
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	28	Moderate
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	28	Moderate
Provide safe room education for builders and developers.	27	Low
Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	26	Low
Implement a comprehensive multi-media public education campaign for multiple hazards.	23	Low
Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated.	23	Low

City of Tingley Alternative Mitigation Measure Scores

City of Tingley officials and staff, with the assistance of the countywide planning team, participated in the evaluation of a list of alternative mitigation measures. The following matrix shows the resulting scores and the identification of projects to be prioritized as a future mitigation measures, outlined in the next section.

Figure 4.40: STAPLE-E Score and Relative Priority – City of Tingley

Mitigation Action	STAPLE-E Score	Relative Priority
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	37	Moderate
Demolish abandoned properties.	36	High
Strengthen exposed utility and communications infrastructure.	34	Moderate
Adopt a continuity of operations & succession plan for the jurisdiction.	30	Moderate
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	30	Moderate
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	29	Moderate
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	28	Moderate
Encourage property owners to own adequate property insurance.	28	Moderate

Mitigation Action	STAPLE-E Score	Relative Priority
Fund weatherization programs to more low-income households.	27	Moderate
Implement a comprehensive multi-media public education campaign for multiple hazards.	26	Moderate
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	26	Low
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	25	Low
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	23	Moderate
Promote the value of installation of private in-home tornado safe rooms.	22	Low

Diagonal Schools Alternative Mitigation Measure Scores

Diagonal Schools officials and staff, with the assistance of the countywide planning team, participated in the evaluation of a list of alternative mitigation measures. The following matrix shows the resulting scores and the identification of projects to be prioritized as a future mitigation measures, outlined in the next section.

Figure 4.41: STAPLE-E Score and Relative Priority – Diagonal Schools

Mitigation Action	STAPLE-E Score	Relative Priority
Adopt a continuity of operations & succession plan for the jurisdiction.	40	
Construct/integrate public safe rooms in or near existing and future community assets and parks.	34	High
Harden public buildings.	34	High
Increase community and individual engagement in disease prevention efforts.	34	High
Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	34	Moderate
Reduce disease transmitted by animals and insects and foodborne infections.	34	High
Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	33	Moderate
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	33	Moderate
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	33	High
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	32	Moderate
Implement a comprehensive multi-media public education campaign for multiple hazards.	31	Moderate
Educate the public about the interconnected efforts needed to prevent and control infectious diseases and their role in protecting health.	29	Moderate
Help community leaders and businesses to improve local public health response readiness.	29	Moderate
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	26	Low
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	26	Moderate
Purchase/install backup fixed power generators and pumps.	25	Low
Purchase stand-by portable pumps and generators.	24	Low
Strengthen exposed utility and communications infrastructure.	23	Low
Remove asbestos from public buildings.	22	High

Mount Ayr Schools Alternative Mitigation Measure Scores

Mount Ayr Schools officials and staff, with the assistance of the countywide planning team, participated in the evaluation of a list of alternative mitigation measures. The following matrix shows the resulting scores and the identification of projects to be prioritized as a future mitigation measures, outlined in the next section.

Figure 4.42: STAPLE-E Score and Relative Priority – Mount Ayr Schools

Mitigation Action	STAPLE-E Score	Relative Priority
Prepare and implement a mass casualty plan to address of terrorism and infectious disease outbreaks.	33	High
Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	32	Moderate
Store digital and hard copies of public records in low-risk, offsite locations.	31	Moderate
Construct/integrate public safe rooms in or near existing and future community assets and parks.	30	Moderate
Increase community and individual engagement in disease prevention efforts.	30	Moderate
Implement a comprehensive multi-media public education campaign for multiple hazards.	29	Moderate
Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	29	Low

Mitigation Action	STAPLE-E Score	Relative Priority
Modernize infectious disease surveillance to drive public health actions.	29	Moderate
Install air monitors.	27	Low
Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.)	27	Low
Reduce disease transmitted by animals and insects and foodborne infections.	27	Low
Harden public buildings.	26	Low

Alliant Energy Local Alternative Mitigation Measure Scores

Even though the local utility authority is not adopting this plan, Alliant Energy was involved actively in the plan and was involved in the STAPLE-E process. Alliant’s review served as a proxy for overall electric and gas utility related actions in various jurisdictions outlined above. The following matrix shows the resulting scores and the identification of projects to be prioritized as a future mitigation measures, outlined in the next section.

Figure 4.43: STAPLE-E Score and Relative Priority – Energy Utility Actions in all Jurisdictions

Mitigation Action	STAPLE-E Score	Relative Priority
Bury exposed utility and communications infrastructure.	30	High
Maintain trees proactively on public property and ROW areas.	30	High
Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	29	High
Adopt tree trimming ordinances.	27	Moderate
Strengthen exposed utility and communications infrastructure.	27	Moderate
Demolish abandoned properties.	26	Moderate
Implement tree planting programs and install shade structures in crowd centers.	26	Moderate
Develop/update/publicize local evacuation and shelter-in-place plans.	25	Moderate
Establish backup utilities and communications infrastructure; use the latest technology.	25	Moderate
Increase production capacity; install redundant systems and looping (water, sewer, electric, gas).	25	Moderate
Purchase stand-by portable pumps and generators.	24	Moderate
Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	23	Moderate
Purchase/install backup fixed power generators and pumps.	23	Moderate
Require burial of utility lines in new development.	23	Moderate
Fund weatherization programs to more low-income households.	21	Low
Promote to property owners the importance of tree and vegetation maintenance on private properties.	20	Moderate
Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	19	Low

The next section details the strategy for each jurisdiction for the implementation of this hazard mitigation plan.

4.9: Implementation Strategy by Jurisdiction

The most vital section of this entire plan is the strategy that each jurisdiction intends to carry out in order to mitigate hazards.

This part of the plan addresses the following Stafford Act requirements:

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

Section 201.6 (c)(3)(iv): For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

According to FEMA guidance, the final major piece in the mitigation plan is the implementation strategy for the jurisdictions that are included in the mitigation plan. The mitigation strategy is a description of the proposed mitigation actions by jurisdiction that details the timeline, leadership, and funding for the action. The following tables provide the proposed implementation strategies for each jurisdiction. This process was reviewed and discussed during the seventh planning meeting.

The following mitigation strategy is prioritized for each jurisdiction based on a benefit-cost review that includes the STAPLE-E criteria outlined in Section 4.8 and the feasibility of implementing viable projects in the timeframe of this plan with consideration of current conditions and capabilities. The benefit-cost review considers the feasibility of the project and whether the benefits exceed the costs. Such considerations help form the priority level and timeline for the mitigation actions in the following tables. However, other factors help prioritize the actions in the existing timeline for each jurisdiction. These factors include outside influences, such as multijurisdictional actions that involve multiple partners and their timeframes.

The following mitigation strategy is today’s best estimate of when projects should be initiated and completed, the cost for each activity, who or which organization(s) should lead the effort, and possible funding sources. Because funding is so complex and varies so much from year to year and changes after a major Presidential declaration, this plan includes only a generic list of sources. Local organizations, such as SICOG, can be consulted to assist with the funding process for a specific project. The planning team and each jurisdiction should keep in mind, however, that outside funding is limited and almost all projects and programs require some local funding and/or in-kind involvement (often called a “match”) to make the state, federal, private, or foundation support possible.

Note: for local governments, the listing “City” or “County” means the governing body and staff directly under the command of the governing body in most cases. As an example, actions that say “City Council” means that the council makes the decision, but staff members often carry it out. The “EMA” is the Emergency Management Agency. “BOS” is the County Board of Supervisors. If any town decides to dis-incorporate in the next five years, the rural county’s mitigation strategy, as much as is relevant to the effected jurisdiction, should prevail. If a school or the hospital closes, the city in which the assets are located covers mitigation in those areas.

Please note that when each jurisdiction adopts the plan, this document, the jurisdiction indicates willingness to implement the projects that are discussed in this section, more or less as proposed. Also note that some mitigation actions taken in one jurisdiction may affect hazard mitigation efforts in other jurisdictions even if such actions are not mentioned as part of the approved strategy for those other jurisdictions.

Ringgold County Plan Update Actions Included in the Previous Plan

This section is almost identical to Section 9.1.2 of the previous plan. However, the jurisdictions have changed somewhat and the list of actions to be included has changed notably as a result of the modified review process described throughout this chapter. Also, the way the data is organized is improved and more readable.

For the purposes of this strategy, each project is divided into short-, mid-, and long-term strategies, with timeframes mentioned. The following is a description of each:

- Short-term projects (2019 or 2020) – mainly high priority projects, projects that are initiated by other jurisdictions, or those that are essential planning steps.
- Mid-term projects (2021-2022) – most are moderate priority projects and those that other jurisdictions are likely to consider during the five years but are not scheduled yet.
- Long-term projects (2023 and beyond) – mostly low priority projects or are otherwise not yet scheduled because to some degree they are very aggressive or expensive projects.

Ringgold County Hazard Mitigation Strategy

Formed in part with the assistance of local officials, this mitigation strategy is what is adopted by the jurisdiction for implementation over the next five years. Knowing that events occur that change priorities and leadership, the jurisdiction commits to make a good faith effort. Each project is listed by timeframe/duration.

Figure 4.44: Five-year Mitigation Strategy – Rural Ringgold County

Initiation	Action *	Likely Leadership	Duration
Short-term projects (2019 or 2020)	Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	BOS, EMA	2019
	Require burial of utility lines in new development.	BOS, local utilities	2020
	Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated. *	BOS, SICOG, GIS provider	2021
	Involve more groups in hazard mitigation (churches, chambers of	BOS, EMA	2021

	commerce, civic/service clubs, city/school employees, etc.) *		
	Flood proof critical assets in the community.	BOS, County engineer, other key staff	2023
	Strengthen exposed utility and communications infrastructure. *	Utility providers	2023
	Encourage citizen purchase/use of smoke detectors and fire extinguishers with an incentive program. *	BOS, local fire departments	Annually
	Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	BOS, County engineer	Annually
	Encourage property owners to own adequate property insurance.	BOS, fire departments, insurance agents, EMA	Annually
	Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	BOS, EMA	Annually
	Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	BOS, County engineer, adjacent property owners	Annually
	Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	BOS, County engineer	Annually
	Enforce burning restrictions.	BOS, law enforcement, local fire departments	Continuous
	Promote the value of installation of private in-home tornado safe rooms.	BOS, EMA	Continuous
	Promote to property owners the importance of tree and vegetation maintenance on private properties.	BOS, fire departments, utility providers, EMA	Continuous
	Implement a comprehensive multi-media public education campaign for multiple hazards. *	EMA	Continuous
	Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	Conservation Board, Soil and Water Conservation District, NRCS	Continuous
	Encourage the implementation of water-saving measures, including soil and water conservation practices. *	Conservation Board, Soil and Water Conservation District, NRCS, SIRWA	Continuous
	Continue hazardous materials agreements, support enforcement of Occupational Safety and Health Administration’s (OSHA) regulations, and support regional hazardous materials teams. *	BOS, EMA, local fire departments	Continuous
Mid-term projects (2021-2022)	Fund weatherization programs to more low-income households.	BOS, SICO, housing agencies	2023
	Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	BOS, key staff, partner agencies	2023
	Adopt State fire codes.	BOS	2022
	Construct/integrate public safe rooms in or near existing and future community assets and parks.	BOS, EMA, department heads (mainly conservation)	2023, Future
	Provide safe room education for builders and developers.	EMA, local educators	Annual
Long-term projects (2023 and beyond)	Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	BOS	2023
	Investigate alternative water sources for fire suppression. *	BOS, SIRWA, fire departments	2023, Future
	Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	BOS, SICO, planning consultants	2023, Future

* This action is generally multi-jurisdictional and another jurisdiction in this plan (or not in this plan) will have an influence on the timeframe and scope.

Benton Hazard Mitigation Strategy

Formed in part with the assistance of local officials, this mitigation strategy is what is adopted by the jurisdiction for implementation over the next five years. Knowing that events occur that change priorities and leadership, the jurisdiction commits to make a good faith effort. Each project is listed by timeframe/duration.

Figure 4.45: Five-year Mitigation Strategy – Benton

Initiation	Action *	Likely Leadership	Duration
Short-term projects (2019 or 2020)	Store digital and hard copies of public records in low-risk, offsite locations.	City council, staff	2019
	Adopt a continuity of operations & succession plan for the jurisdiction. *	City council, EMA	2020
	Complete storm water drainage or watershed studies of known flood areas. *	City council, S&WCD, NRCS	2021
	Investigate alternative water sources for fire suppression. *	City council, Mt. Ayr Fire,	2021

		SIRWA	
	Purchase/install backup fixed power generators and pumps.	City council, consultants	2022
	Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	City council, consultants	2023, Future
	Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year. *	City council, EMA	Annually
	Encourage citizen purchase/use of smoke detectors and fire extinguishers with an incentive program. *	City council, Mt. Ayr Fire	Annually
	Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	City council, S&WCD, NRCS	Annually
	Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	City council, consultants	Annually
	Promote the value of installation of private in-home tornado safe rooms.	City council, EMA	Continuous
	Implement a comprehensive multi-media public education campaign for multiple hazards. *	City council, EMA	Continuous
Mid-term projects (2021-2022)	Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	City council, EMA, consultants	2021
	Fund weatherization programs to more low-income households. *	City council, SICO, housing providers	2023, Future
	Construct/integrate public safe rooms in or near existing and future community assets and parks.	City council, EMA	2023, Future
Long-term projects (2023 and beyond)	Strengthen exposed utility and communications infrastructure. *	Alliant Energy	2023, Future

* This action is generally multi-jurisdictional and another jurisdiction in this plan (or not in this plan) will have an influence on the timeframe and scope.

Diagonal Hazard Mitigation Strategy

Formed in part with the assistance of local officials, this mitigation strategy is what is adopted by the jurisdiction for implementation over the next five years. Knowing that events occur that change priorities and leadership, the jurisdiction commits to make a good faith effort. Each project is listed by timeframe/duration.

