

2015

Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan

- Calmar • Castalia • Decorah • Fort Atkinson • Jackson Junction •
- Ossian • Ridgeway • Spillville • Unincorporated Areas •



FEMA APPROVED:
MAY 5, 2015
EXPIRES:
MAY 20, 2020

Developed by:

The Cities of Calmar, Castalia, Decorah,
Fort Atkinson, Jackson Junction, Ossian,
Ridgeway, Spillville and the County's
unincorporated areas

Professional planning assistance
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Planning Process

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Introduction and Planning Process

What is hazard mitigation?

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. This plan documents the county-wide hazard mitigation planning process and identifies relevant hazards, vulnerabilities and strategies the Participating Jurisdictions will use to decrease vulnerability and increase resiliency and sustainability. It will affect activities and decisions for proactive mitigation planning that will help reduce the cost of disaster response. Hazard mitigation is described as:

- Any action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects – an effort to reduce loss of life and property by lessening the impact of disasters.
- Hazard mitigation is specifically dedicated to breaking the cycle of damage, reconstruction, and repeated damage.
- Mitigation is taking action now—before the next disaster—to reduce human and financial consequences later by analyzing risk, reducing risk and insuring against risk.

Why do we plan?

Each year in the United States natural 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 subsequent expenses incurred by insurance companies and nongovernmental organizations are not reimbursed by tax dollars. Many natural disasters are predictable, and much of the damage caused by these events can be minimized or even eliminated. Planning allows the stakeholders to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation Plans form the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. Plans create a framework for risk-based decision making to reduce damages to lives, property, and the economy from future disasters. Planning has many benefits:

- Planning identifies cost effective actions for risk reduction that are agreed upon by stakeholders and the public
- Planning focuses resources on the greatest risks and vulnerabilities
- Planning builds partnerships by involving people, organizations, and businesses
- Planning increases education and awareness of hazards and risk
- Planning communicates priorities to state and federal officials
- Planning aligns risk reduction with other community objectives

Key Steps in the Planning Process

Figure 1 illustrates the key steps in the planning process. More specifically, each step can be further described as:

Step 1: From the start, communities should focus on the resources needed for a successful mitigation planning process. An essential first step is to identify and organize interested members of the community as well as including the technical expertise required during the planning process.

Step 2: Next, communities identify the characteristics and potential consequences of hazards through a hazard identification process. It is important to understand how much of the community can be affected by specific hazards and what the impacts would be on important community assets. This is accomplished through a vulnerability assessment.

Step 3: Armed with an understanding of the risks posed by hazards, communities determine what their priorities should be and then look at possible ways to avoid or minimize the undesired effects. The result is a hazard mitigation plan that identifies mitigation strategies and actions for implementation.

Step 4: Bring the plan to life. Communities can do this in a variety of ways, ranging from implementing specific mitigation projects to changes in day-to-day organizational operations. To ensure the success of an ongoing program, it is critical that the plan remains relevant. Therefore, it is important to conduct periodic evaluations and make revisions as needed, a plan maintenance process.

Figure 1: Hazard Mitigation Planning Process



Participants

Requirement §201.6(a)(3):

Multi-jurisdictional plans may be accepted, as appropriate, as long as each jurisdiction has participated in the process

The Participating Jurisdictions developed this multi-hazard mitigation plan to reduce future losses in the planning area from identified potential hazards. 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. While the Disaster Mitigation 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 or exceed 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 and recovery to communities and their residents by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruptions. The planning area has been affected by hazards in the past and is therefore committed to reducing future impacts from hazard events and becoming eligible for mitigation-related federal funding.

