1 INTRODUCTION AND PLANNING PROCESS

1.1 Purpose

Cedar County and the participating cities, and public school districts prepared this Multi-jurisdictional Hazard Mitigation Plan update to guide hazard mitigation planning to better protect the people and property of the planning area from the effects of hazard events.

This plan demonstrates the jurisdiction's commitments to reducing risks from hazards and serves as a tool to help decision makers direct mitigation activities and resources. This plan was also developed to make Cedar County and the participating jurisdictions eligible for certain federal grant programs; specifically, the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Assistance (HMA) grants such as the Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, and Flood Mitigation Assistance Program.

1.2 Background and Scope

Each year in the United States, disasters take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. These monies only partially reflect the true cost of disasters, because additional expenses to insurance companies and nongovernmental organizations are not reimbursed by tax dollars. Many disasters are predictable, and much of the damage caused by these events can be alleviated or even eliminated.

Hazard mitigation is defined by FEMA as "any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event." The results of a three-year, congressionally mandated independent study to assess future savings from mitigation activities provides evidence that mitigation activities are highly cost-effective. On average, each dollar spent on mitigation saves society an average of $4 in avoided future losses in addition to saving

lives and preventing injuries (National Institute of Building Science Multi-Hazard Mitigation Council 2005).

Hazard mitigation planning is the process through which hazards that threaten communities are identified, likely impacts of those hazards are determined, mitigation goals are set, and appropriate strategies to lessen impacts are determined, prioritized, and implemented. Cedar County and the incorporated areas that participated in this plan update developed a Multi-jurisdictional Hazard Mitigation Plan that was approved by FEMA in January 2016 (hereafter referred to as the *2011 Cedar County Hazard Mitigation Plan*). Therefore, this current planning effort serves to update the previous plan.

This plan documents the hazard mitigation planning process undertaken by the Cedar County Hazard Mitigation Planning Committee (HMPC). It identifies relevant hazards and vulnerabilities in the planning area and sets forth an updated mitigation strategy to decrease vulnerability and increase resiliency and sustainability in Cedar County.

The Cedar County Multi-jurisdictional Hazard Mitigation Plan is a multi-jurisdictional plan that geographically covers the participating jurisdictions within Cedar County's boundaries (hereinafter referred to as the planning area). The following jurisdictions officially participated in the planning process:

- Unincorporated Cedar County
- City of Bennett
- City of Clarence
- City of Durant
- City of Lowden
- City of Mechanicsville
- City of Stanwood
- City of Tipton
- City of West Branch
- Bennett School District
- Durant School District
- North Cedar School District
- Tipton School District
- West Branch School District

There are several cities within Cedar County that have portions of their city limits in adjacent counties. These cities are treated in one of two ways for purposes of participation in this plan:

1) Official Plan Participants: The following cities are bi-county/multiple-county cities that have the majority of their corporate limits in Cedar County. These cities will be invited as official plan participants in the Cedar County plan. The Risk Assessment will include incorporation of analysis of building exposure/critical facilities of the entire city limits for these jurisdictions:

- City of Durant (portions in Muscatine and Scott Counties)
- City of West Branch (portions in Johnson County)

2) Stakeholder Participants: To provide a comprehensive analysis, the Risk Assessment includes incorporated areas of the City of Wilton which has a portion of their city limits in Cedar County, but is considered an official city of adjacent Muscatine County. The Risk Assessment will include analysis of building exposure/critical facilities ONLY for the portion of the incorporated area that is within the Cedar County boundary. Although this city is not an official participant of the *Cedar County Multi-jurisdictional Hazard Mitigation Plan*, they are stakeholders in the planning process and as such, were invited to planning meetings and to comment on plan drafts.

This plan was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 (Public Law 106-390) and the implementing regulations set forth by the Interim Final Rule published in the *Federal Register* on February 26, 2002, (44 CFR §201.6) and finalized on October 31, 2007. (Hereafter, these requirements and regulations will be referred to collectively as the Disaster Mitigation Act.) While the act emphasized the need for mitigation plans and more coordinated mitigation planning and implementation efforts, the regulations established the requirements that local hazard mitigation plans must meet in order for a local jurisdiction to be eligible for certain federal disaster assistance and hazard mitigation funding under the Robert T. Stafford Disaster Relief and Emergency Act (Public Law 93-288).

Information in this plan will be used to help guide and coordinate mitigation activities and decisions for local land use policy in the future. Proactive mitigation planning will help reduce the cost of disaster response and recovery to communities and their residents by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruptions. The Cedar County planning area has been affected by hazards in the past and the participating jurisdictions are therefore committed to reducing future impacts from hazard events and becoming eligible for mitigation-related federal funding.

1.3 Plan Organization

This Cedar County Multi-jurisdictional Hazard Mitigation Plan update is organized as follows:

- Executive Summary, Special Thanks and Acknowledgements, Table of Contents, Prerequisites
- Chapter 1: Introduction and Planning Process
- Chapter 2: Planning Area Profile and Capabilities
- Chapter 3: Risk Assessment
- Chapter 4: Mitigation Strategy
- Chapter 5: Plan Implementation and Maintenance
- Appendices

This is the same general format that was used for the 2011 Multi-jurisdictional Cedar County Hazard Mitigation Plan except that the previous plan included separate sections at the end of the plan to record community profile information and jurisdictional information about hazards. In this update, Chapter 2 contains all community profiles and capabilities and the jurisdictional information about hazards is discussed within each hazard section in Chapter 3. This format provides for a more coordinated approach as well as the ability to clearly see how the hazards vary among each jurisdiction, where applicable.