Figure 4.46: Five-year Mitigation Strategy – Diagonal

Initiation	Action *	Likely Leadership	Duration
Short-term projects (2019 or 2020)	Install warning sirens (at Fogle Lake).	City council, public works	2019
	Discourage/prohibit development in flood plain areas; join or continue participation in the NFIP.	City council, EMA	2019
	Store digital and hard copies of public records in low-risk, offsite locations.	City council, admin staff	2019
	Adopt a continuity of operations & succession plan for the jurisdiction.	City council, EMA	2020
	Purchase stand-by portable pumps and generators.	City council, public works	2021
	Complete storm water drainage or watershed studies of known flood areas.	City council, public works, NRCS, consultants	2021
	Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.), and replace deteriorated infrastructure.	City council, public works, consultants	2023, Future
	Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	City council, public works, consultants	2023, Future
	Fund weatherization programs to more low-income households.	City council, SICO, housing provider	2023, Future
	Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	City council, EMA	Annually
	Promote the value of installation of private in-home tornado safe rooms.	City council, EMA	Continuous
	Implement a comprehensive multi-media public education campaign for multiple hazards.	City council, EMA	Continuous
	Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	City council, public works, NRCS, consultants	2021
	Mid-term projects	Install hazard signs in area campgrounds, parks, and open spaces.	City council, public works
Adopt and/or update a full range of local codes and policies to		City council, EMA	2022

(2021-2022)	address a range of hazard mitigation issues. Construct/integrate public safe rooms in or near existing and future community assets and parks.	City council, public works, consultants	2023, Future
Long-term projects (2023 and beyond)	Strengthen exposed utility and communications infrastructure.	Alliant Energy	2023, Future
	Construct or repair dams; develop reservoirs and lakes (flood control, water source).	Public works, IDNR inspector	2023, Future

* This action is generally multi-jurisdictional and another jurisdiction in this plan (or not in this plan) will have an influence on the timeframe and scope.

Ellston Hazard Mitigation Strategy

Formed in part with the assistance of local officials, this mitigation strategy is what is adopted by the jurisdiction for implementation over the next five years. Knowing that events occur that change priorities and leadership, the jurisdiction commits to make a good faith effort. Each project is listed by timeframe/duration.

Figure 4.47: Five-year Mitigation Strategy – Ellston

Initiation	Action *	Likely Leadership	Duration
Short-term projects (2019 or 2020)	Develop/enforce snow removal policies.	City council, admin staff	2019
	Install warning sirens.	City council, public works	2019
	Store digital and hard copies of public records in low-risk, offsite locations.	City council, admin staff	2019
	Purchase/install backup fixed power generators and pumps.	City council, public works	2021
	Adopt a continuity of operations & succession plan for the jurisdiction.	City council, EMA	2021
	Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	City council, EMA	Annually
	Promote the value of installation of private in-home tornado safe rooms.	City council, EMA	Continuous
	Implement a comprehensive multi-media public education campaign for multiple hazards.	City council, EMA	Continuous
Mid-term projects (2021-2022)	Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	City council, EMA	2022
	Fund weatherization programs to more low-income households.	City council, SICO, housing providers	2023, Future
	Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public.	City council, EMA	Continuous
Long-term projects (2023 and beyond)	Strengthen exposed utility and communications infrastructure.	Alliant Energy	2023, Future

* This action is generally multi-jurisdictional and another jurisdiction in this plan (or not in this plan) will have an influence on the timeframe and scope.

Kellerton Hazard Mitigation Strategy

Formed in part with the assistance of local officials, this mitigation strategy is what is adopted by the jurisdiction for implementation over the next five years. Knowing that events occur that change priorities and leadership, the jurisdiction commits to make a good faith effort. Each project is listed by timeframe/duration.

Figure 4.48: Five-year Mitigation Strategy – Kellerton

Initiation	Action *	Likely Leadership	Duration
Short-term projects (2019 or 2020)	Store digital and hard copies of public records in low-risk, offsite locations.	City council, admin staff	2019
	Adopt a continuity of operations & succession plan for the jurisdiction.	City council, EMA	2021
	Purchase stand-by portable pumps and generators.	City council, public works	2021
	Demolish abandoned properties.	City council, public works	2022
	Fund weatherization programs to more low-income households. *	City council, SICO, housing providers	2023, Future
	Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	City council, EMA	Annually
	Promote the value of installation of private in-home tornado safe rooms. *	City council, EMA	Continuous
	Implement a comprehensive multi-media public education	City council, EMA	Continuous

	campaign for multiple hazards. *		
Mid-term projects (2021-2022)	Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	City council, EMA	2022
	Construct/integrate public safe rooms in or near existing and future community assets and parks.	City council, public works, EMA	2023, Future
Long-term projects (2023 and beyond)	Strengthen exposed utility and communications infrastructure. *	Alliant Energy	2023, Future

* This action is generally multi-jurisdictional and another jurisdiction in this plan (or not in this plan) will have an influence on the timeframe and scope.

Maloy Hazard Mitigation Strategy

Formed in part with the assistance of local officials, this mitigation strategy is what is adopted by the jurisdiction for implementation over the next five years. Knowing that events occur that change priorities and leadership, the jurisdiction commits to make a good faith effort. Each project is listed by timeframe/duration.

Figure 4.49: Five-year Mitigation Strategy – Maloy

Initiation	Action *	Likely Leadership	Duration
Short-term projects (2019 or 2020)	Adopt the current FIRM maps as applicable to each jurisdiction. *	City council, EMA	2019
	Discourage/prohibit development in flood plain areas; join or continue participation in the NFIP. *	City council, EMA	2019
	Adopt tree trimming ordinances.	City council, admin staff	2019
	Adopt a continuity of operations & succession plan for the jurisdiction. *	City council, admin staff, EMA	2020
	Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	City council, EMA	Annually
	Promote the value of installation of private in-home tornado safe rooms. *	City council, EMA	Continuous
	Implement a comprehensive multi-media public education campaign for multiple hazards *	City council, EMA	Continuous
	Encourage property owners to own adequate property insurance. *	City council, EMA, insurance agents	Continuous
Mid-term projects (2021-2022)	Construct/integrate public safe rooms in or near existing and future community assets and parks.	City council, public works, EMA	2023, Future
	Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public. *	City council, EMA	2023, Future
	Promote to property owners the importance of tree and vegetation maintenance on private properties	City council, EMA, utility providers, ISU Extension, insurance companies	2023, Future
	Initiate community preparedness programs.	City council, EMA, development and civic groups in the area	Continuous
Long-term projects (2023 and beyond)	Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	City council, public works	2023, Future
	Strengthen exposed utility and communications infrastructure.	Alliant Energy	2023, Future

* This action is generally multi-jurisdictional and another jurisdiction in this plan (or not in this plan) will have an influence on the timeframe and scope.

Mount Ayr Hazard Mitigation Strategy

Formed in part with the assistance of local officials, this mitigation strategy is what is adopted by the jurisdiction for implementation over the next five years. Knowing that events occur that change priorities and leadership, the jurisdiction commits to make a good faith effort. Each project is listed by timeframe/duration.

Figure 4.50: Five-year Mitigation Strategy – Mount Ayr

Initiation	Action *	Likely Leadership	Duration
Short-term projects (2019 or 2020)	Discourage/prohibit development in flood plain areas; join or continue participation in the NFIP. *	City council, EMA	2019
	Adopt a continuity of operations & succession plan for the jurisdiction. *	City council, admin staff, EMA	2019
	Require burial of utility lines in new development.	City council, admin staff	2019
	Purchase stand-by portable pumps and generators.	City council, public works	2020

	Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	City council, admin staff, EMA	2020
	Purchase/install backup fixed power generators and pumps.	City council, public works	2020
	Clear and deepen roadside ditches.	City council, public works	2021
	Provide adequate access to safe drinking water in all public spaces, including outdoor spaces, such as parks and playgrounds.	City council, public works	2021
	Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	City council, public works	2021
	Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.	City council, admin staff, EMA	Annually
	Implement a comprehensive multi-media public education campaign for multiple hazards. *	City council, EMA	Continuous
	Encourage property owners to own adequate property insurance. *	City council, EMA, insurance agents	Continuous
	Encourage citizen purchase/use of smoke detectors and fire extinguishers with an incentive program (incentive program would depend on outside resources/grants).	City council, fire department	Continuous
	Promote the value of installation of private in-home tornado safe rooms. *	City council, EMA	Continuous
	Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands. *	City council, S&WCD, NRCS, consultants	Continuous
	Promote to property owners the importance of tree and vegetation maintenance on private properties.	City council, EMA, utility providers	Continuous
	Continue hazardous materials agreements, support enforcement of Occupational Safety and Health Administration's (OSHA) regulations, and support regional hazardous materials teams. *	City council, EMA	Continuous
	Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.) *	City council, EMA, civic groups	Continuous
Mid-term projects (2021-2022)	Adopt manufactured home development storm shelter ordinances.	City council, admin staff	2022
	Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	City, public works	2023
	Implement tree planting programs and install shade structures in crowd centers.	City council, public works	2023
	Implement a GIS mapping system and utilize digital hazard maps for various kinds of hazards; keep data updated. *	City, public works, SICO, county GIS consultant	2023
	Increase production capacity; install redundant systems and looping (water, sewer, electric, gas). *	City council, public works, SIRWA, Alliant, other providers	2023, Future
	Investigate alternative water sources for fire suppression. *	City council, public works, SIRWA	2023, Future
	Construct/integrate public safe rooms in or near existing and future community assets and parks.	City council, public works, EMA	2023, Future
	Flood proof critical assets in the community.	City council, public works	2023, Future
	Implement stream modifications/channel improvements and stream bank stabilization.	City council, public works, consultants, S&WCD, NRCS	2023, Future
	Provide safe room education for builders and developers.	City, local educational partners	Continuous
Initiate community preparedness programs. *	City council, EMA, local business and development leaders	Continuous	
Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public. *	City, EMA	Continuous	
Long-term projects (2023 and beyond)	Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.	City council, public works, State of Iowa	2023, Future
	Install sprinkler systems in public buildings.	City council, public works, State of Iowa	2023, Future
	Establish backup utilities and communications infrastructure; use the latest technology.	City, Alliant, other providers	2023, Future
	Strengthen exposed utility and communications infrastructure. *	City, Alliant, other providers	2023, Future
	Bury exposed utility and communications infrastructure. *	City, Alliant, other providers	2023, Future
	Encourage the use of non-combustible materials (i.e. stone, brick, etc.) for structures in wildfire hazard areas.	City council, zoning and building official	Continuous
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	City council, zoning and building official	Continuous	

* This action is generally multi-jurisdictional and another jurisdiction in this plan (or not in this plan) will have an influence on the timeframe and scope.

Formed in part with the assistance of local officials, this mitigation strategy is what is adopted by the jurisdiction for implementation over the next five years. Knowing that events occur that change priorities and leadership, the jurisdiction commits to make a good faith effort. Each project is listed by timeframe/duration.

Figure 4.51: Five-year Mitigation Strategy – Tingley

Initiation	Action *	Likely Leadership	Duration
Short-term projects (2019 or 2020)	Adopt a continuity of operations & succession plan for the jurisdiction. *	City council, admin staff, EMA	2019
	Demolish abandoned properties.	City council, public works	2022
	Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year. *	City council, admin staff, EMA	Annual
	Promote the value of installation of private in-home tornado safe rooms.	City council, EMA	Continuous
	Implement a comprehensive multi-media public education campaign for multiple hazards. *	City council, EMA	Continuous
	Encourage property owners to own adequate property insurance.	City council, EMA, insurance agents	Continuous
Mid-term projects (2021-2022)	Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	City council, admin staff, SICOG, EMA	2022
	Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects.	City council, public works, adjacent property owners	2022
	Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	City council, admin staff, public works, EMA	2023
	Fund weatherization programs to more low-income households. *	City council, SICOG, housing providers	2023, Future
	Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public. *	City council, EMA	Continuous
	Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.) *	City council, EMA, civic groups	Continuous
Long-term projects (2023 and beyond)	Strengthen exposed utility and communications infrastructure. *	City council, Alliant Energy, utility providers, consultants	2023, Future
	Increase production capacity; install redundant systems and looping (water, sewer, electric, gas). *	City council, Alliant Energy, utility providers, consultants	2023, Future

* This action is generally multi-jurisdictional and another jurisdiction in this plan (or not in this plan) will have an influence on the timeframe and scope.

Diagonal Schools Hazard Mitigation Strategy

Formed in part with the assistance of local officials, this mitigation strategy is what is adopted by the jurisdiction for implementation over the next five years. Knowing that events occur that change priorities and leadership, the jurisdiction commits to make a good faith effort. Each project is listed by timeframe/duration.

Figure 4.52: Five-year Mitigation Strategy – Diagonal Schools

Initiation	Action *	Likely Leadership	Duration
Short-term projects (2019 or 2020)	Adopt a continuity of operations & succession plan for the jurisdiction. *	School board, admin staff, EMA	2019
	Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	School board, admin staff, EMA	2019
	Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year. *	School board, admin staff, EMA	Annually
	Increase community and individual engagement in disease prevention efforts. *	School board, admin staff, EMA, public health leadership	Continuous
	Reduce disease transmitted by animals and insects and foodborne infections. *	School board, admin staff, EMA, public health leadership	Continuous
	Implement a comprehensive multi-media public education campaign for multiple hazards. *	School board, EMA	Continuous
	Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.) *	School Board, PTO, EMA, civic groups	Continuous
	Educate the public about the interconnected efforts needed to prevent and control infectious diseases and their role in protecting health. *	School board, admin staff, EMA, public health leadership	Continuous
	Help community leaders and businesses to improve local public	School board, admin staff, EMA,	Continuous

	health response readiness. *	public health leadership	
Mid-term projects (2021-2022)	Purchase/install backup fixed power generators and pumps.	School board, building staff	2022
	Purchase stand-by portable pumps and generators.	School board, building staff	2022
	Construct/integrate public safe rooms in or near existing and future community assets and parks.	School board, building staff, EMA	2023
	Harden public buildings.	School board, building staff, EMA	2023
	Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.	School board, building staff	2023
	Provide more NOAA weather radios to the public if more grant funds can be obtained and promote the use of weather radio and other notification tools available to the public. *	School board, building staff, EMA	Continuous
Long-term projects (2023 and beyond)	Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.	School board, building staff	2023
	Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	School board, admin staff	2023
	Strengthen exposed utility and communications infrastructure. *	School board, building staff, Alliant Energy, other providers	2023, Future
	Remove asbestos from public buildings.	School board, building staff	2023, Future

* This action is generally multi-jurisdictional and another jurisdiction in this plan (or not in this plan) will have an influence on the timeframe and scope.