The Disaster Mitigation Act requires that each jurisdiction participate in the planning process and officially adopt the multi-jurisdictional hazard mitigation plan. This plan includes several participating local governments:

- City of Calmar
- City of Castalia
- City of Decorah
- City of Fort Atkinson
- Unincorporated Areas of Winneshiek County
- City of Jackson Junction
- City of Ossian
- City of Ridgeway
- City of Spillville

Planners met directly with the city councils (see Acknowledgements for listing of individuals) of each governmental unit. Each governing body reviewed their jurisdictional profiles; discussed their progress on and status of, previously identified mitigation actions; determined the planning significance of various hazards within their communities; and identified the mitigation actions they would pursue throughout the implementation of this plan. The Hazard Mitigation Planning Committee, the Winneshiek County Emergency Management Commission and the Winneshiek County Board of Supervisors (see Acknowledgements for listing of individuals) ensured that the county as a whole, along with its unincorporated areas went through the same process of profile review, previous action status, determination of significance for specific hazards and mitigation action identification.

In addition, area schools directly participated in the planning process:

- Decorah Community School District
- North Winneshiek Community School District
- South Winneshiek Community School District
- Turkey Valley Community School District
- Northeast Iowa Community College

Winneshiek County school districts and the community college had representation on the planning committee (see Acknowledgements for listing of individuals) and were responsible for ensuring that their respective boards were apprised of the planning process, and that all mitigation actions they seek to implement are included in the plan. School districts are not featured in this plan as separate sections. The unique risks and needs of each school, if any, are included within the jurisdictional sections in which the school or school buildings are located. Table 1 documents the specific ways that participating jurisdictions were involved in the planning process.

Table 1: Jurisdictional Involvement in the Development of MJ-9

Jurisdiction:	Involvement:
Winneshiek County	<ul style="list-style-type: none"> • Representation on the HMPC (Goetsch, Heikes, Kuhn, Sacquitne, Schroeder) • Participation at HMPC meetings (see Appendix C) • Assistance with data collection (assessor, emergency management coordinator, engineer, sheriff, conservation, planning & zoning, GIS) • Mitigation Action Identification • Plan review and comment • Winneshiek County Health Care Emergency Preparedness Coalition hosted presentation of plan on 10-16-14 • Winneshiek County Fire Fighters hosted presentation of plan on 11-20-14 • Hosted public meeting for presentation of plan on 12-15-14 • Formally adopted plan on 12-15-14

Jurisdiction:	Involvement:
City of Calmar	<ul style="list-style-type: none"> • Representation on the HMPC (Wilder) • Participation at HMPC meetings (see Appendix C) • Assistance with jurisdictional description • Mitigation Action Identification (city meeting on 1-15-14) • Plan review and comment • Hosted public meeting for presentation of plan on 12-1-14 • Formally adopted plan on 12-1-14
City of Castalia	<ul style="list-style-type: none"> • Representation on the HMPC (Jones) • Participation at HMPC meetings (see Appendix C) • Mitigation Action Identification (city meeting on 2-3-14) • Plan review and comment • Hosted public meeting for presentation of plan on 12-1-14 • Formally adopted plan on 12-1-14
City of Decorah	<ul style="list-style-type: none"> • Representation on the HMPC (Arendt, Ihde, Nixon, VandenBrink, Ashbacher) • Participation at HMPC meetings (see Appendix C) • Assistance with jurisdictional description • Mitigation Action Identification (city meeting on 12-12-13) • Plan review and comment • Decorah Fire Department hosted presentation of plan on 11-12-14 • Hosted public meeting for presentation of plan on 11-17-14 • Formally adopted plan on 11-17-14
City of Fort Atkinson	<ul style="list-style-type: none"> • Representation on the HMPC (Franzen, Herold) • Participation at HMPC meetings (see Appendix C) • Mitigation Action Identification (city meeting on 1-8-14) • Plan review and comment • Hosted public meeting for presentation of plan on 12-2-14 • Formally adopted plan on 12-2-14
City of Jackson Junction	<ul style="list-style-type: none"> • Mitigation Action Identification (city meeting on 3-6-14) • Plan review and comment • Hosted public meeting for presentation of plan on 12-9-14 • Formally adopted plan on 12-9-14
City of Ossian	<ul style="list-style-type: none"> • Representation on the HMPC (Covell) • Mitigation Action Identification (city meeting on 12-11-13) • Plan review and comment • Hosted public meeting for presentation of plan on 12-1-14 • Formally adopted plan on 12-1-14
City of Ridgeway	<ul style="list-style-type: none"> • Mitigation Action Identification (city meeting on 2-26-14) • Plan review and comment • Hosted public meeting for presentation of plan on 12-8-14 • Formally adopted plan on 12-8-14
City of Spillville	<ul style="list-style-type: none"> • Assistance with jurisdictional description • Mitigation Action Identification (city meeting on 1-11-14) • Plan review and comment • Hosted public meeting for presentation of plan on 12-13-14 • Formally adopted plan on 12-13-14