1.4 Planning Process

44 CFR Requirement 201.6(c)(1): [The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

In March 2014, Cedar County contracted with AMEC Environment & Infrastructure, Inc. to facilitate the update of the multi-jurisdictional, local hazard mitigation plan. AMEC's role was to:

- Assist in establishing the Hazard Mitigation Planning Committee (HMPC) as defined by the Disaster Mitigation Act (DMA),
- Ensure the updated plan meets the DMA requirements as established by federal regulations and following FEMA's planning guidance,
- Facilitate the entire planning process,
- Identify the data requirements that HMPC participants could provide and conduct the research and documentation necessary to augment that data,
- Assist in facilitating the public input process,
- Produce the draft and final plan update documents, and
- Coordinate the Iowa Homeland Security and Emergency Management Division and FEMA plan reviews.

1.4.1 Multi-Jurisdictional Participation

44 CFR Requirement §201.6(a)(3): Multi-jurisdictional plans may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan.

Through AMEC, Cedar County Emergency Management invited the incorporated cities, public school districts, and various other stakeholders in mitigation planning (identified in Appendix B) to participate in the Cedar County Multi-jurisdictional Hazard Mitigation Plan update process. The jurisdictions that elected to participate in this plan are listed above in section 1.2. The DMA requires that each jurisdiction participate in the planning process must officially adopt the multi-jurisdictional hazard mitigation plan. Each jurisdiction that chose to participate in the planning process and development of the plan was required to meet plan participation requirements defined at the first planning meeting, which includes the following:

- Designate a representative to serve on the HMPC;
- Participate in at least one of the three HMPC planning meetings by either direct representation or authorized representation;
- Provide information to support the plan development by completing and returning the AMEC Data Collection Guide and validating/correcting critical facility inventories;
- Update existing mitigation actions and identify additional mitigation actions for the plan (at least one);
- Review and comment on plan drafts;
- Inform the public, local officials, and other interested parties about the planning process and provide an opportunity for them to comment on the plan;
- Provide documentation to show time donated to the planning effort (related to FEMA planning grant awarded to the County); and
- Formally adopt the mitigation plan.

All of the jurisdictions listed as official participants in this plan met all of these participation requirements. **Table 1.1** shows the representation of each participating jurisdiction at the planning meetings, provision of Data Collection Guides, and update/development of mitigation actions. Sign-in sheets are included in Appendix B: Planning Process Documentation.

Table 1.1. Jurisdictional Participation in Planning Process

Jurisdiction	Coordination Meeting	Kick-off Planning Meeting	Planning Meeting #2	Planning Meeting #3	Data Collection Guide	Update/Develop Mitigation Actions
Cedar County	x	x	x	x	x	x
City of Bennett	x	x	x	x	x	x
City of Clarence	x	x	x	x	x	x
City of Durant	x	x	x	x	x	x
City of Lowden	-	x	x	x	x	x
City of Mechanicsville	x	x	x	x	x	x
City of Stanwood	x	x	x	x	x	x
City of Tipton	x	x	x	x	x	x

Jurisdiction	Coordination Meeting	Kick-off Planning Meeting	Planning Meeting #2	Planning Meeting #3	Data Collection Guide	Update/Develop Mitigation Actions
City of West Branch	x	x	x	x	x	x
Bennett School District	-	-	x	x	x	x
Durant School District	-	-	-	x	x	x
North Cedar School District	-	x	x	x	x	x
Tipton School District	-	x	x	x	x	x
West Branch School District	-	x	x	x	x	x

1.4.2 The Planning Steps

AMEC and Cedar County worked together to establish the framework and process for this planning effort using FEMA's *Local Mitigation Planning Handbook* (March 2013). The plan update was completed utilizing the 9-task approach within a broad four-phase process:

1) Organize resources,
2) Assess risks,
3) Develop the mitigation plan, and
4) Implement the plan and monitor progress.

Into this process, AMEC integrated a detailed 10-step planning process adapted from FEMA's Community Rating System (CRS) and Flood Mitigation Assistance programs. Thus, the process used for this plan meets the funding eligibility requirements of the Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, and Flood Mitigation Assistance Program, and Community Rating System. **Table 1.2** shows how the process followed fits into FEMA's original four-phase DMA process as well as the revised Nine Task Process outlined in the 2013 *Local Mitigation Planning Handbook* and the 10-step CRS process.