Mount Ayr Schools Hazard Mitigation Strategy

Formed in part with the assistance of local officials, this mitigation strategy is what is adopted by the jurisdiction for implementation over the next five years. Knowing that events occur that change priorities and leadership, the jurisdiction commits to make a good faith effort. Each project is listed by timeframe/duration.

Figure 4.53: Five-year Mitigation Strategy – Mount Ayr Schools

Initiation	Action *	Likely Leadership	Duration
Short-term projects (2019 or 2020)	Prepare and implement a mass casualty plan to address of terrorism and infectious disease outbreaks.	School board, admin staff, State of Iowa, EMA	2019
	Store digital and hard copies of public records in low-risk, offsite locations.	School board, admin staff	2019
	Install air monitors.	School board, building staff	2020
	Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year. *	School board, admin staff, EMA	Annually
	Increase community and individual engagement in disease prevention efforts. *	School board, admin staff, EMA, public health leadership	Continuous
	Reduce disease transmitted by animals and insects and foodborne infections. *	School board, admin staff, EMA, public health leadership	Continuous
	Implement a comprehensive multi-media public education campaign for multiple hazards. *	School board, EMA	Continuous
Mid-term projects (2021-2022)	Involve more groups in hazard mitigation (churches, chambers of commerce, civic/service clubs, city/school employees, etc.) *	School Board, PTO, EMA, civic groups	Continuous
	Harden public buildings.	School board, building staff, EMA	2023
	Construct/integrate public safe rooms in or near existing and future community assets and parks.	School board, building staff, EMA	2023
Long-term projects (2023 and beyond)	Modernize infectious disease surveillance to drive public health actions.	School board, admin staff, EMA, public health leadership	Continuous
	Incorporate stand-alone elements for hazard mitigation into the local comprehensive plan, CIP, strategic plan, or other planning mechanisms.	School board, admin staff	2023

* This action is generally multi-jurisdictional and another jurisdiction in this plan (or not in this plan) will have an influence on the timeframe and scope.

Electric Utilities Hazard Mitigation Strategy

Formed in part with the assistance of local officials, this mitigation strategy is what is adopted by the jurisdiction for implementation over the next five years. Knowing that events occur that change priorities and leadership, the jurisdiction commits to make a good faith effort. Each project is listed by timeframe/duration.

Figure 4.54: Five-year Mitigation Strategy – Electric Utilities

Initiation	Action *	Likely Leadership	Duration
Short-term projects (2019 or 2020)	Adopt tree trimming ordinances. *	Local governments	2019
	Develop/update/publicize local evacuation and shelter-in-place plans. *	Utility providers, local governments, EMA, law enforcement	2020
	Purchase stand-by portable pumps and generators. *	Utility providers, local governments, fire departments, etc.	2021
	Require burial of utility lines in new development.	Local governments	2021
	Purchase/install backup fixed power generators and pumps. *	Utility providers, local governments, fire departments, etc.	2021
	Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure. *	Utility providers, local governments	2022
	Demolish abandoned properties. *	Local governments	2023
	Promote to property owners the importance of tree and vegetation maintenance on private properties. *	Local governments, utility providers, fire departments	2023
	Maintain trees proactively on public property and ROW areas. *	Utility providers, local governments	Continuous
	Implement tree planting programs and install shade structures in crowd centers. *	Utility providers, local governments, civic groups	Continuous
Mid-term projects (2021-2022)	Bury exposed utility and communications infrastructure.	Utility providers, local governments	2023, Future
	Strengthen exposed utility and communications infrastructure.	Utility providers, local governments	2023, Future
	Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” (e.g. rows of trees or other vegetation) to limit wind effects. *	Utility providers, local governments	2023, Future
Long-term projects (2023 and beyond)	Adopt/update and enforce zoning and land use regulations and building codes that regulate construction. *	Utility providers, local governments	2023, Future
	Establish backup utilities and communications infrastructure; use the latest technology. *	Utility providers, local governments	2023, Future
	Increase production capacity; install redundant systems and looping (water, sewer, electric, gas). *	Utility providers, local governments	2023, Future
	Fund weatherization programs to more low-income households. *	Local governments, housing providers	2023, Future

* This action is generally multi-jurisdictional and another jurisdiction in this plan (or not in this plan) will have an influence on the timeframe and scope.

4.10: Mitigation Action Summaries

The following tables show details about the selected mitigation actions, organized alphabetically, that may provide further guidance for each jurisdiction in hazard mitigation plan implementation.

Adopt a continuity of operations & succession plan for the jurisdiction.	
Primary hazard affected	Tornado
Secondary hazard affected	Human disease
Other key hazards affected	Most other hazards
Jurisdictions implementing	Benton, Diagonal, Ellston, Kellerton, Maloy, Mount Ayr, Tingley, Diagonal Schools
Issue/plan for implementation	Work with other jurisdictions in the county and State/FEMA officials to prepare a written document and adopt it locally.
Goals addressed	2, 3
Potential partners	Local governments, State/FEMA and insurance entities providing technical assistance
Estimated total cost	\$5,000
Potential key funding sources	Local, State, FEMA, possible other public agencies
Benefits (losses avoided)	Prevention of the loss of government function; continuity of government

Adopt and/or update a full range of local codes and policies to address a range of hazard mitigation issues.	
Primary hazard affected	All hazards to some degree
Secondary hazard affected	
Other key hazards affected	
Jurisdictions implementing	Ringgold County, Benton, Diagonal, Ellston, Kellerton, Mount Ayr, Tingly, Diagonal Schools
Issue/plan for implementation	While this may require concentrated work, taking ideas and strategies from this plan and including them in public policy updates is essential.
Goals addressed	2, 3, 4

Potential partners	Local governments, property owners and facility managers.
Estimated total cost	\$5,000, mostly in the form of staff and elected official time; more if consultants required.
Potential key funding sources	Local, possible county/state/federal in-kind assistance.
Benefits (losses avoided)	Maintain government compliance; improved efficiency.

Adopt manufactured home development storm shelter ordinances.

Primary hazard affected	Tornado/Windstorm
Secondary hazard affected	Thunderstorm/lightning/hail
Other key hazards affected	Severe winter storm; infrastructure failure
Jurisdictions implementing	Mount Ayr
Issue/plan for implementation	Determine the location that makes sense for a modest but sturdy building.
Goals addressed	1
Potential partners	Local governments
Estimated total cost	\$100,000
Potential key funding sources	Local, property owners, possible FEMA/State funds
Benefits (losses avoided)	Protection of people vulnerable to natural hazards and loss of power.

Adopt State fire codes.

Primary hazard affected	Structural fire
Secondary hazard affected	Grass and wildland fire
Other key hazards affected	
Jurisdictions implementing	Ringgold County
Issue/plan for implementation	The State may require these codes in all areas; larger towns have the resources to carry out administratively.
Goals addressed	4, 5
Potential partners	Local governments, property owners, Iowa Fire Marshal, local fire departments
Estimated total cost	Generally less than \$10,000 upfront and \$5,000 per year to enforce/administer
Potential key funding sources	Local
Benefits (losses avoided)	Prevention of property loss; life safety

Adopt the current FIRM maps as applicable to each jurisdiction.

Primary hazard affected	River flood
Secondary hazard affected	Flash flood
Other key hazards affected	Structural failure
Jurisdictions implementing	Maloy
Issue/plan for implementation	FEMA maps have been issued; City adopting them along with a floodplain management ordinance meets the NFIP program requirements.
Goals addressed	1, 3, 4, 5
Potential partners	Local governments, FEMA, IDNR, Iowa Flood Center, Risk MAP contractor
Estimated total cost	Virtually no direct cost
Potential key funding sources	Funded primarily by FEMA and State contracts
Benefits (losses avoided)	Maintain government compliance

Adopt tree trimming ordinances.

Primary hazard affected	Severe winter storm (primarily ice storm)
Secondary hazard affected	Tornado and windstorm
Other key hazards affected	Thunderstorm/lightning/hail, infrastructure failure
Jurisdictions implementing	Maloy
Issue/plan for implementation	Will require the City to create an ordinance and means of enforcement; often managed by utilities providers
Goals addressed	4, 5
Potential partners	City governments, rural utility providers
Estimated total cost	\$500 to set up; enforcement costs should be minor but may vary from year to year.
Potential key funding sources	Local
Benefits (losses avoided)	Improve mitigation and general response, recovery efficiency; reduce structural losses.

Adopt/update and enforce zoning and land use regulations and building codes that regulate construction.

Primary hazard affected	Grass/wildland fire
Secondary hazard affected	Infrastructure failure
Other key hazards affected	Human disease, tornado/windstorm, severe winter storm
Jurisdictions implementing	Diagonal Schools
Issue/plan for implementation	School is only interested in the building codes element, not zoning. Can be implemented through a project manager.
Goals addressed	2, 3 4
Potential partners	School board and staff; project manager.

Estimated total cost	\$10,000 to prepare; enforcement costs should be minor but may vary from year to year.
Potential key funding sources	Local
Benefits (losses avoided)	Improve mitigation and general response, recovery efficiency; reduce structural losses; prevent some hazards.

Bury exposed utility and communications infrastructure.

Primary hazard affected	Energy failure
Secondary hazard affected	Severe winter storm
Other key hazards affected	Windstorm; tornado; thunderstorm and lightning
Jurisdictions implementing	Mount Ayr
Issue/plan for implementation	Utilities are expensive to build and maintain; burial provides nearly permanent protection.
Goals addressed	1, 2, 3, 4
Potential partners	Local governments, utility providers, property owners
Estimated total cost	\$100,000 or more per jurisdiction
Potential key funding sources	Local, utility provider, possible USDA and FEMA grants, possible energy-based loans
Benefits (losses avoided)	Prevention of property loss; continuation of essential utilities; infrastructure preservation

Clear and deepen ditches on ROWs.

Primary hazard affected	Flash flood
Secondary hazard affected	Structural failure
Other key hazards affected	Human disease; transportation incidents
Jurisdictions implementing	Mount Ayr
Issue/plan for implementation	This action can help with overall water flow, protect water and sewer lines, and reduce damages to streets in areas where curb and gutter does not exist. Cities and County own ROW areas.
Goals addressed	2, 4, 5
Potential partners	Local governments, property owners
Estimated total cost	\$20,000 to \$50,000 per year of work
Potential key funding sources	Local, FEMA/State, property owners, USDA, Iowa SRF program
Benefits (losses avoided)	Prevention of property loss; infrastructure preservation, maintained property valuation

Complete a storm water drainage or watershed studies of known flood areas.

Primary hazard affected	Flash flood
Secondary hazard affected	River flood
Other key hazards affected	Transportation incidents
Jurisdictions implementing	Benton, Diagonal
Issue/plan for implementation	Benton has a major issue with storm water damages the city infrastructure and private property. This is costing each City large sums of money. Consultants are required to study this.
Goals addressed	3, 4, 5
Potential partners	Local governments, property owners, consultants
Estimated total cost	\$10,000 per jurisdiction or project area
Potential key funding sources	USDA, Iowa SRF program, local
Benefits (losses avoided)	Continuation of essential utilities; infrastructure preservation

Construct or repair dams; develop reservoirs and lakes (flood control, water source).

Primary hazard affected	Dam and levee failure
Secondary hazard affected	Flash flood
Other key hazards affected	Infrastructure failure; human disease, river flood, pipeline transportation incident
Jurisdictions implementing	Diagonal
Issue/plan for implementation	Mainly to continue inspections of Fogle Lake Dam and make repairs as needed.
Goals addressed	3, 4, 5
Potential partners	Local governments, Iowa DNR
Estimated total cost	\$1,000 per year plus any repair costs identified
Potential key funding sources	Local, possible IDNR funding
Benefits (losses avoided)	Prevention of dam failure and loss to property, infrastructure, and life downstream

Construct storm water drainage (underground, culverts, curb & gutter, etc.) – improve capacity of existing systems.

Primary hazard affected	Flash flood
Secondary hazard affected	Transportation incidents
Other key hazards affected	Infrastructure failure
Jurisdictions implementing	Benton, Diagonal, Mount Ayr
Issue/plan for implementation	Storm water remains a problem as excessive rain events seem to be more common. Storm water flows over streets and into buildings. Hard infrastructure can be built in ROW areas.
Goals addressed	1, 4, 5
Potential partners	Local governments, property owners, consulting engineers
Estimated total cost	\$100,000 (varies by type and extent of SOW)

Potential key funding sources	FEMA/State, USDA, Iowa SRF program, CDBG
Benefits (losses avoided)	Infrastructure preservation

Construct/integrate public safe rooms in or near existing and future community assets and parks.

Primary hazard affected	Tornado and windstorm
Secondary hazard affected	Thunderstorm, lightning, and hail
Other key hazards affected	Structural failure
Jurisdictions implementing	All jurisdictions
Issue/plan for implementation	This offers almost 100% protection to populations during tornadoes and other severe weather. FEMA and State funding is available for dual-use facilities in public areas and schools.
Goals addressed	1, 3, 4, 5
Potential partners	Local governments, property owners, State/FEMA
Estimated total cost	\$500,000 (varies by size)
Potential key funding sources	FEMA/State, local
Benefits (losses avoided)	Life safety

Continue HAZMAT agreements, support enforcement of OSHA regulations, and support regional HAZMAT teams.

Primary hazard affected	Hazardous materials incident
Secondary hazard affected	Infrastructure failure (structural fire and energy failure)
Other key hazards affected	Windstorm, tornado, wildland fire, severe winter storm, transportation incidents
Jurisdictions implementing	Ringgold County, Mount Ayr
Issue/plan for implementation	Hazardous materials agreements are available from regional agencies that can help local fire and first response departments; can be costly for limited use; local role in HAZMAT enforcement is likely limited but not non-existent.
Goals addressed	1, 2, 3
Potential partners	Local governments, FEMA/State, regional response agencies, LEPC
Estimated total cost	\$10,000/year estimated
Potential key funding sources	Local, possible State/FEMA
Benefits (losses avoided)	Jurisdictional efficiency and continuity; property protection; prevention of unnecessary loss of life or health

Demolish abandoned properties.