Jurisdiction:	Involvement:
Decorah CSD	<ul style="list-style-type: none"> • Representation on the HMPC (DeVore, Haluska, Schaller) • Participation at HMPC meetings (see Appendix C) • Mitigation Action Identification • Plan review and comment • Hosted public meeting for presentation of plan on 12-8-14 • Formally adopted plan on 12-8-14
North Winneshiek CSD	<ul style="list-style-type: none"> • Representation on the HMPC (Dugger) • Plan review and comment
South Winneshiek CSD	<ul style="list-style-type: none"> • Representation on the HMPC (Hoover) • Participation at HMPC meetings (see Appendix C) • Mitigation Action Identification (meeting with EM Coordinator) • Plan review and comment • Formally adopted plan on 4-6-15
Turkey Valley CSD	<ul style="list-style-type: none"> • Representation on the HMPC (Hoover) • Participation at HMPC meetings (see Appendix C) • Representation at Jackson Junction City Meeting on 3-6-14 • Mitigation Action Identification (meeting with EM Coordinator) • Plan review and comment
Northeast Iowa Community College	<ul style="list-style-type: none"> • Representation on the HMPC (Siebert) • Assistance with data collection • Mitigation Action Identification • Plan review and comment • Hosted plan presentation on 12-15-14 • Formally adopted plan on 12-15-14

Local Planning Process

Requirements §201.6(b)(1-3) and §201.6(c)(1):

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; (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.

[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.

This plan is a full update and combination of two previous FEMA-approved plans covering all county jurisdictions:

- **Winneshiek County Multijurisdictional 5 (MJ-5)**, FEMA approved: April 27, 2010. MJ-5 Included jurisdictions not mapped for flood: Calmar, Castalia, Ossian, Ridgeway, the Unincorporated Areas of Winneshiek County and other participating entities.
- **Winneshiek County Multijurisdictional 4 (MJ-4)**, FEMA approved: November 4, 2010. MJ-4 Included jurisdictions mapped for flood, but not NFIP complaint at the time of the planning process: Decorah, Fort Atkinson, Jackson Junction, Spillville and other participating entities.

The planning process began in December of 2012 and followed methodology prescribed by FEMA, with identification and formal appointment of a Hazard Mitigation Planning Committee (HMPC) comprised of key stakeholders from the Participating Jurisdictions. Key stakeholders included in the process included fire departments and law enforcement; public and private school districts; higher learning institutions; county public health; the hospital and medical centers; county CPC administrator; county conservation; and a variety of local utility experts. Upper Explorerland Regional Planning Commission facilitated the process and assembled all input, information and data to develop the written document.

In addition, local and regional agencies involved in hazard mitigation activities, as well as other potentially interested parties, such as the watershed management authorities and snowmobile clubs, were invited to attend the hazard mitigation meetings and/or review and comment on the draft version Winneshiek County Multi-Jurisdiction Mitigation Plan (MJ-9) via email, telephone, or attendance at hazard mitigation planning meetings. Meeting agendas were posted at the county courthouse, the Law Enforcement Center and at the Upper Explorerland Office. Public notices and/or press releases in county-wide publications were utilized to ensure notification, inclusion, and opportunity for involvement to all concerned business, private non-profit organizations, and the general public. Appendix C offers a sampling of the notices, articles and emails distributed by the planning agency and the emergency management coordinator.