Table 1.2. Mitigation Planning Process Used to Develop the Cedar County Multijurisdictional Local Hazard Mitigation Plan

Phase	Community Rating System (CRS) Planning Steps (Activity 510)	Local Mitigation Planning Handbook Tasks (44 CFR Part 201)
Phase I	Step 1. Organize	Task 1: Determine the Planning Area and Resources
		Task 2: Build the Planning Team 44 CFR 201.6(c)(1)
	Step 2. Involve the public	Task 3: Create an Outreach Strategy y 44 CFR 201.6(b)(1)
	Step 3. Coordinate	Task 4: Review Community Capabilities 44 CFR 201.6(b)(2) & (3)
Phase II	Step 4. Assess the hazard	Task 5: Conduct a Risk Assessment 44 CFR 201.6(c)(2)(i) 44 CFR 201.6(c)(2)(ii) & (iii)
	Step 5. Assess the problem	
Phase III	Step 6. Set goals	Task 6: Develop a Mitigation Strategy 44 CFR 201.6(c)(3)(i); 44 CFR 201.6(c)(3)(ii); and 44 CFR 201.6(c)(3)(iii)
	Step 7. Review possible activities	
	Step 8. Draft an action plan	
Phase IV	Step 9. Adopt the plan	Task 8: Review and Adopt the Plan
	Step 10. Implement, evaluate, revise	Task 7: Keep the Plan Current
		Task 9: Create a Safe and Resilient Community 44 CFR 201.6(c)(4)

Phase I Organize Resources

Step 1: Organize the Planning Team (Handbook Tasks 1 & 2)

The planning process resulting in the preparation of this plan document officially began with a coordination meeting in Tipton, Iowa on April 10, 2014. Participants of the meeting included Cedar County Emergency Management officials, representatives from all incorporated cities with the exception of Lowden, and AMEC Mitigation Planning staff. The purpose of this meeting was to determine the jurisdictions and other stakeholders that would be invited to be participants of the HMPC (Step 1), set tentative planning meeting dates, identify GIS needs and resources, provide recommendations regarding the hazards to be included in the plan update, discuss options for the flood risk assessment methodology, develop an initial public participation strategy, and discuss the plan update format. Detailed meeting minutes are included in Appendix B.

An HMPC was created that includes representatives from each participating jurisdiction, departments of the County, and other local, state, and federal organizations responsible for making decisions in the plan and agreeing upon the final contents. In addition to the participating jurisdictions, the agencies and organizations that participated in the planning meetings included the following:

- Cass Township
- Center Township
- Farmington Township
- Fremont Township

- Alliance Water
- Iowa House of Representatives (State Representative, Bobby Kaufmann)
- Herbert Hoover Presidential Library & Museum
- Tipton Conservative Newspaper

After the coordination meeting, a formal Kick-off planning meeting was held on May 23, 2014 followed by two additional planning meetings held on August 5, 2014 and November 13, 2014. A complete list of all representatives of the agencies and organizations that participated on the Cedar County HMPC is provided in Appendix B.

The HMPC communicated during the planning process with a combination of face-to-face meetings, phone interviews, and email correspondence. The meeting schedule and topics are listed in **Table 1.3**. The meeting minutes for each of the meetings are included in Appendix B.

Table 1.3. Schedule of HMPC Meetings

Meeting	Topic	Date
Informational Meeting	General overview of planning process/requirements and schedule.	April 10, 2014
Kick-off Meeting	Introduction to DMA, the planning process, hazard identification and public input strategy. Distribution of data collection guide to jurisdictions. Preliminary hazard ranking results. Determine process to monitor, evaluate, and update plan.	May 23, 2014
Planning Meeting #2	Review of draft Risk Assessment, distribution of critical facility inventories for jurisdictions to validate/correct, development of plan goals.	August 5, 2014
Planning Meeting #3	Mitigation action update, development, and prioritization.	November 13, 2014

During the kick-off meeting, (see **Figure 1.1**) AMEC presented information on the scope and purpose of the plan, participation requirements of HMPC members, and the proposed project work plan and schedule. Plans for public involvement (Step 2) and coordination with other agencies and departments (Step 3) were discussed. AMEC also introduced hazard identification requirements and data needs. The HMPC discussed potential hazards as well as past events and impacts and refined the identified hazards to be relevant to Cedar County. The hazard ranking methodology utilized by Iowa Homeland Security and Emergency Management Division in the State Hazard Mitigation Plan was introduced and the HMPC made preliminary determinations of probability, magnitude, warning time, and duration for each hazard identified.

Participants were given the AMEC Data Collection Guide to facilitate the collection of information needed to support the plan, such as data on historic hazard events, values at risk, and current capabilities. Each participating jurisdiction completed and returned the worksheets in the Data Collection Guide to AMEC. AMEC integrated this information into the plan, supporting the development of Chapters 2 and 3.

Figure 1.1. Hazard Mitigation Planning Committee Kick-off Meeting

Step 2: Plan for Public Involvement (Handbook Task 3)

44 CFR Requirement 201.6(b): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include: (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.

At the kick-off meeting, the HMPC discussed options for soliciting public input on the mitigation plan. To provide an opportunity for the public to comment during the drafting stage, the committee determined that the most effective method would be dissemination of a survey. In addition, a staff reporter for the *Tipton Conservative* attended the planning meetings and wrote several articles that informed the public of the plan update process (See **Figure 1.2**). Copies of all articles are included in Appendix B.

Figure 1.2. Newspaper Article in *The Tipton Conservative*, June 5, 2014

Multi-Jurisdictional Hazard Mitigation Plan holds planning meeting May 22

/14

by Sue Hall

Governmental entities and school districts in Cedar county were represented at the Tipton fire station safe room to begin the 5 year revision of the county multi-jurisdictional hazard mitigation plan process on May 22. There are also stakeholders that are not entities in the plan revision. These include the county business community, state agencies, the Hoover Presidential library, private/nonprofit organizations, and adjacent counties and communities. Their needs will be acknowledged in the plan.