Primary hazard affected	Windstorm
Secondary hazard affected	Structural failure (structural fire)
Other key hazards affected	Tornado; wildland fire
Jurisdictions implementing	Kellerton and Tingley
Issue/plan for implementation	As populations decline and shift to new areas and as buildings age, abandoned buildings will always be found. Annual budgeting for this purpose is vital in some jurisdictions.
Goals addressed	1, 3, 5
Potential partners	Local governments, property owners
Estimated total cost	\$15,000 per property, but varies by size and scope of work
Potential key funding sources	Local, possible grants from housing agencies
Benefits (losses avoided)	Maintained property valuation; life safety

Designate/enforce area HAZMAT transportation routes.

Primary hazard affected	Hazardous materials
Secondary hazard affected	Transportation incidents
Other key hazards affected	Human disease, infrastructure failure
Jurisdictions implementing	Mount Ayr
Issue/plan for implementation	Much hazardous material volume comes through the county; designated roads will require signage and enforcement.
Goals addressed	1, 3, 4, 5
Potential partners	Local governments, Iowa DOT
Estimated total cost	\$2,500, plus minor cost for annual enforcement
Potential key funding sources	Local, possible IDOT
Benefits (losses avoided)	Jurisdictional efficiency and continuity; property protection; prevention of unnecessary loss of life or health

Develop/enforce snow removal policies.

Primary hazard affected	Severe winter storm
Secondary hazard affected	Transportation incident
Other key hazards affected	
Jurisdictions implementing	Ellston
Issue/plan for implementation	Can be simple to put a policy in place but small towns need enforcement capacity and a means to clean the roadways; some contract with County Secondary Roads

Goals addressed	1, 2, 5
Potential partners	Local governments, law enforcement agencies at local level, private road crew or County Secondary Roads
Estimated total cost	\$1,000 to \$2,500 per year.
Potential key funding sources	Local
Benefits (losses avoided)	Prevention of damage to road users and vehicles; continuity of economic activities.

Discourage/prohibit development in flood plain areas - join or continue participation in the NFIP.

Primary hazard affected	River flood
Secondary hazard affected	Structural failure
Other key hazards affected	Human disease incident, flash flood
Jurisdictions implementing	Diagonal, Maloy, Mount Ayr
Issue/plan for implementation	The NFIP is the only way of insuring against flooding. Participation is a necessary local requirement where FHAs exist. The IDNR can manage or delegate authority.
Goals addressed	2, 3, 4, 5
Potential partners	Local governments, FEMA, IDNR, local flood manager(s)
Estimated total cost	\$1,000 startup cost
Potential key funding sources	Local, FEMA, IDNR
Benefits (losses avoided)	Prevention of property loss; maintain government compliance

Educate the public about the interconnected efforts needed to prevent and control infectious diseases.

Primary hazard affected	Human disease
Secondary hazard affected	Terrorism (public disorder)
Other key hazards affected	
Jurisdictions implementing	Diagonal Schools
Issue/plan for implementation	This is part of a national strategy. The goal is to get the population involved in this effort.
Goals addressed	1, 2
Potential partners	Local governments, engaged general public, Adair Co. PH, IDPH, CDC
Estimated total cost	\$1,000
Potential key funding sources	Local, possible FEMA/State, associated agencies and foundation grants
Benefits (losses avoided)	Life safety; a more engaged public

Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure/critical assets.

Primary hazard affected	Transportation incidents
Secondary hazard affected	Flash flood
Other key hazards affected	River flood; energy failure; pipeline transportation incident; hazardous materials incidents
Jurisdictions implementing	Ringgold County, Maloy
Issue/plan for implementation	Infrastructure upgrades are a vital issue in rural Iowa, where a low-density population disperses resources to manage the durable infrastructure needed. Significant planning is necessary.
Goals addressed	1, 2, 3, 4
Potential partners	Local governments, possible property owners who own adjacent land
Estimated total cost	\$100,000 to \$2 million, depending on type and SOW
Potential key funding sources	Local, FEMA/State, Iowa DOT, Federal transportation funding, USDA, Iowa SRF, CDBG
Benefits (losses avoided)	Infrastructure preservation; life safety; economic impact (fewer detours and delays)

Encourage citizen purchase/use of smoke detectors and fire extinguishers; incentive program.

Primary hazard affected	Infrastructure failure (structural fire)
Secondary hazard affected	Hazardous materials (pipeline transportation incident)
Other key hazards affected	
Jurisdictions implementing	Ringgold County, Benton, Mount Ayr
Issue/plan for implementation	It takes constant effort to keep people thinking about fire prevention in their homes and businesses. Programs are available for local fire department use.
Goals addressed	1, 5
Potential partners	Local governments, EMA, fire departments
Estimated total cost	Up to \$10,000 annually (depending on scope and nature of incentives)
Potential key funding sources	Local, FEMA AFG grant, local foundations and private sources
Benefits (losses avoided)	Life safety; engagement of the public

Encourage property owners to own adequate property insurance.

Primary hazard affected	All hazards to some degree, except river flooding, which is Federally funded through the NFIP
Secondary hazard affected	
Other key hazards affected	
Jurisdictions implementing	Ringgold County, Maloy, Mount Ayr, and Tingley
Issue/plan for implementation	With partners, local governments can use various methods to promote the public purchasing adequate insurance to cover losses. Insurance companies, banks, and realtors can be engaged.

Goals addressed	1, 5
Potential partners	Local governments, insurance companies, banks, real estate firms, property owners
Estimated total cost	\$500 annually
Potential key funding sources	Local, local insurance companies
Benefits (losses avoided)	Prevention of property loss; engagement of the public

Encourage the implementation of water-saving measures, including soil and water conservation practices.

Primary hazard affected	Drought
Secondary hazard affected	River flood
Other key hazards affected	Flash flood; structural failure, animal/plant/crop disease
Jurisdictions implementing	Ringgold County
Issue/plan for implementation	Because of the identified water shortage projections, constant efforts to encourage conservation are necessary.

Goals addressed	1, 3, 4, 5
Potential partners	Local governments, property owners, conservation organizations, NRCS, SWCD
Estimated total cost	\$500 annually
Potential key funding sources	Local, local conservation groups, State and Federal water quality cost share programs
Benefits (losses avoided)	Basic health; engagement of the public

Encourage the use of non-combustible materials for structures in wildfire hazard areas.

Primary hazard affected	Wildland fire
Secondary hazard affected	Structural failure
Other key hazards affected	
Jurisdictions implementing	Mount Ayr
Issue/plan for implementation	Two approaches exist: simply encouragement via public information efforts and inclusion of this idea in building permit or zoning requirements for both public and private properties.

Goals addressed	1, 4, 5
Potential partners	Local governments, property owners, business interests, fire departments
Estimated total cost	\$500 per year
Potential key funding sources	Local, sustainability groups/foundations
Benefits (losses avoided)	Prevention of property loss; life saving

Encourage/install sustainable storm water control and water quality practices.

Primary hazard affected	Flash flood
Secondary hazard affected	Structural failure
Other key hazards affected	River flood, human disease
Jurisdictions implementing	Ringgold County, Benton, Diagonal, Mount Ayr
Issue/plan for implementation	Natural partners are already in place and sustainable practices, such as rain gardens, are becoming more popular; encouragement can be supplemented with cost-share programs.

Goals addressed	3, 4, 5
Potential partners	Local governments, local SWDC/NRCS offices, Iowa Dept. of Agriculture, ISU Extension
Estimated total cost	\$5,000 per practice, may exceed \$100,000 annually countywide
Potential key funding sources	USDA, IA Dept. of Ag, ISU Extension, private foundations, CDBG program, Iowa SRF program
Benefits (losses avoided)	Quality of life, property protection, reliable water supplies

Enforce burning restrictions.

Primary hazard affected	Grass and wildland fire
Secondary hazard affected	Structural fire
Other key hazards affected	
Jurisdictions implementing	Ringgold County
Issue/plan for implementation	The County would pass an ordinance and provide a means to enforce it when conditions warrant imposition of the restrictions.

Goals addressed	1, 4
Potential partners	Local governments, local law enforcement
Estimated total cost	\$1,000 annually
Potential key funding sources	Technical assistance from the State Fire Marshal as needed
Benefits (losses avoided)	Life safety, property protection, prevention

Establish backup utilities and communications infrastructure; use the latest technology.

Primary hazard affected	Most hazards to some degree
Secondary hazard affected	
Other key hazards affected	
Jurisdictions implementing	Mount Ayr
Issue/plan for implementation	Vital for local operations and emergency response; changing technology makes this difficult to implement.

Goals addressed	1, 2, 3
Potential partners	Local governments, EMA, utilities and providers, E911 board, possible State agencies
Estimated total cost	\$100,000 but varies by scope of work
Potential key funding sources	Local, State/FEMA, USDA, possible DHS and related agencies
Benefits (losses avoided)	Emergency response and local continuity of operations; life safety

Flood proof critical assets in the community.

Primary hazard affected	River flood
Secondary hazard affected	Flash flood
Other key hazards affected	Infrastructure failure, transportation failure
Jurisdictions implementing	Ringgold County
Issue/plan for implementation	Must identify what the flood risk for each building and structure.
Goals addressed	1, 2, 3, 4
Potential partners	Local governments, EMA, facility owners
Estimated total cost	\$10,000 or more depending on scope of work
Potential key funding sources	Local, FEMA/State, local foundations, USDA, facility owners
Benefits (losses avoided)	Protection of property; local continuity of operations

Fund weatherization programs to more low-income households.

Primary hazard affected	Structural failure
Secondary hazard affected	Severe winter storm
Other key hazards affected	Tornado/windstorm; thunderstorm/lightning/hail, extreme heat, flash flood
Jurisdictions implementing	Ringgold County, Benton, Diagonal, Ellston, Kellerton, Mount Ayr, and Tingley
Issue/plan for implementation	This is a major quality of life issue and adds property value. The issue remains how to involve public dollars in this issue.
Goals addressed	1, 5
Potential partners	Local governments, property owners, SICO, SCICAP
Estimated total cost	Up to \$25,000 per unit
Potential key funding sources	SCICAP, USDA, CDBG, foundations and housing grants
Benefits (losses avoided)	Life safety; basic health; prevention of property loss, improved quality of life

Harden public buildings.

Primary hazard affected	Tornado
Secondary hazard affected	Windstorm
Other key hazards affected	Thunderstorm/lightning/hail; severe winter storm; structural failure
Jurisdictions implementing	Diagonal School, Mount Ayr School
Issue/plan for implementation	This lengthens the life of buildings even if no disasters occur that would otherwise cause damage. Standards should be implemented in any building improvements.
Goals addressed	1, 2, 3, 4
Potential partners	Local governments, State/FEMA
Estimated total cost	\$500,000, more or less depending on building size and SOW
Potential key funding sources	FEMA/State, local, CDBG, USDA, Iowa SRF program
Benefits (losses avoided)	Continuation of essential utilities; prevention of property loss; life saving

Help community leaders and businesses to improve local public health response readiness.

Primary hazard affected	Most hazards
Secondary hazard affected	Human disease
Other key hazards affected	
Jurisdictions implementing	Diagonal School
Issue/plan for implementation	This is part of a national strategy. The goal is to get the population involved in this effort.
Goals addressed	1, 2, 3
Potential partners	Local governments, engaged general public, Ringgold Co. PH, IDPH, CDC, EMA, FEMA/State
Estimated total cost	\$1,000
Potential key funding sources	Local, possible FEMA/State, CDC, IDPH, associated agencies and foundation grants
Benefits (losses avoided)	Life safety; a more engaged public

Hold annual meetings in each jurisdiction to review plan progress and prepare a strategy for the coming fiscal year.

Primary hazard affected	All hazards to some degree
Secondary hazard affected	
Other key hazards affected	
Jurisdictions implementing	All jurisdictions
Issue/plan for implementation	This is a standard action to implement this plan and meet State/FEMA requirements. Each year the jurisdiction will meet, discuss, and record comments related to the plan, including an evaluation of projects implemented in the past year and a budget for projects to be undertaken in the following year. Formal amendments will be requested to the State/FEMA, as needed.

Goals addressed	2, 3
Potential partners	Local governments, EMA, possible SICOG and State/FEMA
Estimated total cost	No outside funding; simply part of meeting and budget process
Potential key funding sources	Local only
Benefits (losses avoided)	Plan implementation; engagement of the public

Implement a comprehensive multi-media public education campaign for multiple hazards.

Primary hazard affected	All hazards to some degree
Secondary hazard affected	
Other key hazards affected	
Jurisdictions implementing	All jurisdictions
Issue/plan for implementation	Print materials provide a visual reminder to the public of hazard risks. They should be attractive and address specific hazard issues and be available in a variety of locations; social media and other platforms should also be used to keep this issue fresh to the public.
Goals addressed	1
Potential partners	Local governments, EMA, civic groups
Estimated total cost	\$2,500 initially and \$500 annually thereafter
Potential key funding sources	EMA, FEMA/State, volunteer groups, engaged general public
Benefits (losses avoided)	Life safety; basic health; property protection; engagement of the public

Implement GIS mapping system and utilize digital hazard maps.

Primary hazard affected	Infrastructure failure
Secondary hazard affected	River flooding
Other key hazards affected	Other hazards that can have relevant mapping data
Jurisdictions implementing	Ringgold County, Mount Ayr
Issue/plan for implementation	Mapping data is useful if locally managed and local officials understand how to use the data; common to map past disaster event and loss histories and manage infrastructure/facilities.
Goals addressed	2, 3
Potential partners	Local governments, service providers, GIS vendor, possible SICOG
Estimated total cost	\$10,000 to map hazard mitigation data, \$5,000/yr to manage hazard mitigation data
Potential key funding sources	Local, foundations and possible state/federal grants
Benefits (losses avoided)	Continuity of operations; engagement of the public; local government efficiency

Implement stream modifications/channel improvements and stream bank stabilization.