As part of coordination with other agencies, the HMPC and Upper Explorerland collected and reviewed existing technical data, reports, and plans. These included the State of Iowa Hazard Mitigation Plan, literature on local communities as well as other data from state and federal agencies. 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 are documented throughout the plan and in Appendix A, References/Sources.

Those who attended the Winneshiek County Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan public meetings to provide input, while not necessarily designated as HMPC members, are included in the record of all meeting participants and are noted in the minutes and sign-in sheets in Appendix C.

Several public meetings were held throughout the development of this plan including seven countywide meetings and one meeting in each of the county's communities. At the completion of the draft plan, additional public meetings were held to collect final public feedback on the plan (included in Table 1).

The planning timeline was laid out as follows:

1. A planning kick-off meeting was held on December 4th, 2012. Attendees discussed the purpose of mitigation planning and what the planning process would entail. Commitment to the HMPC was confirmed. The HMPC includes members who bring expertise in emergency management and response, members who operate critical facilities and members who represent vulnerable populations from across the county.
2. The planning committee reconvened at an open meeting on January 24th, 2013. The purpose and process of mitigation planning were reviewed. In addition, a list of potential hazards was reviewed, leading to a list of those hazards to be profiled within the plan.

3. Hazard Profiles were developed by Upper Explorerland and reviewed by the HMPC at an open meeting on July 24th, 2013. CPRI scoring for county hazards was completed at this meeting.
4. Previous hazard mitigation plans, as well as the county's Comprehensive Plan, the region's Long Range Transportation Plan and the Iowa Hazard Mitigation Plan were reviewed and incorporated where relevant. In addition, a number of references were consulted in the development of this plan (see Appendix A).
5. A Vulnerability Assessment was completed by Upper Explorerland and reviewed and discussed by the HMPC at an open meeting on October 3rd, 2013.
6. The next step was to develop mitigation strategies and actions for each participating jurisdiction. Open meetings were held in each community to 1) review their community profile, 2) complete CPRI scoring of hazards specific to their community, and 3) develop strategies and actions to minimize or mitigate harm from potential hazards. The countywide HMPC met on April 3, 2014 to develop strategies and actions for the unincorporated areas of the county. Additional jurisdictions met separately to identify strategies and actions pertinent to their needs.
7. The written document was finalized by Upper Explorerland and reviewed by the HMPC and each jurisdiction before taking the plan out for public review (copies of the draft plan were mailed or delivered to each jurisdiction for review and distribution to stakeholders for additional comments).
8. Public input was sought through several outlets:
 - a. The draft plan was available on the Upper Explorerland Planning Website where comments could be left through an online form or by direct contact with planners. The Web address was announced through a press release in Winneshiek County newspapers and on a popular county online newsfeed.
 - b. Presentations of the plan, with a request for comments were made throughout the county from October through December of 2014. Committee members and planners gave the presentations in several venues as noted in Table 1.
9. Public input was incorporated into the planning document as appropriate. Public input received consisted of small corrections to jurisdictional information and questions regarding the process. No public input was received that substantively changed any mitigation actions or priorities in the document as it was presented to the public by the planners and the HMPC. All questions were answered as part of the presentation process. One required follow up (*Do NICC or Luther have a student health center?*), but did not require any change mitigation actions after discussing with college leadership.
10. The plan was adopted by each jurisdiction (see Table 2) and submitted to FEMA for approval on January 19, 2015.