Leading the county through this revision work is AMEC, a consulting firm from Topeka, Kan., paid with a $64,000 grant that Cedar county received from 75% federal money, 10% state money and 15% local soft match funding. The county's share is $9,000, which will come from participation in the work of information gathering. Time spent on the project is calculated at $27.60 per hour per person. Enough people attended the kick-off meeting to reach a third of the soft match at $3,000.

The effort, said AMEC project managers, produces a plan, which is the ticket to FEMA grants for mitigation (sustained action to reduce/eliminate) of potential natural disaster hazard risks. Such risks are evaluated from negligible to catastrophic in their likely or unlikely occurrence and probable severity.

Highest risk for Cedar county are river floods, tornado/windstorms, severe winter storms, a hazardous material spill, and a transportation incident. As climate changes, other risks reaching a higher level might be flash floods, and effects of lightning/hail and drought.

These hazards are costly with losses calculated through insurance payments. Property damage from flash flood has been $23,611 per year between 1996 and 2013, particularly in unincorporated areas. The best mitigation for flood is an ordinance that does not permit new construction in a floodplain. Flood insurance is scheduled to raise sharply in 4 years.

Thunderstorm/lightening/hail insurance payments amount to $1.6 million in damage coverage. Drought costs in insurance payments were $30 million. This data is suspected to be under reported. Hazards and declaration of disasters have increased because there is more population and, thus, more buildings and infrastructure.

The Plan will identify hazards that are a threat, assess their potential impact, and develop action goals and objectives to prioritize mitigation of these hazards. The process is charted on a Calculated Priority Risk Index (CPRI) and is based on probability, magnitude/severity, warning time, and duration.

There are $112 million in hazard mitigation assistance grant programs this fiscal year through the Flood Mitigation Assistance and Pre-Disaster mitigation grant programs. Flood Mitigation Assistance grants are available to eliminate flood damage risk to buildings insured under the National Flood Insurance Program. The intent is to focus on reducing or eliminating claims under NFIP by mitigating repetitive loss properties in buy-outs. Cedar county received nearly $2 million to purchase flood damaged properties and have them removed from the 2008 Cedar river flood.

The Pre-Disaster Mitigation grant program addresses projects prior to a disaster to avoid after-disaster declarations. This is a nationally competitive grant that gives one percent of available funding to each state in a 75%/25% match. The Tipton fire station safe room came out of this grant money.

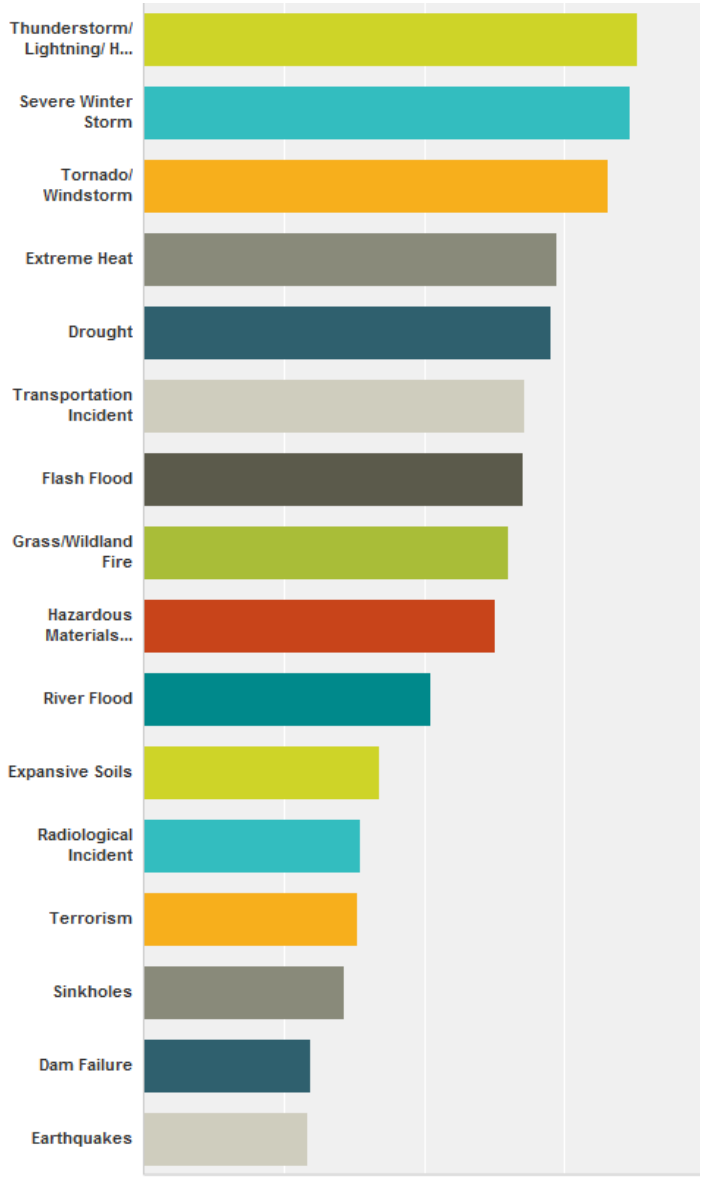
Communities and schools must provide data collection guide updates to AMEC by June 24. The next large group planning session is scheduled for Aug. 7 with AMEC.