Primary hazard affected	River flood;
Secondary hazard affected	Flash flood
Other key hazards affected	Transportation incidents, infrastructure failure; structural failure
Jurisdictions implementing	Mount Ayr
Issue/plan for implementation	Is consistent with the Iowa Water Quality Initiative, which has some funding tied to it; requires study and partnerships with water quality agencies; requires engagement with landowners.
Goals addressed	3, 4, 5
Potential partners	Local governments, property owners, State agencies (IDALS and IDNR), FEMA, EMA, local S&WCDs, USDA/NRCS
Estimated total cost	Costs vary widely depending on scope of work
Potential key funding sources	Local, possible FEMA, USDA, IDALS, IDNR, CDBG program, SRF program
Benefits (losses avoided)	Prevention of property loss; infrastructure preservation; pollution prevention/water quality

Implement tree planting programs and install shade structures in crowd centers.

Primary hazard affected	Excessive heat
Secondary hazard affected	Tornado/windstorm
Other key hazards affected	Thunderstorm, lightning, hail; drought; severe winter storm
Jurisdictions implementing	Mount Ayr
Issue/plan for implementation	Programs exist to plant specific trees in targeted locations that could mitigate hazards. Long-term efforts can improve quality of life and offer shade for the public as well as serve as a windbreak.
Goals addressed	4, 5
Potential partners	Local governments, facility owners, utility companies, Arbor Day Foundation, student groups
Estimated total cost	Up to \$10,000 per effort, depending on size of effort.
Potential key funding sources	Local, local grants, utilities, Trees Forever, Arbor Day Foundation
Benefits (losses avoided)	Quality of life, some property loss reduction and health benefits to public during summer.

Improve transportation infrastructure (resurface, pave, widen roads, increase bridge capacity, etc.).

Primary hazard affected	Transportation incident
Secondary hazard affected	Flash flood
Other key hazards affected	Structural failure

Jurisdictions implementing	Ringgold County, Benton, Diagonal
Issue/plan for implementation	Infrastructure upgrades are a vital issue in rural Iowa, where a low-density population disperses resources to manage the durable infrastructure needed. Significant planning is necessary.
Goals addressed	1, 2, 3, 4
Potential partners	Local governments, possible property owners adjacent to transportation routes
Estimated total cost	\$100,000 to \$2 million
Potential key funding sources	Local, RUTF, Iowa DOT, Federal highway funding, bonding, TIF, and special assessments
Benefits (losses avoided)	Infrastructure preservation; life safety; local government efficiency/continuity

Incorporate stand-alone elements for hazard mitigation into the local comprehensive (land use) plan and other local plans.

Primary hazard affected	Most hazards to some degree
Secondary hazard affected	
Other key hazards affected	
Jurisdictions implementing	Ringgold County, Tingley, Diagonal School, Mount Ayr Schools
Issue/plan for implementation	A comprehensive plan addresses the long-term trends and needs of a jurisdiction. Incorporating ideas and strategies from this plan into a jurisdiction’s general plan ensures implementation.
Goals addressed	2, 3
Potential partners	Local governments, SICOG, EMA
Estimated total cost	\$2,500 unless it is entire plan re-write, which will be at least \$10,000
Potential key funding sources	Local, possible FEMA/State, private foundations
Benefits (losses avoided)	Improved data sharing; improved efficiency; maintain government compliance

Increase community and individual engagement in disease prevention efforts.

Primary hazard affected	Human disease
Secondary hazard affected	
Other key hazards affected	
Jurisdictions implementing	Diagonal School, Mount Ayr Schools
Issue/plan for implementation	This is part of a national strategy. The goal is to get the population involved in this effort.
Goals addressed	1, 2
Potential partners	Local governments, engaged general public, Ringgold Co. PH, IDPH, CDC, EMA
Estimated total cost	\$1,000
Potential key funding sources	Local, possible FEMA/State, associated agencies and foundation grants
Benefits (losses avoided)	Life safety; a more engaged public

Increase production capacity - redundant systems and looping (water, sewer, electric, gas).

Primary hazard affected	Drought
Secondary hazard affected	Infrastructure failure
Other key hazards affected	Most other hazards to some degree
Jurisdictions implementing	Mount Ayr, Tingley
Issue/plan for implementation	Funding is low for redundancy but financing groups and regulators now call for secondary access. Significant planning is necessary.
Goals addressed	1, 2, 3, 4, 5
Potential partners	Local governments, property owners, utility providers, water and sewer providers
Estimated total cost	\$100,000-plus (varies by type and scope of work)
Potential key funding sources	Local, energy and utility providers, USDA, Iowa SRF, CDBG, bonding, TIF, Federal EDA
Benefits (losses avoided)	Continuation of essential utilities; infrastructure preservation; basic health

Initiate community preparedness programs.

Primary hazard affected	All hazards to some degree
Secondary hazard affected	
Other key hazards affected	
Jurisdictions implementing	Maloy, Mount Ayr
Issue/plan for implementation	This is similar to the implementation of an education campaign but is more focused on assisting businesses and organizations directly.
Goals addressed	1, 2, 3
Potential partners	Local governments, FEMA/State, insurance providers
Estimated total cost	Likely \$5,000 or less per year, depending on scope and number of organizations involved.
Potential key funding sources	Local, possible state and federal grants, possible donated technical assistance
Benefits (losses avoided)	Life safety; basic health; continuity of operations

Install air monitors.

Primary hazard affected	Terrorism
Secondary hazard affected	Hazardous materials
Other key hazards affected	Human disease, possible other hazards that impact air quality, such as grass/wildland fire
Jurisdictions implementing	Mount Ayr Schools

Issue/plan for implementation	Requires purchase, monitoring, and maintenance; placement priorities may be an issue but monitors would be placed in populated areas to alert officials of the existence of dangerous air quality conditions.
Goals addressed	1, 3, 4
Potential partners	Local governments, FEMA/State, possible IDNR and IDOT, CDC, IDPH
Estimated total cost	Likely less than \$10,000 per unit; modest operations costs.
Potential key funding sources	Local, possible state and federal grants, possible private foundation grants
Benefits (losses avoided)	Life safety; basic health; continuity of operations

Install hazard signs in area campgrounds, parks, and open spaces.

Primary hazard affected	Tornado and windstorm
Secondary hazard affected	Thunderstorm/lightning/hail
Other key hazards affected	Hazardous materials; severe winter storm; flash flood
Jurisdictions implementing	Diagonal
Issue/plan for implementation	The Fogle Lake campground area should be evaluated to determine what is needed, with tornado and thunderstorm safety the most notable issues.
Goals addressed	1, 5
Potential partners	Local governments, EMA, insurance providers
Estimated total cost	Likely up to \$20,000
Potential key funding sources	Local, USDA, energy and utility providers, property owners
Benefits (losses avoided)	Life safety; possible protection of private property exposed to hazards in warned area.

Install sprinkler systems in public buildings.

Primary hazard affected	Infrastructure failure (primarily structural fire)
Secondary hazard affected	Hazardous materials incident
Other key hazards affected	
Jurisdictions implementing	Mount Ayr
Issue/plan for implementation	Can be very expensive, so usually they are not installed except where required by law.
Goals addressed	1, 4
Potential partners	Local governments, fire departments, Iowa State Fire Marshal, state agencies affected
Estimated total cost	\$100,000 or more depending on scope of work
Potential key funding sources	Building owners; possible State/Federal grants, local private foundation grants
Benefits (losses avoided)	Life safety; property protection

Install warning sirens.

Primary hazard affected	Tornado and windstorm
Secondary hazard affected	Thunderstorm/lightning/hail
Other key hazards affected	Possible other incidents as programmed into the system
Jurisdictions implementing	Diagonal, Ellston
Issue/plan for implementation	The Fogle Lake campground area lacks an outdoor siren, and much of the public is outdoors in that area. Sirens must be purchased, installed, tested, and connected to some kind of trigger system.
Goals addressed	1
Potential partners	Local governments, fire department, county E911
Estimated total cost	Likely up to \$30,000
Potential key funding sources	Local, USDA, possible community foundation grants, property owners, occasionally FEMA
Benefits (losses avoided)	Life safety

Install windbreaks (permanent and seasonal). Use snow fences or “living snow fences” to limit wind effects.

Primary hazard affected	Severe winter storm
Secondary hazard affected	Grass and wildland fire
Other key hazards affected	Windstorm; highway and rail transportation incidents
Jurisdictions implementing	Ringgold County, Tingley
Issue/plan for implementation	Whether temporary or permanent facilities are used is a local decision in partnership with property owners where installed. In flat topography, they can reduce snow drifting on roads.
Goals addressed	1, 2, 4, 5
Potential partners	Local governments, property owners, IDOT, County Secondary Roads
Estimated total cost	\$5,000 (varies by type and size)
Potential key funding sources	Local, USDA, conservation partners, cost share programs, affected property owners, tree grants
Benefits (losses avoided)	Life safety; prevention of property loss

Investigate alternative water sources for fire suppression.

Primary hazard affected	Grass and wildland fire
Secondary hazard affected	Infrastructure failure (primarily structural fire)
Other key hazards affected	Drought, hazardous materials incident

Jurisdictions implementing	Ringgold County, Benton, Mount Ayr
Issue/plan for implementation	Benton and Ringgold County are noted for the lack of fire flow water capacity. SIRWA and local fire departments may work on proposals to supply water needs in these areas.
Goals addressed	1, 2, 4, 5
Potential partners	Utility providers, possible FEMA/State, USDA possibly, engineering team
Estimated total cost	\$10,000 to \$25,000 depending on scope of study and research
Potential key funding sources	Local, State, USDA, federal programs, environmental grants, possible CDBG and SRF programs
Benefits (losses avoided)	Continued operations and efficiency; life safety; protection of property and prevention of loss.

Involve more groups in hazard mitigation.

Primary hazard affected	Nearly all hazards
Secondary hazard affected	
Other key hazards affected	
Jurisdictions implementing	Ringgold County, Mount Ayr, Diagonal Schools
Issue/plan for implementation	This action really is just to increase the number of groups within and assisting said jurisdictions targeted and sustained by continual projects that engage them.
Goals addressed	2, 3
Potential partners	Local governments, EMA, possible FEMA/State, other interest groups, business groups
Estimated total cost	\$500 annually
Potential key funding sources	Local
Benefits (losses avoided)	Engagement of the public; increase in efficiency and effectiveness

Lightning-proof taller and exposed buildings and towers as well as all communications infrastructure.

Primary hazard affected	Thunderstorm/lightning/hail
Secondary hazard affected	Infrastructure failure (structural fire and energy failure)
Other key hazards affected	
Jurisdictions implementing	Mount Ayr, Diagonal School
Issue/plan for implementation	Study would determine the best means to provide protection for any targeted structure.
Goals addressed	2, 4, 5
Potential partners	Local governments, building owners, utility providers
Estimated total cost	\$25,000 to \$100,000 in most cases
Potential key funding sources	Local, possible state or FEMA grants, USDA
Benefits (losses avoided)	Property protection, infrastructure preservation, continuity of operations, life safety

Modernize infectious disease surveillance to drive public health actions.

Primary hazard affected	Human disease
Secondary hazard affected	Terrorism
Other key hazards affected	
Jurisdictions implementing	Mount Ayr Schools
Issue/plan for implementation	This is part of a national strategy. The goal is to formalize and keep current with the effort locally and engage local leaders.
Goals addressed	1, 2, 3
Potential partners	Local governments, engaged general public, Ringgold Co. PH, IDPH, CDC, EMA, FEMA/State
Estimated total cost	\$1,000 to \$5,000
Potential key funding sources	Local, possible FEMA/State, CDC, IDPH
Benefits (losses avoided)	Life safety

Prepare and implement a mass casualty plan to address of terrorism and infectious disease outbreaks.

Primary hazard affected	Human disease
Secondary hazard affected	Terrorism
Other key hazards affected	Any other hazard that could cause mass casualties (tornado, structural failure, fire, transportation incident, etc.)
Jurisdictions implementing	Mount Ayr Schools
Issue/plan for implementation	This is part of a national strategy. Templates and example plans are available for local use and adoption.
Goals addressed	1, 2, 3
Potential partners	Local governments, engaged general public, Ringgold Co. PH, EMA, FEMA/State, regional homeland security agencies, law enforcement community
Estimated total cost	\$1,000 to \$5,000
Potential key funding sources	Local, possible FEMA/State, DHS
Benefits (losses avoided)	Life safety; property protection; continuity of government

Promote the value installation of private in-home tornado safe rooms.

Primary hazard affected	Tornado and windstorm
Secondary hazard affected	Thunderstorm/lightning/hail

Other key hazards affected	Possibly severe winter storms and structural failure
Jurisdictions implementing	Ringgold County, Benton, Diagonal, Ellston, Kellerton, Maloy, Mount Ayr, and Tingley
Issue/plan for implementation	These are becoming more affordable and increasingly available on an individual basis. Promotion of these facilities through local partners can increase use; are manufactured in the region.
Goals addressed	1, 3, 5
Potential partners	Local governments, EMA, property owners
Estimated total cost	\$500 (plus additional funding if incentives to purchase them are offered)
Potential key funding sources	EMA, FEMA/State, local, engaged property owners
Benefits (losses avoided)	Life safety; prevention of property loss

Promote to property owners the importance of tree and vegetation maintenance on private properties.

Primary hazard affected	Grass and wildland fire
Secondary hazard affected	Windstorm
Other key hazards affected	Tornado; drought, plant disease, severe winter storm, infrastructure failure
Jurisdictions implementing	Ringgold County, Maloy, Mount Ayr
Issue/plan for implementation	Overgrowth of vegetation can result in hazards and exacerbate others. Costs to manage vegetation grow exponentially as vegetation grows. Can be accomplished by encouragement methods and code enforcement.
Goals addressed	1, 2, 5
Potential partners	Local governments, property owners, conservation groups
Estimated total cost	\$500 or less per year (plus enforcement costs if code enforcement is involved)
Potential key funding sources	Local, property owners (fees), possible grants for beautification projects
Benefits (losses avoided)	Prevention of property loss

Provide adequate access to safe drinking water in all public spaces, including outdoor spaces, such as parks and playgrounds.

Primary hazard affected	Excessive heat
Secondary hazard affected	Human disease
Other key hazards affected	Drought, hazardous materials
Jurisdictions implementing	Mount Ayr
Issue/plan for implementation	City parks and open spaces are popular and a concerted effort is needed to provide safe and reliable water to these locations through proper operating receptacles.
Goals addressed	1
Potential partners	Local governments, conservation and recreational groups, water providers
Estimated total cost	\$10,000 per unit
Potential key funding sources	Local, community foundation grants, possible State/Federal grants
Benefits (losses avoided)	Life safety

Promote NOAA weather radio – rebate incentive for citizen purchase.