Requirement §201.6(c)(5):

[The local hazard mitigation plan shall include] documentation that the plan has been formally adopted by the governing body of each jurisdiction requesting approval of the plan

The Winneshiek County Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan will be updated within a five-year timeframe and has been formally adopted by the following entities (adoption documentation in Appendix B):

Table 2: Jurisdiction Adoption Dates

Jurisdiction:	Adoption Date:
Winneshiek County Board of Supervisors	December 15, 2014
City of Calmar	December 1, 2014
City of Castalia	December 1, 2014
City of Decorah	November 17, 2014
City of Fort Atkinson	December 2, 2014
City of Jackson Junction	December 9, 2014
City of Ossian	December 1, 2014
City of Ridgeway	December 8, 2014
City of Spillville	December 13, 2014
Decorah Community School District	December 8, 2014
North Winneshiek Community School District	Pending
South Winneshiek Community School District	April 6, 2015
Turkey Valley Community School District	Pending
Northeast Iowa Community College	December 15, 2014

Planning Area Profile and Capabilities

Overview

Requirement §201.6(c)(3):

[The plan shall] document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs

Requirement §201.6(d)(3):

[The plan shall] be revised to reflect changes in development, progress in local mitigation efforts and changes in priorities

This section of the Winneshiek County Hazard Mitigation includes a community profile for the county and incorporates each of the jurisdictions participating in the plan. This section will review the climate and weather, geography, land use, and other conditions that impact the county, as well an overview of location, history, demographic trends and background information for the county. This section will also include relevant data for communities within the county. The County is governed by a five member Board of Supervisors. Additional elected officials include:

- County Auditor
- County Recorder
- County Sheriff
- County Treasurer

Key staff positions include:

- County Assessor
- County Attorney
- County Central Point of Coordination (CPC)
- County Conservation Director
- County Emergency Management Coordinator
- County Engineer
- County Environmental Health
- County GIS Coordinator
- County Landfill Coordinator
- County Planning and Zoning Administrator (also the Flood Plain Administrator)
- County Public Health Administrator
- County Recycling Coordinator
- County VA Administrator

The Winneshiek County Sheriff's office provides law enforcement to the unincorporated parts of the county and Winneshiek County Emergency Management provides emergency management services.

All Police Departments, Fire Departments, and Ambulance services in the County as well as some neighboring counties have a mutual aid agreement to respond and assist with an incident as appropriate. Fire Department coverage is illustrated in Figure 2. The Frankville Fire Department is the only department in the county not located within an incorporated city. The Frankville Fire Department operates with 25 volunteer firefighters and covers all of Frankville Township.

Winneshiek County children attend one of seven school districts covering the county. There are four independent community school districts and three catholic school districts with administrative headquarters located within the county: Decorah Community School District, South Winneshiek Community School District, North Winneshiek Community School District, Turkey Valley Community

School District, St. Benedict's Catholic School, Calmar, Festina, Spillville (CFS) Catholic School and De Sales Catholic School. Three other districts serve children from the county, but are physically located in neighboring counties: Howard-Winneshiek, Allamakee and Postville School Districts. North Winneshiek CSD is the only district with buildings outside of city limits. North Winn faces the same hazard risks as the other unincorporated areas of the county. The district operates out of one building and maintains an emergency plan and crisis plan. The school works to reduce the impact or mitigate hazards by having a weather radio, fire alarm system, intercom, fire extinguishers, fire suppression kits in the kitchen and science room, regular lockdown, evacuation, tornado and fire drills and keeps emergency plans in each room of the school. Dusty Thorstenson is the current facility manager. School District coverage is illustrated in Figure 3.

Property valuations for the County were \$2,127,158,690 as of January, 2014, giving them a debt limitation of \$106,357,935 per Iowa statute. This debt limit is not affected by Revenue Bonds. Fiscal tools for funding mitigation activities include bonding, both General Obligation and Revenue, loan agreements, fees, taxes for specific purposes and grants.

Winneshiek County Emergency Management and the County GIS departments provide technical resources and services to the County and its emergency responders. The County has outdoor warning sirens throughout the county that are automatically activated by the County's 911 dispatch center. Winneshiek County contracts with the Northeast Iowa Response Group (NIRG), a specialized HAZMAT Team from the Waterloo Fire Department, to provide technician-level incident response throughout the county.