The public survey was developed specific to the Cedar County Mitigation Plan that provided a brief plan summary as well as a questionnaire to capture public and stakeholder input. The survey is provided in Appendix B. A press release was issued announcing the availability of the survey at city halls and public libraries as well as online at SurveyMonkey.com. A notice with the survey link was published in the *West Branch Times*

In addition, committee members distributed the survey to members of the public and key stakeholders in their own jurisdiction. Additional details such as the press release that was issued are included in Appendix B.

In all, 98 surveys were completed. The survey asked the public and stakeholders to indicate their opinion on the likelihood for each hazard to impact their jurisdiction. They were asked to rate the probability of each hazard profiled in this plan as 1-unlikely, 2-occasional, 3-likely, and 4-highly likely. The summary results of this question are provided in **Figure 1.3.**

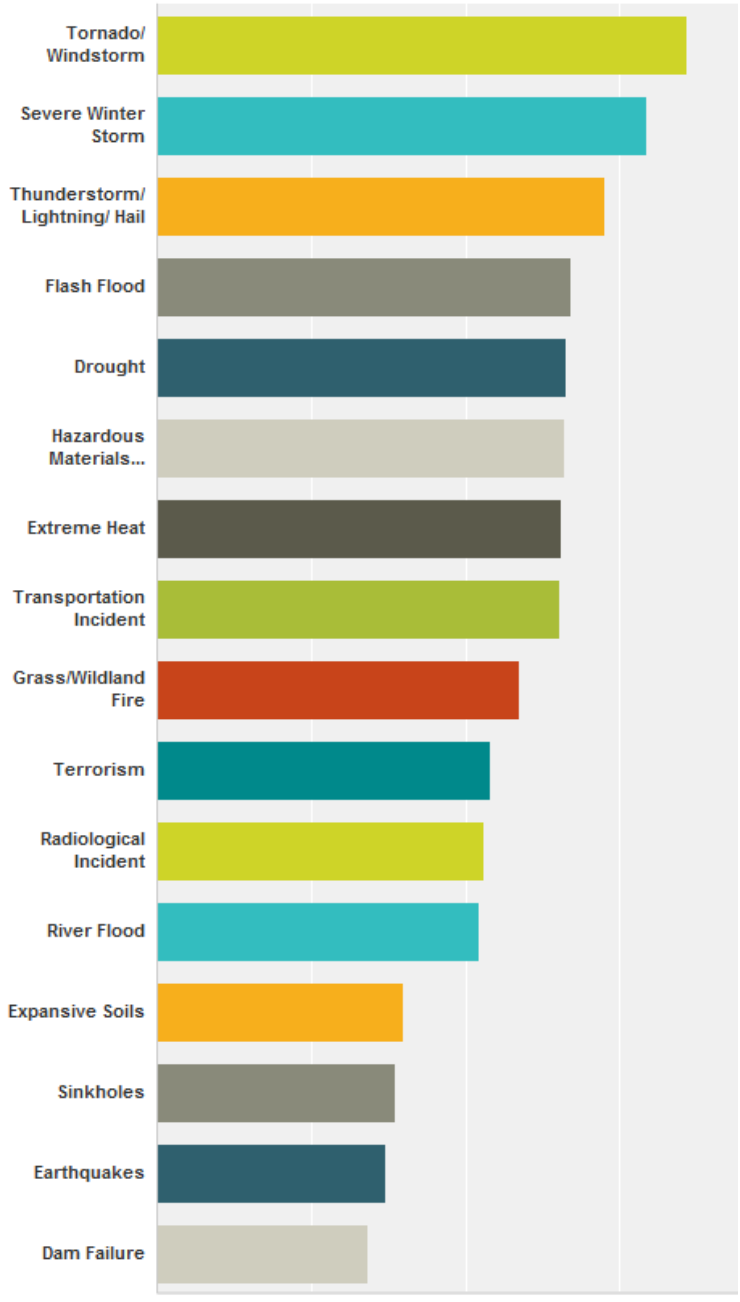
Figure 1.3. Survey Results—Probability of Hazards



Source: SurveyMonkey Results

The survey also asked the public and stakeholders to indicate their opinion on the potential magnitude of each hazard on their jurisdiction. They were asked to rate the probability of each hazard profiled in this plan as 1-negligible, 2-limited, 3-critical, and 4-catastrophic. The summary results of this question are provided in **Figure 1.4.**

Figure 1.4. Survey Results—Magnitude of Hazards



Source: SurveyMonkey Results

In the survey, the public was also asked to review 11 types of mitigation actions considered by the Iowa Homeland Security and Emergency Management Division for FEMA funding. The

Cedar County HMPC also considered these types of projects in the Cedar County Multi-jurisdictional Hazard Mitigation Plan. The survey asked the public to place a check next to the mitigation project types that they felt could benefit their community. **Figure 1.5** provides the compiled results of this question.