Primary hazard affected	Most hazards to some degree
Secondary hazard affected	
Other key hazards affected	
Jurisdictions implementing	Ellston, Maloy, Mount Ayr, Tingley, Diagonal Schools
Issue/plan for implementation	There once was grant programs to promote weather radio with incentives; these may come back; provides a very portable method for many kinds of warnings and alerts.
Goals addressed	1
Potential partners	Local governments, EMA, possible SICOG
Estimated total cost	\$10,000 (depends on nature of incentives and scope)
Potential key funding sources	Local, State/FEMA, suppliers, USDA, possible foundation and private grants
Benefits (losses avoided)	Life safety

Provide safe room education for builders and developers.

Primary hazard affected	Tornado and windstorm
Secondary hazard affected	Thunderstorm/lightning/hail
Other key hazards affected	Structural failure
Jurisdictions implementing	Ringgold County, Mount Ayr
Issue/plan for implementation	FEMA resources are available to assist in this activity; would best work in conjunction with a new safe room project.
Goals addressed	1, 3
Potential partners	Local governments, EMA (covering all jurisdictions), FEMA/State, Schools and nearby Southwestern Community College (Creston) as platforms for providing education
Estimated total cost	\$1,000 annually or as efforts are made
Potential key funding sources	Local, State/FEMA, mostly in-kind
Benefits (losses avoided)	Engagement of the public, resulting in more mitigation projects

Purchase stand-by portable pumps and generators.

Primary hazard affected	Infrastructure failure
Secondary hazard affected	Flash flood
Other key hazards affected	Hazardous materials, severe winter storm, tornado/windstorm, thunderstorm/lightning/hail
Jurisdictions implementing	Diagonal, Kellerton, Mount Ayr, Diagonal School
Issue/plan for implementation	Portability is important but they must be maintained, stored, and easily transported and fueled. Sizing and management priorities should be established.
Goals addressed	1, 2, 4, 5
Potential partners	Local governments, utility providers and infrastructure managers
Estimated total cost	\$5,000 each
Potential key funding sources	Local, USDA, CDBG, private and foundation grants, utility partners
Benefits (losses avoided)	Life safety; continuation of essential utilities; prevention of property loss

Purchase/install backup fixed power generators and pumps.

Primary hazard affected	Energy failure
Secondary hazard affected	Thunderstorm/lightning/hail
Other key hazards affected	Tornado/windstorm; severe winter storm
Jurisdictions implementing	Benton, Ellston, Mount Ayr, Diagonal School
Issue/plan for implementation	Fixed generators make a building useful for public protection and housing during and after a hazard event. Prioritizes should relate to building use and shelter status.
Goals addressed	1, 2
Potential partners	Local governments, facility owners, EMA
Estimated total cost	\$25,000 to \$50,000
Potential key funding sources	Local, FEMA/State, USDA, CDBG, Iowa SRF program, foundation grants, property owners
Benefits (losses avoided)	Life safety; basic health; continuation of essential utilities

Reduce disease transmitted by animals and insects and foodborne infestations.

Primary hazard affected	Human disease
Secondary hazard affected	Animal, crop, and plant disease
Other key hazards affected	
Jurisdictions implementing	Diagonal School, Mount Ayr Schools
Issue/plan for implementation	This is part of a national strategy. This issue is increasingly a concern due to the spread of new kinds of pests and greater public attention on this matter; requires a regional response.
Goals addressed	1, 5
Potential partners	Local governments, engaged general public, public health agencies, farm groups, ISU Extension
Estimated total cost	\$1,000 annually at county level
Potential key funding sources	Local, possible FEMA/State, USDA, IA Dept. of Agriculture, foundation grants
Benefits (losses avoided)	Life safety; economic losses prevented (crops and animals)

Remove and clean up exposed chemical tanks, leaking underground storage tanks, hazardous sites, and abandoned properties.

Primary hazard affected	Hazardous materials
Secondary hazard affected	Human disease
Other key hazards affected	Any other hazard that can exacerbate or spread chemicals and substances or damage tanks
Jurisdictions implementing	Ringgold County, Mount Ayr
Issue/plan for implementation	It is necessary to work directly with property owners and, as needed, with the IDNR to list properties and ensure they are addressed.
Goals addressed	1, 2, 4, 5
Potential partners	Local governments, IDNR, property owners, possible EPA and other agencies
Estimated total cost	\$5,000 and up depending on SOW and extent of problems
Potential key funding sources	Local, IDNR, property owners, possible State/Federal grants
Benefits (losses avoided)	Life safety; prevention; property protection

Remove asbestos from public buildings.

Primary hazard affected	Hazardous materials
Secondary hazard affected	Human disease
Other key hazards affected	
Jurisdictions implementing	Diagonal Schools
Issue/plan for implementation	It is necessary to determine the scope of the problem and have removal plan approved by all regulator parties.
Goals addressed	1, 3, 4
Potential partners	Local governments, IDNR, State Dept. of Education, possible EPA
Estimated total cost	\$5,000 and up depending on SOW and extent of problems
Potential key funding sources	Local, IDNR, property owners, possible State/Federal grants

Benefits (losses avoided)	Life safety; prevention
Require burial of power lines in new development.	
Primary hazard affected	Infrastructure failure
Secondary hazard affected	Tornado/windstorm
Other key hazards affected	Severe winter storm, thunderstorm/lightning/hail
Jurisdictions implementing	Ringgold County, Mount Ayr
Issue/plan for implementation	Requires partnership with private utility providers to actually get this completed; initial step would be a policy to prevent overhead power line construction in new development.
Goals addressed	1, 2, 4, 5
Potential partners	Local governments, State/FEMA, private utility providers
Estimated total cost	\$2,500 to execute the policy; marginal enforcement costs.
Potential key funding sources	Local
Benefits (losses avoided)	Prevention of property loss; life safety
Require or encourage wind engineering and construction techniques: anchor bolts, interlocking roof shingles, etc.	
Primary hazard affected	Tornado/windstorm
Secondary hazard affected	Structural failure
Other key hazards affected	Severe winter storm, thunderstorm/lightning/hail
Jurisdictions implementing	Ringgold County, Mount Ayr
Issue/plan for implementation	This can be accomplished in local codes. It makes development more expensive upfront but saves money over time through reduced losses.
Goals addressed	1, 4, 5
Potential partners	Local governments, State/FEMA
Estimated total cost	\$1,000 initially
Potential key funding sources	Local, State/FEMA in-kind time
Benefits (losses avoided)	Prevention of property loss; life safety
Store digital and hard copies of public records in low-risk, offsite locations.	
Primary hazard affected	Cyber terrorism
Secondary hazard affected	Most hazards that can damage property
Other key hazards affected	
Jurisdictions implementing	Benton, Diagonal, Ellston, Kellerton
Issue/plan for implementation	A significant problem for small towns, because they lack resources to manage data and files in multiple systems; requires long-term resource commitment and oversight.
Goals addressed	2, 3, 4
Potential partners	Local governments, State/FEMA, Iowa Dept. of Management
Estimated total cost	\$1,000 initially and \$1,000 per year management and storage
Potential key funding sources	Local, State/FEMA in-kind time, possible community foundation grants
Benefits (losses avoided)	Prevention of property loss; continuity of government
Strengthen exposed utility and communications infrastructure.	
Primary hazard affected	Infrastructure failure (energy)
Secondary hazard affected	Severe winter storm
Other key hazards affected	Thunderstorm/lightning/hail; grass and wildland fire; tornado/windstorm
Jurisdictions implementing	Ringgold County, Benton, Diagonal, Ellston, Kellerton, Maloy, Mount Ayr, Tingley, Diagonal School
Issue/plan for implementation	Priorities are needed based on supply, population served, voltage, and location. Retrofitting lines is usually less expensive than burial; some high-voltage lines cannot be buried.
Goals addressed	1, 2, 3, 4, 5
Potential partners	Local governments, utility providers, Iowa Utilities Board
Estimated total cost	\$1 million (depending on SOW)
Potential key funding sources	FEMA/State, local, utility providers, affected property owners, possible USDA
Benefits (losses avoided)	Infrastructure preservation; continuation of essential utilities; life safety

4.11: Implementation of the National Flood Insurance Program (NFIP)

In addition to the strategies outlined in the previous section, the local jurisdictions that are affected by flooding, either identified as Special Flood Hazard Areas (SFHAs) now or in the future, adopts this section as a strategy to address flooding and meet FEMA mitigation planning requirements.

This part of the plan addresses the following Stafford Act requirements:

Section 201.6 (c)(3)(ii): [The mitigation strategy] must also address the jurisdiction’s participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.

Ringgold County Plan Update Changes to the Flood Mitigation

Section 201.6(d)(3) requires that the jurisdictions in the plan review and revise the plan to reflect progress in local mitigation efforts and changes in priorities. Accordingly this section describes NFIP participation and actions to maintain continued compliance with the NFIP. It also greatly expands the topic from a simple statement that the jurisdiction(s) will participate.

A primer on floodplain management in Iowa offers insight into how flooding is now mitigated both inside and outside of SFHAs. As part of an effort to stem the increase in flood damages sustained after a number of devastating flood events in the 1940s, the Iowa General Assembly created the Iowa Natural Resources Council in 1949. Originally, the Council's power over floodplain activities was advisory in nature. Its regulatory functions were established by 1957 and 1965 amendments. After a number of state reorganizations, Iowa's floodplain regulatory authority now resides with the Water Resource Section of the Iowa Department of Natural Resources (IDNR). Iowa's floodplain program is different from most states in that its authority extends to virtually all floodplain construction within the state and is not limited to FEMA regulatory floodplains. Regulatory thresholds of rural development in watersheds draining ten square miles or more, and urban developments in watersheds draining two square miles or more require a permit from the IDNR. Other developments below these thresholds have relatively minor impacts and are not considered. Iowa law allows IDNR to delegate the State's floodplain regulatory functions to a local government that has a flood study identifying the regulatory floodway and floodway fringe along the 100-year flood profile and a floodplain management ordinance meeting certain minimum requirements. The state allows communities with delegated floodplain management authority to issue floodplain development permits in lieu of the IDNR. The state has delegated floodplain authority to approximately 140 NFIP participating communities. As part of the delegation process, the state retains the right to concur or deny with the granting of any variance from the community's floodplain management regulations. Although the State of Iowa's criteria for new floodplain development is similar to the minimum NFIP criteria in most respects, there are some important differences, for example:

- The lowest floor of new structures must be elevated an additional 1.0 foot above the 100-year (base) flood.
- Iowa does not allow new residential structures in the floodway.
- Residential structures must have wheeled vehicular access during the 100-year flood.
- The substantial improvement threshold is reached with an additional 25% or more of floor area.
- All post-Firm (Flood Insurance Rate Map) additions are considered cumulative improvements in the determination of increase in flood area.

(Source: FEMA Region VII and IDNR)

Iowa Legislative Code 455B.262A is a law that was enacted in the spring of 2009. The law ties a community's eligibility for certain post-disaster state assistance to participation in the National Flood Insurance Program.

Following a presidentially declared disaster, FEMA makes Public Assistance grants available to local governments. The grants may be used for clean up and repairs (e.g., assistance for debris removal, infrastructure repair, etc.). These grants usually provide only 75% of the cost of any post-disaster project. The state of Iowa typically contributes another 10% towards the required 25% non-federal match for public assistance grants. Effective July 1, 2011, the State of Iowa made its contribution towards this non-federal match for public assistance grants associated with flood-related disaster declarations contingent upon the community being in good standing with the NFIP.

This code chapter only affects those communities that have an existing Flood Insurance Rate Map (FIRM) published by FEMA that identifies areas within the community that are subject to inundation by flood waters during a 1%-chance flood event (also known as the 100-year flood). If a community is newly identified as having areas that are subject to inundation during a 1%-chance flood event, it will have two years from the effective date of the FIRM to join the NFIP before the community loses eligibility for state matching funds.

In Chapter 3's river flood profile is data about local participation and insurance policies. Only the City of Benton and Ringgold County are participating as of 7/28/18. Diagonal, Maloy, and Mount Ayr are not participating. The reasoning is not disclosed, but in Mount Ayr's case, only a very small area that is not developed is in the SFHA. Maloy has very few resources and virtually no development potential. One significant development in the past five years is that flood maps have been prepared through the IDNR, Iowa Flood Center, and FEMA's Risk MAP program. These maps are now

regulatory. Appendix D contains the current maps. The following jurisdictions have flood hazards and, once regulatory, will contain SFHAs:

- Ringgold County (rural)
- City of Benton
- City of Diagonal
- City of Maloy
- City of Mount Ayr

Where SFHAs exist and where public demand and interest exists to purchase flood insurance, the jurisdiction(s) will join or continue active participating in the NFIP. As part of the compliance and a proactive mitigation strategy, each jurisdiction will also:

- Adopt and enforce floodplain management requirements, including regulating all and substantially improved construction in Special Flood Hazard Areas (SFHAs).
- Appoint and engage a floodplain manager and readily share information with other jurisdictions.
- Create and enforce the floodplain ordinance. This includes monitoring development in the floodplain and ensuring all development is permitted by the community and the State and ensuring permit applicants have received the required State permit prior to issuing a local permit.
- Continue to review and update the floodplain ordinance. To avoid being sanctioned, the community must amend the ordinance whenever minimum State or NFIP standards are revised and when revised maps are issued.
- Expand public information/education initiatives related to flooding. This includes educating the community about floodplain ordinance requirements, mandatory purchase requirements, and insurance availability. Educating the public about the ordinance requirements and the benefits of complying with those requirements (protecting people and property and making insurance available) helps make certain they are aware of and comply with the ordinance and facilitates county enforcement efforts.
- Undertake floodplain identification and mapping, including any local requests for map updates, if needed.
- Coordinate and report claims and loss information.

Mitigation activities in this plan directed toward continued compliance are summarized alphabetically in the following table.