The County utilizes a County Zoning Ordinance to control land use, direct decision-makers and protect the quality of life for its residents. The County recently adopted the Winneshiek County Comprehensive Plan 2012 which outlines goals, strategies and actions for future growth and development. The County utilizes the Winneshiek County Emergency Operations Plan and the Winneshiek County Recovery Plan. All Response Personnel follow appropriate protocol and guidance.

Figure 2: Winneshiek County Fire Department Coverage

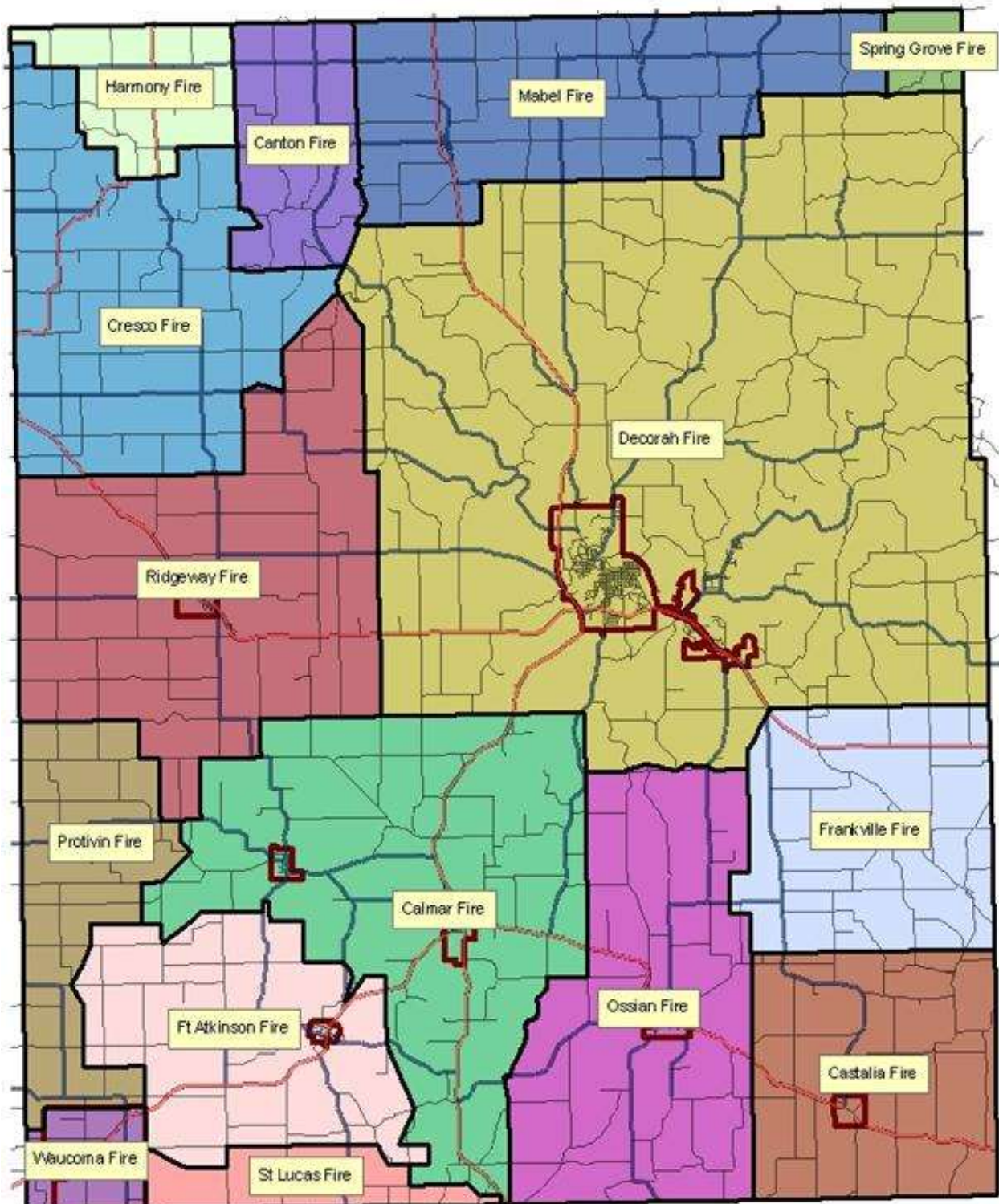
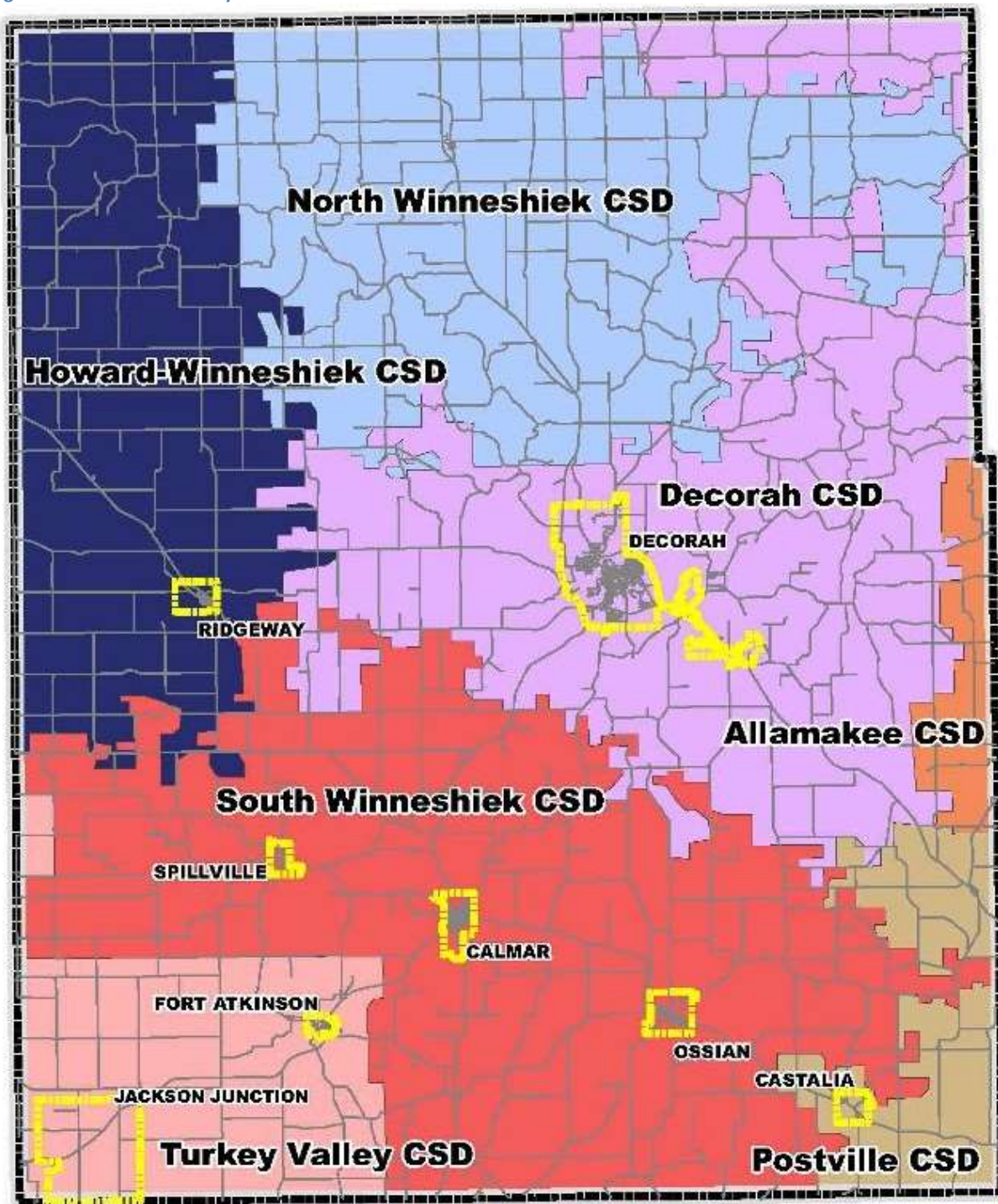