Figure 1.5. Survey Results—Types of Projects

Answer Choices	Responses
Structural Retrofitting of Existing Buildings to Add a Tornado Saferoom	75.27% 70
Minor Localized Flood Reduction Projects (stormwater management or localized flood control projects)	72.04% 67
New Tornado Safe Room Construction	68.82% 64
Electrical Utilities Infrastructure Retrofit	58.06% 54
Flood-prone Property Acquisition & Structure Demolition/Relocation	50.54% 47
Non-structural Retrofitting of Existing Buidings and Facilities from Wind Damage	44.09% 41
Flood-prone Structure Elevation	41.94% 39
Soil Erosion Stabilization	36.56% 34
Wildfire Mitigation	35.48% 33
Dry Floodproofing of Historical Residential Structures and/or Non-residential Structures	29.03% 27
Other (please specify) Responses	0.00% 0

Source: SurveyMonkey Results

The hazard ranking methodology utilized by the Iowa State Hazard Mitigation Plan was applied to the public opinions of probability and magnitude to provide a comparison of the public's opinion to that of the HMPC (See Chapter 3 for additional details of this methodology). The public was not surveyed about the elements of warning time and duration. Therefore, the HMPC scores for those elements were applied to the public ranking to allow for comparison. **Table 1.4** provides the comparison.

Table 1.4. Comparison of Hazard Ranking (Public vs. HMPC)

Public Survey Results		HMPC Results	
Hazard	**Weighted Score**	**Hazard**	**Weighted Score**
Severe Winter Storm	3.26	Tornado/Windstorm	3.25
Tornado/Windstorm	3.07	River Flood	3.25
Thunderstorm/Lightning/Hail	3.00	Severe Winter Storm	3.15
Transportation Incident	2.70	Hazardous Materials Incident	3.10
Drought	2.65	Transportation Incident	3.10
Hazardous Materials Incident	2.62	Flash Flood	2.80
Extreme Heat	2.56	Thunderstorm/Lightning/Hail	2.65
Flash Flood	2.42	Drought	2.50
Radiological Incident	2.33	Grass/Wildland Fire	2.35
Grass/Wildland Fire	2.13	Radiological Incident	2.35
River Flood	2.10	Terrorism	2.05
Terrorism	2.03	Extreme Heat	1.95
Sinkholes	1.81	Dam Failure	1.45
Earthquakes	1.67	Earthquakes	1.45
Dam Failure	1.65	Sinkholes	1.45
Expansive Soils	1.49	Expansive Soils	1.00

Source: SurveyMonkey Results, HMPC

It was noted by the planning committee that the public perception of some of the hazards such as river flood and flash flood seem to indicate that the public does not consider these hazards to be as much as a threat as the planning committee does. Reasons for this may be that the individuals that took the survey may not live in flood-prone areas. Overall, floodplains and flash-flood-prone areas are a relatively small percentage of the developed areas in Cedar County. So, although flooding does occur and does result in the need for evacuations, flood damages, and extensive recovery operations, the percentage of the general public that is affected is relatively low. In contrast, the weather-related hazards such as winter storm and tornadoes affect the entire population, as these hazards are not limited to certain geographic areas as floods are. These hazards were ranked high by both the committee and the public. Other similarities include the similar ranking of dam failure and the geographic hazards of earthquake, sinkholes/landslide, and expansive soils near the bottom.

The public was also asked to comment on any other issues that the Cedar County HMPC should consider in developing a strategy to reduce future losses caused by natural hazard events. Some of the additional issues the public indicated in need of attention are provided below:

”Toxic runoff from fields after rain affects other property landowners!”

”Bio-hazards such as grain and livestock contamination”

”safe rooms in schools”

”Transportation incident at UPRR and Hwy 30”

”Cedar Bridge at Rochester “

”Pipeline issues“

”High voltage transmission line Rock Island Clean Line (RICL)”

”The most hazardous situation to Mechanicsville which should be considered is potential derailment of a train causing a collision at the farm service in town.”

”Transportation-LP tank hit by train”

”Mass Notifications; and Cyber attack”

In addition Cedar County Emergency Management posted meeting minutes on its website throughout the plan update process.

The public was also given an opportunity to provide input on a draft of the complete plan prior to its submittal to the State and FEMA. The entire plan draft was made available on the County's website as a PDF document. In addition, hard copies were made available at the public libraries in the County.

Cedar County announced the availability of the entire final draft plan and the two-week final public comment period in the *West Branch Times* and *Tipton Conservative* newspapers. A copy of the announcement is provided in Appendix B. The final public comment period was from March 2, 2015 to March 16, 2015.

The HMPC invited other targeted stakeholders to comment on the draft plan via an e-mail letter, which is described in greater detail in Step 3: Coordinate with Other Departments and Agencies. Minor comments were received and incorporated.

Step 3: Coordinate with Other Departments and Agencies and Incorporate Existing Information (Handbook Task 3)

44 CFR Requirement 201.6(b): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include: (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process. (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

There are numerous organizations whose goals and interests interface with hazard mitigation in Cedar County. Coordination with these organizations and other community planning efforts is vital to the success of this plan. Cedar County invited neighboring counties, other local, state, and federal departments and agencies to planning meeting #2 to learn about the hazard mitigation planning initiative. In addition, the HMPC developed a list of additional stakeholders involved in hazard mitigation activities, to invite by e-mail letter to review and comment on the draft of the Cedar County Multi-jurisdictional Hazard Mitigation Plan prior to submittal to the State and FEMA. Those agencies were invited to meetings and/or comment on the plan draft included emergency management officials of adjacent counties, members of academic organizations such as the University of Iowa Flood Center, various state agencies such as the Iowa Department of Natural Resources, as well as various federal agencies, including FEMA. Appendix B includes a complete list of those organizations invited to participate in the planning

meetings as well as a copy of the e-mail letter that was sent providing a link to the draft plan during the final public comment period.