Figure 4.55: Actions that Address NFIP Compliance and Related Flood Issues

Jurisdictions	Measure/Action	Contribution to Continued Compliance
Maloy	Adopt the current FIRM maps as applicable to each jurisdiction.	Now that maps are official, they should be adopted in order to meet compliance. Adoption improves enforcement capability.
Ringgold County, Benton, Diagonal, Maloy, Mount Ayr	Full review of policy, procedure, and codes to include mitigation.	This action can help the jurisdictions identify and codify policy changes that might relate to flooding and the NFIP throughout all codes, policy statements, and ordinances.
Mount Ayr	Clear and deepen roadside ditches.	Addresses flash flooding and can reduce downstream flooding issues but holding water in place to slow downstream flow.
Benton, Diagonal	Complete a storm water drainage study for known problem areas.	This data can supplement the FIRM data as well as help with engineering of improvements in those areas. It can also provide information useful to property owners to help them avoid development in hazard areas.
Diagonal	Construct or repair dams; develop reservoirs and lakes (flood control, water source).	Can prevent dam failure, which impacts down-stream flooding.
Benton, Diagonal, Mount Ayr	Construct storm water drainage (underground, culverts, curb & gutter, etc.); improve capacity of existing systems.	The control and management of storm water in developed areas can prevent downstream flooding. This is not a direct NFIP compliance issue but is a flood prevention and reduction of extent issue.
Diagonal, Maloy, Mount Ayr	Discourage/prohibit development in flood plain areas - join or continue participation in the NFIP.	Joining the NFIP makes the City compliant for all FEMA funds. Preparing a valid local floodplain ordinance, continuing to enforce the ordinance for all development in the SFHA, and ensuring applicants for a local permit have received the required state permit, ensure that the community remains compliant and flood insurance is available. At a minimum the ordinance must be amended whenever State or NFIP standards are revised and/or when FEMA issues revised maps. This alternative ensures the community's floodplain ordinance meets minimum NFIP and state requirements.

Ringgold County, Benton, Mount Ayr	Elevate, raise grade, or relocate roads, bridges, sewer lift stations, water pumps, and other infrastructure and critical assets.	This project has an indirect impact by reducing the amount of critical infrastructure, necessarily located in the SFHA, subject to river flooding.
Ringgold County, Benton, Diagonal, Maloy, and Mount Ayr	Encourage/install sustainable storm water control and water quality practices such as buffer strips, bioswales, rain gardens, porous pavement, vegetative buffers, and parking area islands.	This project reduces uphill flash flooding but holding and treating water closer to where it falls, thereby reduces down-stream flooding.
Ringgold County	Flood proof critical assets in the community.	This project has an indirect impact by protecting buildings and infrastructure, necessarily located in the SFHA but subject to river flooding.
All jurisdictions	Implement a comprehensive multi-media public education campaign for multiple hazards.	Although general in nature, this training can include continued reminder of the NFIP and its importance. It can also promote continued review of the flood plain ordinance.
Mount Ayr	Implement stream modifications, channel improvements and stream bank stabilization.	Not directly an NFIP activity but can prevent flood losses and reduce the extent of flooding in the area of the modifications and downstream.

Flood mitigation is complicated and involves significant funding and planning to be successful. The jurisdictions in the county would be well served to remember that projects, investments, and actions in one area can exacerbate flooding in that area or downhill from that area, so community project evaluation and policy-making should consider the unintended consequences to flood risk.

4.12: Implementation of Climate Change Resilience Actions

Several mitigation actions in this plan address climate change indirectly, such as improving infrastructure capacity, building retrofits, etc. However, this section looks at more sustained activities directly related to this issue.

Ringgold County Plan Update New Section

In accordance with FEMA Administrator Policy 2011-OPPA-01, where possible, this plan update includes statements on possible mitigation alternatives related to climate change.

The following statements come from the EPA’s “Iowa Climate Change Adaption & Resilience Report, 2011” (p. 19-20). These statements relate to a strategy to address climate change at the local level.

Opportunities for Incorporating Climate Science into Local Planning

Integrating consideration of climate impacts into hazard mitigation and community planning is a relatively new area with no established best practices. The process for considering the impacts of current and future climate changes on hazard mitigation and land planning efforts will vary by community. Options for using climate change information and related estimates of future hazards include:

- **Using information on current and future climate changes in developing risk assessments for hazard mitigation plans.** For example, the city of Ames supplemented its existing Flood Insurance Rate Maps (FIRMs), developed by FEMA, with locally available information to develop improved assessments of flood risk for its hazard mitigation plans. The city conducted an additional floodplain study to accurately determine the boundaries of its 100-year floodplain. Ames’ approach could be taken even further if climate scientists and hydrologists could develop methods for a floodplain study to determine a 100-year floodplain boundary under changed climate conditions.
- **Developing smart planning solutions that reduce risks and enhance community resilience based on an improved understanding of future hazards:** Such solutions might include the development of a greenway to provide flood protection and storage capacity, as well as recreational opportunities; the concentration and/or relocation of existing development out of harm’s way; the identification of safe places to build, which can also be infill areas ripe for reinvestment; and the use of green infrastructure to help manage heavier precipitation. For example, the city of Cedar Falls recently passed legislation that includes a new floodplain ordinance that expands zoning restrictions from the 100-year floodplain to the 500-year floodplain, since this expanded floodplain zone better reflects the flood risks experienced by the city during the 2008 floods. This will help to lessen the damage brought on by future flooding in the community and also discourages further use of fill material in the floodplain, which forces water into areas outside the floodplain.
- **Integrating smart planning solutions into existing planning frameworks:** These solutions can be integrated into existing comprehensive and other land use plans, zoning and building codes and other municipal ordinances, flood maps, and incentives for development and conservation such as the purchase or transfer of development rights, conservation

easements, and the establishment of community land trusts.

In the same planning document (p. 34):

“Dr. Kamyar Enshayan, a Cedar Falls, Iowa, city council member and director of the Center for Energy and Environmental Education at the University of Northern Iowa, asserts that whether adaptation is accomplished through hazard mitigation plans or other means, consideration of future changes in climate must become an operational part of local governments, not just a plan that is developed and is disassociated from all other local decisions.”

According to the *“APA Policy Guide on Planning and Climate Change:”*

“Changes in climate due to global warming ultimately will be local in their effects. Changes can occur in the availability of arable land, length of the growing season, amounts of rainfall, temperature changes, levels of disruptive weather, and ecological balance, just to name a few. In addition to research about the implications of climate change for communities and urban areas in general, research is needed that will enable specific places to develop appropriate plans for action to mitigate and adapt to climate change.”

For this reason, the local planning team recognizes that, at this time, creating a full mitigation plan specifically for climate change resiliency is not possible, but the issue will be studied and considered more in future mitigation plan updates. See Appendix C for more fact sheets and information on this issue.

Chapter 5: Implement the Plan and Monitor Progress

This chapter provides an overview of the overall strategy for plan maintenance and outlines the method and schedule for monitoring, updating and evaluating the plan. The chapter also discusses incorporating the plan into existing planning mechanisms and how to address continued public involvement.

This part of the plan addresses the following Stafford Act requirement:

Section 201.6 (c)(4)(i): [The maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

Ringgold County Plan Update Changes to the Implementation Process

Updated information and new guidance documents are provided and referenced. Sections were added to describe more practical issues related to implementation decisions made by the jurisdictions.

5.1: Plan Review and Adoption

A review evaluates a plan for compliance with the DMA of 2000. It also serves as a tool for improving the quality of plans. A high quality plan that is well monitored will guide the community to the maximum reduction of risks. The planning consultant and FEMA have completed the Plan Review comments form, attached in Appendix G. This guidance can supplement the mitigation strategy in Chapter 4 to help the implementation teams and leaders through each action to see how it relates to the DMA of 2000. The FEMA hazard mitigation planning main guidebooks are “Local Mitigation Plan Review Guide, October 1, 2011” and “Local Mitigation Planning Handbook, March 2013.” They can be obtained from FEMA free as a PDF file from www.fema.gov. This plan, as drafted today, is not final until FEMA approves it. The adopted plan includes those changes that are required. Recommended changes can be made also at any time.

During the local plan review period of September and October 2018, the public was invited to review and comment on the plan, which was available electronically and as hard copies in several locations. They could make comments directly to the consultant or at the final planning team meeting. The public was alerted through local news media. Jurisdictions that adopted the plan during the initial review period have included resolutions in Appendix A.

5.2: Evaluating the Plan

Periodically, as warranted, a major step in the plan implementation process is the plan evaluation. The effort should be made to determine if the planned course of action and the current implementation of the course of action has had the desired effect on each jurisdiction. FEMA has how-to guides, downloadable from www.fema.gov, which provide ideas, examples, and funding information that can guide the community in the evaluation and implementation processes. Evaluation can be formal or informal. Formal evaluation includes public meetings where the jurisdiction or a multi-jurisdictional planning team discusses the status of implementation and what can be improved. Informal evaluation may be done internally as related to a given mitigation action and may not be made public or incorporated into the plan file. Again, the public should be invited to all formal meetings where the plan is discussed and possible changes can be made. Local media should be used to alert the public. Each jurisdiction is responsible for evaluation of the parts of the plan relevant to the said jurisdiction.

5.3: Implementation Policies and Issues

The hazard mitigation planning team was created to develop the mitigation plan and guide the plan preparer. The planning team should not formally end with the approval of the plan. The planning team should become a watchdog to help local officials move the plan’s goals forward and should take a key role in implementing projects. Members can help remind public officials of that particular year’s mitigation strategy and possible funding options and can volunteer in the implementation process for certain actions. The team and local governments may participate in the process and engage regional organizations, state agencies, colleges, schools, NGOs, and churches via memoranda of agreement.

Throughout the mitigation plan, there are gaps in data that are outlined in the plan. In addition to specific mitigation actions in this chapter, it is important that the Ringgold County jurisdictions review this plan periodically as the County

prepares for the next five-year update of this Plan. This process would help satisfy FEMA Region VII requirements. Missing data should be found and included by the next major update.

This hazard mitigation plan is a guide for future policy planning for participating jurisdictions in the county. The plan considers demographic trends and projections, community background information, current and future political decisions, and overall important goals and objectives for the county’s jurisdictions. The goals and objectives have been developed to reflect the general consensus of the county’s Hazard Mitigation Planning team, the broad range of elected officials, and the citizenry of the county. These recommendations have been developed to look five-plus years into the future with the expectation that periodic updates will occur in order to reflect changes within the county.

The success of this plan will require the support of the emergency management commission/agency, elected officials, department heads, and volunteers (including civic groups, academia, and general citizens). Cooperation from the public and private sectors will allow implementation of the recommendations that will provide long-term benefits for the entire county and each jurisdiction. By implementing these recommendations, the jurisdictions will be furthering other civic goals also.

Simply listing a project or discussing an issue does not cause anything to be done about it. It is vital that the jurisdictions make a sustained effort to implement projects, actions, and policies as outlined in this plan. Reviewing the text intermingled among the tables and lists also provides ideas on *how* to carry out the plan and meet mitigation goals. This chapter also provides more details about the regular activities involved in carrying out this plan and preparing for future planning efforts.

The following ideas should be kept in mind when considering how the plan should be implemented.

1. Funding and resources are very limited due to the small population size, modest land value and tax base, and other funding obligations that make it impossible to save for long-term emergency needs.
2. Ringgold County has a limited number of volunteers and support agencies to handle either mitigation projects or response needs. Funding is too limited to provide proper training and equipment, and volunteers do not have the time to undertake the necessary training. Many volunteers and staff wear multiple “hats” and cannot meet all the demands when hazards occur.
3. Many members of the public are apathetic to hazards and particularly to the sustained efforts necessary to mitigate them. Some citizens and public officials do not properly respect the need for mitigation planning, the risks the county face, and the roles they have in the process. Few members of the general public have attended planning meetings.
4. Information and data to bring about detailed hazard analysis and the analysis of possible mitigation actions is often lacking on a local level.
5. Local jurisdictions have limited legal authority to implement some possible mitigation actions.
6. Because prioritization is needed in order to effectively use limited resources, it is important that the jurisdictions perform studies on community infrastructure and services provided.
7. Because of the risk of failure of investments in key hazard areas where the area is defined, the jurisdictions should consider a policy to prohibit or limit public expenditures for capital improvements in such areas.
8. Small towns should use mitigation before hazards occur as a means to be prepared for the fact that, in a widespread hazard, resources are not likely to be available to them until larger jurisdictions are served.

5.4: Funding the Implementation

Local funding is required to implement local mitigation projects. Possible sources of local funds include:

- Fundraisers,
- General tax revenue,
- Fees for service,
- Tax increment financing and other tax incentives,
- Creation of new utility funds, namely a storm water utility, and
- In-kind labor and use of equipment and machinery.

Funding sources vary over time and by project type, applicant agency, and jurisdiction. However, all jurisdictions in the county have access to funds from outside the local government or applicant organization for most projects. Because this plan is funded in part by a Stafford Act grant program, the following table details the current funding sources available from the Stafford Act. Details are found on at www.fema.gov/hazard-mitigation-assistance.

Figure 5.1: FEMA Stafford Act Funding Sources

Source – Name	Type	Type of Projects	Limitations	Funding Levels
Hazard Mitigation Grant Program (HMGP)	Non-competitive grant following a federal disaster declaration	Typically funds the following: <ul style="list-style-type: none"> • Hazard mitigation planning • Tornado safe rooms • Localized flooding prevention • Berms around critical assets • Structural retrofits 	75% FEMA for eligible costs; 10% State, 15% local	When State of Iowa issues a funding notice calling for applications following a disaster.
Pre-Disaster Mitigation (PDM) Program	Competitive annual grant not tied to a declaration	Same activities as HMGP	75% FEMA for eligible costs; 25% local	Annual appropriation nationwide
Flood Mitigation Assistance (FMA) Program	Competitive annual grant not tied to a declaration	Flood mitigation activities and detailed research on flooding issues in a community, primarily for communities in good standing with the NFIP.	Limited to communities in the NFIP program and some funding is targeted to RLPs; 75% FEMA for eligible costs; 25% local	Annual appropriation nationwide

Sources: www.fema.gov/hazard-mitigation-assistance.

While almost all actions will require local funds and some in-kind contributions, outside funding will be needed for most projects. Funding is available if one is willing to seek it for most of the proposed mitigation actions. FEMA has several guides on federal funds on www.fema.gov, including brochures, case studies, source lists, and links to other funding sites.