Integration of Other Data, Reports, Studies, and Plans

In addition, input was solicited from many other agencies and organizations that provided information but were not able to attend planning meetings. As part of the coordination with other agencies, the HMPC collected and reviewed existing technical data, reports, and plans. These included:

- Iowa Hazard Mitigation Plan (September 2013);
- Cedar County Hazard Mitigation Plan (January 2011);
- Cedar County, Iowa Land Use Plan (2006);
- West Branch Comprehensive Plan (2013);
- National Flood Insurance Program's Community Information System Reports;
- Digital Flood Insurance Rate Maps for all of Cedar County and corresponding Flood Insurance Study;
- Iowa Department of Natural Resources, Dam Safety Program Inventory of Dams for Cedar County;
- Available Dam Safety Inspection Reports from the Iowa Department of Natural Resources Dam Safety Program for High and Significant Hazard Dams;
- Wildland and Grass Fire Reports from the Iowa Department of Natural Resources, Wildland Fire Program;
- National Fire Incident Reporting System Fire Incident Data;
- Wildland/Urban Interface and Intermix areas from the SILVIS Lab, Department of Forest Ecology and Management, University of Wisconsin;
- Various local plans such as Comprehensive Plans, Economic Development Plans, Emergency Operations Plans, Capital Improvement Plans, etc. For a complete list of local plans that were reviewed and incorporated, see Chapter 2;
- US Department of Agriculture's (USDA) Risk Management Agency Crop Insurance Statistics;

This information was used in the development of the hazard identification, vulnerability assessment, and capability assessment and in the formation of goals, objectives, and mitigation actions. These sources, as well as additional sources of information are documented throughout the plan and in Appendix A, References.

Phase 2 Assess Risk (Handbook Task 5)

Step 4: Assess the Hazard: Identify and Profile Hazards

AMEC assisted the HMPC in a process to identify the hazards that have impacted or could impact communities in Cedar County. At the kick-off meeting, the HMPC examined the history of disaster declarations in Cedar County, the list of hazards considered in the 2013 Iowa State Hazard Mitigation Plan, and the hazards identified in the previous hazard mitigation plan. The committee then worked through this list of all potential hazards that could affect the planning area. They discussed past hazard events, types of damage, and where additional information

might be found. The committee identified 16 natural and human-caused hazards that have the potential to impact the planning area. Additional information on the hazard identification process and which hazards were identified for each jurisdiction is provided in Chapter 3.

During the kick-off meeting, the HMPC refined the list of hazards to make the analysis relevant to Cedar County, discussed past events and impacts and came to consensus on the preliminary probability, magnitude, warning time, and duration levels on a county-wide basis to contribute to the hazard ranking methodology utilized by the State. In addition, each jurisdiction completed a Data Collection Guide, including information on previous hazard events in their community. Utilizing the information from the Data Collection Guides as well as existing plans, studies, reports, and technical information as well as information available through internet research and GIS analysis, a profile was developed for each hazard identified. More information on the methodology and resources used to identify and profile the hazards can be found in Chapter 3.

Step 5: Assess the Problem: Identify Assets and Estimate Losses

Assets for each jurisdiction were identified through a combination of several resources. The Cedar County GIS Department provided access to datasets with parcel and building data as well as corporate boundaries and critical facilties. Population data was obtained from the U.S. Census Bureau. At Meeting #2, the critical facility data was provided to each jurisdiction for the facilities that fall within their jurisdictional boundaries for correction and validation. Methodologies and results of the analyses are provided in Chapter 3 and Appendix E.

Additional assets such as historic, cultural, and economic assets as well as specific vulnerable populations and structures were obtained from a variety of sources as described in Chapter 3.

The HMPC also analyzed development trends from data available from the U.S. Census Bureau as well as information obtained from each jurisdiction such as Comprehensive Plans and Future Development Plans. For each hazard, there is a discussion regarding future development and how it may impact vulnerability to that specific hazard.

After profiling the hazards that could affect Cedar County and identifying assets, the HMPC collected information to describe the likely impacts of future hazard events on the participating jurisdictions.

Existing mitigation capabilities were also considered in developing loss estimates. This assessment consisted of identifying the existing mitigation capabilities of participating jurisdictions. This involved collecting information about existing government programs, policies, regulations, ordinances, and plans that mitigate or could be used to mitigate risk from hazards. Participating jurisdictions collected information on their regulatory, personnel, fiscal, and technical capabilities, as well as previous and ongoing mitigation initiatives. This information is included in Chapter 2 Planning Area Profile and Capabilities.

Specific capabilities such as participation in the National Flood Insurance Program as well as designation as Fire Wise Communities or Storm Ready Communities and placement of storm sirens are incorporated in the vulnerability analysis discussions, where applicable.

Taking into consideration the vulnerability and capability assessments, and where sufficient information was available, a variety of methods was used to estimate losses for each profiled

hazard. For geographic hazards such as river flooding, hazardous materials (fixed facilities), and wildfire, specific assets/areas at risk and loss estimates were determined through GIS analysis. For the earthquake hazard, FEMA's loss estimation computer software, HAZUS-MH was utilized to estimate losses in the planning area. For other hazards such as weather-related hazards and hazardous materials, loss estimates were developed based on statistical analysis of historic events. For hazards such as dam failure of state-regulated dams, GIS data was not available to identify specific geographic boundaries at risk. Therefore, the risk assessment provides descriptions of the types of improvements located in approximated risk areas. For some human-caused hazards and the tornado hazard, loss estimates were scenario-based. The methodologies for each loss estimate are described in detail in Chapter 3. Within each hazard section, the text provides details on how the hazard varies by jurisdiction, where applicable. In addition, at the conclusion of each hazard section, a summary table indicates the specific probability, magnitude, warning time, and duration rating of the hazard for each jurisdiction is provided to show how the hazard varies. Where applicable, introductory text preceding the table highlights noted variables.

Results of the preliminary risk assessment were presented at Meeting #2 and the Draft Risk Assessment (Chapter 3) was provided to the HMPC for review and comment. Several comments, corrections, and suggestions were provided to AMEC and incorporated into the risk assessment as appropriate.

Phase 3 Develop the Mitigation Plan (Handbook Task 6)

Step 6: Set Goals

AMEC facilitated a discussion session with the HMPC during Meetings #2 to review and update goals. Common categories of mitigation goals were presented as well as the 2013 State Hazard Mitigation Plan goals.

This planning effort is an update to an existing hazard mitigation plan. As a result, the goals from the *2011 Cedar County Hazard Mitigation Plan* were reviewed. The planning committee made the following changes to the 2011 goals:

Goal 2—the word "property" was added.
Goal 4—the words "and continuity of operations" were added.
Goal 5 was deleted—"Pursue multi-objective opportunities whenever possible".

The revised goals for this plan update are provided below:

- Goal 1: Protect the Health and Safety of Residents
- Goal 2: Reduce Future Property Losses from Hazard Events
- Goal 3: Increase Public Awareness and Educate on the Vulnerability to Hazards
- Goal 4: Improve Emergency Management and Continuity of Operations Capabilities

Step 7: Review Possible Activities

The focus of Meeting #3 was to update the mitigation strategy by reviewing existing actions submitted in the previous mitigation plans as well as discuss relevant new actions considered

necessary as a result of the updated risk assessment. The HMPC reviewed the following: plan goals, previous actions from the 2011 plan, key issues from the risk assessment, Iowa Emergency Management and Homeland Security Division's HMA funding priorities, public opinion survey results on types of actions desired, and the availability of FEMA's Mitigation Action Ideas publication.

The group discussed the types of mitigation actions/projects that could be done by the jurisdictions in Cedar County. Consideration was given to the analysis results provided in the risk assessment and the anticipated success for each project type. Projects relating to emergency response were discussed, but participants were encouraged to focus on long-term mitigation solutions since response-related mitigation actions occur on a routine basis as requirements of other plans. Complex projects that would necessitate use of large numbers of county resources were also discussed. This opportunity to discuss a broad range of mitigation alternatives allowed the jurisdictions to understand the overall priorities of the committee and to allow for discussion of the types of project most beneficial to each jurisdiction. As part of this discussion, consideration was given to the potential cost of each project in relation to the anticipated future cost savings.

Since this plan is an update to the *2011 Cedar County Hazard Mitigation Plan*, the update of the mitigation strategy included review and update of the status of all actions included in the previous hazard mitigation plan. Jurisdictions were encouraged to maintain a focused approach and continue forward only those actions that are aimed at implementing long-term solutions to prevent losses from hazards. To facilitate the update of previous actions, a spreadsheet was provided to each jurisdiction prior to Meeting #3 with the actions they submitted in the previous mitigation plan. The jurisdictions were also provided instructions for completing the status of each of the previous actions as well as the details to provide for continuing and newly developed actions. A modified form of the STAPLEE prioritization tool was provided to assist jurisdictions in determining the prioritization that should be assigned to each action. Each participating jurisdiction prioritized the projects they submitted by indicating high, moderate, or low local priority. The completed spreadsheets with action details were returned to AMEC. The completed and deleted actions are provided in Appendix C. Chapter 4 provides additional details regarding the process undertaken to refine the mitigation strategy to make Cedar County and its jurisdictions more disaster resistant.

Step 8: Draft an Action Plan

A complete draft of the plan was made available online and in hard copy for review and comment by the public, other agencies and interested stakeholders. This review period was from March 2, 2015 to March 16, 2015. Methods for inviting interested parties and the public to review and comment on the plan were discussed in Steps 2 and 3, and materials are provided in Appendix B. Comments were integrated into a final draft for submittal to the Iowa Homeland Security and Emergency Management Division and FEMA.

Phase 4 Implement the Plan and Monitor Progress

Step 9: Adopt the Plan (Handbook Task 8)

To secure buy-in and officially implement the plan, the governing bodies of each participating jurisdiction adopted the plan. Scanned copies of resolutions of adoption are included in Appendix D of this plan.

Step 10: Implement, Evaluate, and Revise the Plan (Handbook Tasks 7 & 9)

The HMPC developed and agreed upon an overall strategy for plan implementation and for monitoring and maintaining the plan over time during Meeting #1. This strategy is described in Chapter 5, Plan Maintenance Process.