Many other sources of funds, besides FEMA, exist that can help with mitigation project funding. Local organizations that currently undertake projects with mitigation effects, such as NRCS, fire associations, RC&D, and area community colleges, may have funding or may offer programs for local governments, first responders, and landowners already. Flood mapping, watershed planning, and other mitigation projects may fall under resources offered by these state and federal governments as well as ISU Extension.

Local jurisdictions are invited to contact groups serving Ringgold County, such as SICOG, to assist with identifying and applying for both FEMA and non-FEMA grants for various mitigation projects. Major funding entities including the following.

Common federal agency funding sources:

- United States Department of Agriculture (USDA) Rural Development
- Environmental Protection Agency (EPA)
- Housing and Urban Development (HUD)
- Small Business Administration (SBA)
- US Department of Homeland Security (DHS)

Common State of Iowa funding sources (including federal funds passing through Iowa):

- Iowa Economic Development Authority (IEDA)
- Iowa Department of Natural Resources (IDNR)
- Iowa Finance Authority (IFA)
- Iowa Department of Human Services (DHS)
- Iowa Department of Agriculture and Land Stewardship (IDALS)
- Iowa Department of Transportation (IDOT)

- Iowa Department of Public Safety (DPS)
- Iowa Department of Public Health (IDPH)

Common sources of NGO funding:

- Community foundations
- Private foundations – which fund specific types of projects and initiatives, mostly with hazard mitigation as a side effect of the effort
- Utilities providers and corporations with a presence in the area
- Service organizations with mitigation focus, such as American Red Cross
- Agricultural entities and companies

It is important to engage public elected officials in the budgeting process using a capital improvements plan and strategic planning to acquire needed expensive equipment and programs over multiple budget cycles.

5.5: Annual Review and Plan Maintenance Process

The DMA of 2000 suggests that each local jurisdiction review the plan annually. Principally, each jurisdiction's government body and key staff should review the actual implementation plan for that jurisdiction. A review of capabilities, goals/objectives, and proposed actions is particularly warranted. It is important that the review notes and suggested changes be made at a public meeting and records are kept. If any of the changes relate to a project that is being submitted to FEMA, such as through a PDM, FMA, or HMGP application, the jurisdiction must adopt the changes at a council or supervisor meeting to make the changes officially part of the plan and thus eligible for mitigation funding. The local jurisdictional body, such as city council, board of supervisors, or school board, is responsible for ensuring reviews are completed.

In Appendix F are templates that can be used to help with reviews and updates. The existing planning team or a newly appointed team can be appointed to assist the local jurisdiction with annual updates. Again, the public should be invited to all formal meetings where the plan is discussed and possible changes can be made. Local media should be used to alert the public. Each jurisdiction is responsible for review of the parts of the plan relevant to the said jurisdiction.

Evaluation of progress can be achieved by monitoring changes in vulnerabilities identified in the plan. Changes in vulnerability can be identified by noting:

- Decreased vulnerability as a result of implementing recommended actions,
- Increased vulnerability as a result of failed or ineffective mitigation actions, and/or
- Increased vulnerability as a result of new development (and/or annexation).

The annual reviews and updates to this plan will:

- Consider changes in vulnerability due to action implementation,
- Document success stories where mitigation efforts have proven effective,
- Document areas where mitigation actions were not effective,
- Document any new hazards that may arise or were previously overlooked,
- Incorporate new data or studies on hazards and risks,
- Incorporate new capabilities or changes in capabilities,
- Incorporate growth and development-related changes to inventories, and
- Incorporate new action recommendations or changes in action prioritization.

In order to best evaluate the mitigation strategy during plan review and update, the participating jurisdictions will follow the following process:

- A representative from the responsible office identified in each mitigation action will be responsible for tracking and reporting the action status on an annual basis to the jurisdictional HMPC member and providing input on any completion details or whether the action still meets the defined objectives and is likely to be successful in reducing vulnerabilities.
- If the action does not meet identified objectives, the jurisdictional HMPC member will determine what

additional measures may be implemented, and an assigned individual will be responsible for defining action scope, implementing the action, monitoring success of the action, and making any required modifications to the plan.

- As part of the annual review process, the Ringgold County Emergency Management Coordinator will provide the updated mitigation strategy with current status of each mitigation action to local elected officials of various jurisdictions requesting that the mitigation strategy be incorporated, where appropriate in other planning mechanisms.

Changes will be made to the plan to accommodate for actions that have failed or are not considered feasible after a review of their consistency with established criteria, time frame, community priorities, and/or funding resources. Actions that were not ranked high but were identified as potential mitigation activities will be reviewed as well during the monitoring and update of this plan to determine feasibility of future implementation. Updating of the plan will occur by written changes and submissions, as the planning team deems appropriate and necessary, and as approved by the Ringgold County Board of Supervisors and the governing boards of the other participating jurisdictions.

5.6: Opportunities for Publicity

Once the plan is prepared, support can be maintained and grown throughout the implementation process.

This part of the plan addresses the following Stafford Act requirement:

Section 201.6 (c)(4)(iii): [The maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.

Several times the local media can make comments about the effort and successes that may arise:

- Adoption of the mitigation plan
- Receipt of approval by FEMA
- Initiation and completion of tangible mitigation actions or projects
- Update and evaluation meetings and results

Annually, each jurisdiction is to hold at least one public meeting or hearing that is publicized so that the public can comment on the status of the mitigation plan's implementation and changes that are needed to the plan.

5.7: Incorporation Into Existing Planning Mechanisms

The County and many of the cities in Ringgold County do not have standing formal planning mechanisms such as a comprehensive plan or capital improvements plan through which formal integration of mitigation actions can be documented. As a result, activities that occur in these small communities are developed through annual budget planning, regular city council meetings, board meetings, and other community forums rather than a formal planning process.

This part of the plan addresses the following Stafford Act requirement:

Section 201.6 (c)(4)(ii): [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvements, when appropriate.

The planning team is partly responsible to ensure that the public officials are incorporating mitigation actions into relevant plans and planning mechanisms, such as zoning, annexation plans, and bonding proposals. Communities should also include mitigation initiatives as regular line items in community capital or operational budgets to ensure ongoing funding for hazard mitigation initiatives.

The local jurisdictions did not incorporate any of the mitigation actions into existing plans in any formal sense since the previous plan was adopted. However, mitigation ideas were incorporated informally in budget decisions, such as to fund a mitigation action. The jurisdictions commit to improved formal planning efforts in the next five years.

The following matrix describes each jurisdiction's individual process for integrating hazard mitigation actions into other planning mechanisms.

Figure 5.2: Potential Planning Integration by Jurisdiction

Jurisdiction	Integration Process for Previous Plan	Integration Process for Plan Update
Ringgold County	Mitigation plan was incorporated into the current Emergency Operations Plan.	The plan will continue to be reviewed and integrated, as appropriate, in future updates of the EOP. Additionally, annual updates of the mitigation strategy will be provided to the EMA and County department heads for review and incorporation into annual budget planning that is completed by each County department each January-March. A comprehensive plan will be contemplated.
City of Benton	No formal integration reported	No formal comprehensive or capital improvement plans exist for this community. The annual update of the mitigation strategy will be provided to the Mayor and City Clerk for consideration by the City Council as ordinances are reviewed/updated and as funds are available for improvement projects. Short-term planning will be considered.
City of Diagonal	No formal integration reported	No formal comprehensive or capital improvement plans exist for this community. The annual update of the mitigation strategy will be provided to the Mayor and City Clerk for consideration by the City Council as ordinances are reviewed/updated and as funds are available for improvement projects. Short-term planning will be considered.
City of Ellston	No formal integration reported	No formal comprehensive or capital improvement plans exist for this community. The annual update of the mitigation strategy will be provided to the Mayor and City Clerk for consideration by the City Council as ordinances are reviewed/updated and as funds are available for improvement projects. Short-term planning will be considered.
City of Kellerton	No formal integration reported	No formal comprehensive or capital improvement plans exist for this community. The annual update of the mitigation strategy will be provided to the Mayor and City Clerk for consideration by the City Council as ordinances are reviewed/updated and as funds are available for improvement projects. Short-term planning will be considered.
City of Maloy	No formal integration reported	No formal comprehensive or capital improvement plans exist for this community. The annual update of the mitigation strategy will be provided to the Mayor and City Clerk for consideration by the City Council as ordinances are reviewed/updated and as funds are available for improvement projects. Short-term planning will be considered.
City of Mount Ayr	Mitigation plan was incorporated into 2013-14 city comprehensive plan	The city has a comprehensive plan, a street improvements plan, and zoning. The city is working on a plan for storm water improvements. The annual update of the mitigation strategy will be provided to the Mayor and City Clerk for consideration by the City Council as ordinances are reviewed/updated and as funds are available for improvement projects. Short-term and long-term planning will be continued.
City of Tingley	No formal integration reported	No formal comprehensive or capital improvement plans exist for this community. The annual update of the mitigation strategy will be provided to the Mayor and City Clerk for consideration by the City Council as ordinances are reviewed/updated and as funds are available for improvement projects. Short-term planning will be considered.
Diagonal CSD	No formal integration reported	The annual update of the mitigation strategy will be provided to the School Superintendent for consideration in the next update cycle of the capital improvement plan.
Mount Ayr CSD	No formal integration reported	The update of the mitigation strategy will be provided to the School Superintendent for consideration in the next update cycle of the capital improvement plan.

The following matrix shows the types of planning mechanisms available and how this plan should be incorporated into them.

Figure 5.3: Integration of This Plan into Other Planning Mechanisms

Current Planning Mechanism	Jurisdictions Currently in Place	Method of Incorporation	Who Responsible or Lead?
Comprehensive land use plan	Mount Ayr	Review each, develop plans in other jurisdictions	Zoning commissions and staff
Capital improvements plan	No formal plans adopted	Modernize each, develop plans if they are outdated	Public works directors and staff
Economic development plan	All participate in a regional plan	Add a mitigation section to annual regional plan	City clerks, supervisors, SICOG
Open space/conservation plan	Ringgold County	Incorporate mitigation projects affecting open spaces into plans	Conservation board/staff, city parks & recreation

Watershed protection plans	Limited areas of Ringgold County	Address mitigation actions in watershed areas	staff EMC and NRCS/SWCD
Zoning ordinance	Mount Ayr	Review zoning code concerning applicable hazards	Zoning commissions and staff
Subdivision regulations	Mount Ayr	Review subdivision code concerning applicable hazards	Zoning commissions and staff
Building codes	Ringgold County and Mount Ayr in process	Update building codes for fire and wind standards; adopt them	Building inspector, floodplain manager
Tree maintenance codes	Limited in all areas	Consult with utilities	City and county public works officials
Soil erosion/water control ordinance	Limited in all areas	Consult with NRCS/SWCD & DNR	EMA and NRCS/SWCD
Solid/hazardous waste regulations	All county through landfill region	Review regulations as to what can be landfilled, add hazard maps	EMA and landfill commission
Public health regulations	All county through Public Health	Collaborate with PH agencies to incorporate new protocols	EMA and public health board and staff
Historic district programs	No formal plans adopted	Provide data to assist in protecting properties	Mt. Ayr Chamber, preservation groups
Downtown revitalization programs	Mount Ayr	Provide data to assist in protecting properties	Cities, chambers, SICOG, preservation groups
Long-range transportation plan	All county through the regional planning agency	Incorporate hazard maps and transportation improvement ideas	County engineer, IDOT, ATURA
Water source plan	All county through intergovernmental agreements	Include mitigation actions related to relevant hazards	SIRWA, RC&D (if one created)
Storm water management program	Mount Ayr in process	Include mitigation actions related to flash flooding	Floodplain manager, city clerk, EMC, county engineer
Housing and special needs plans	No formal plans adopted	Consider mitigation recommendations in housing plans and funding requests for improvements	SICOG, SIRHA, hospital, special needs boards
Administrative operations processes – departments and boards; local budgets	All jurisdictions	Convene meetings where realignment of tasks, new or improved tasks and processes, and goals are updated	EMC, elected officials, clerks and board chairs

It is strongly recommended that staff and elected/appointed officials become aware of the mitigation strategy and its practical applications. An annual review of local planning mechanisms is warranted, simply to give the local leaders an opportunity to think about how mitigation actions affect the local planning mechanisms and to ensure local plans are current. Each jurisdiction is responsible for incorporation of mitigation ideas into relevant plans. Policies should be in place to govern local decisions about how to use jurisdictional budget funding for specific activities that are not mitigation directly but might affect mitigation priorities. An example might include a mitigation checklist to be used for all capital and land use decisions.

The FEMA guide, “Integrating Hazard Mitigation Into Local Planning: Case Studies and Tools for Community Officials,” (March 2013) is a good resource to assist local officials in this process.

5.8: Five-year Major Updates

FEMA approved mitigation plans expire five years after the date FEMA approves the mitigation plan (see Appendix G for the FEMA letter). In order to not miss out on potential FEMA funding, a new plan should be authored and submitted for FEMA approval before that date. Because it takes considerable time for a multi-jurisdictional plan update, the community should begin this process by early 2020. From time to time, HMGP and PDM funding is available to fund up to 85% of the planning costs for the plan update. The jurisdictions will be required to address the results of implementation of this plan, how hazard impacts have changed, and how goals and objectives have changed. Further, many of the FEMA recommended but not required improvements will have to be addressed in the five-year update.

5.9: Non-Adopting Jurisdictions

No jurisdictions in the county that could receive FEMA funds and elected to participate have either not participated in the plan or did not participate adequately in order to meet planning requirements (as of final submittal on November 1,

2018). All jurisdictions can adopt the plan within the next year and be included or can participate in the next plan update.

5.10: Acknowledgements

After adoption, a hard copy of the approved plan will be held at the Ringgold County Emergency Management office. Persons can view the plan free of charge or make copies at low cost. Electronic copies will be available to any agency or individual by contacting the EMA at 641.464-3311 or SICOG at 641.782.8491.

A public meeting will be held after any and all plan updates and public comments, concerns, opinions, and questions will be given serious consideration.

The planning consultant thanks the hard work the Ringgold County Emergency Management Agency, the planning team, reviewers at the Iowa HSEMD and FEMA Region VII who assisted with reviews during the plan's writing, and other professionals, including those from other COGs, who provided insight into improving the plan.