Figure 3: Winneshiek County School District Boundaries



Mitigation Activities

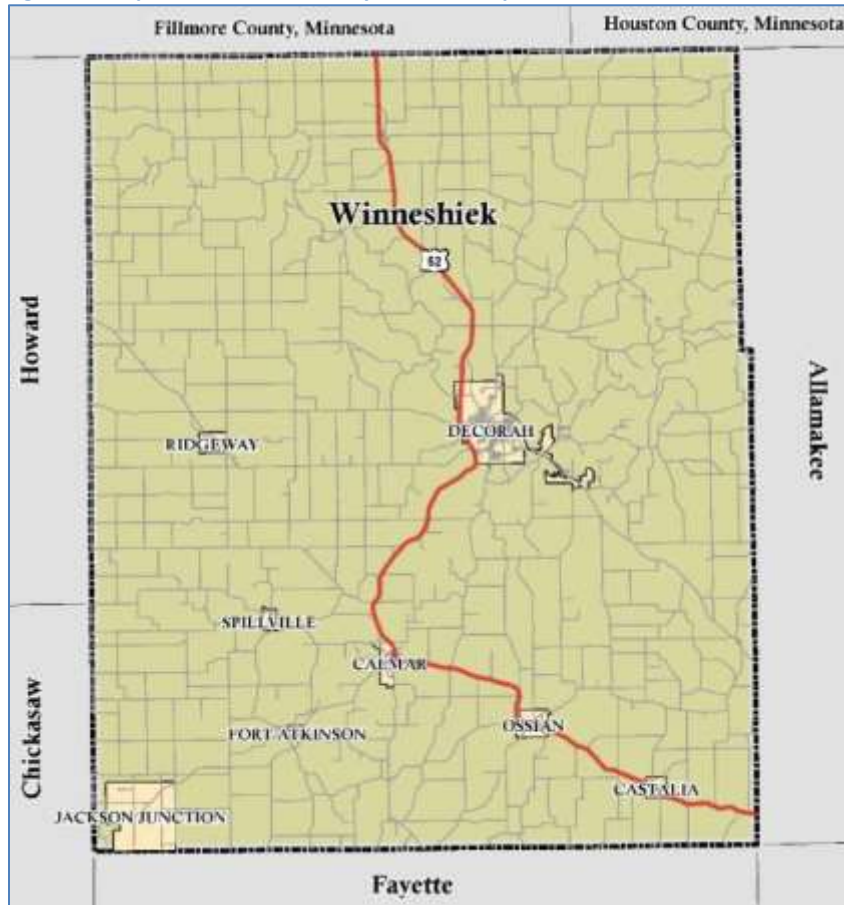
Status and Progress on Previous Mitigation Actions

1. Promote the Winneshiek County Hazard Mitigation Plan to the public
 - Presented at various venues, utilized by cities and counties when seeking funding
2. Ensure the Winneshiek County Hazard Mitigation Plan is reviewed and kept current
 - Update completed at five year interval (prior to expiration)
3. Evaluate sink holes through engineers studies and additional data collection
 - Did not complete, will reevaluate as necessary
4. Acquisition and demolition of damaged structures
 - None completed to date, will reevaluate as necessary
5. Improve data collection software and technology resources
 - Moving forward and continue to remain current with technology – an ongoing process
 - Added countywide disaster recovery site at Decorah Middle School/Carrie Lee Campus
6. Purchase and implement automated reverse 911 system to warn county residents of pending hazard conditions
 - Not yet completed, committee reviewing options
7. Purchase generator for Frankville Community Center
 - Not yet completed
8. Construct FEMA-compliant tornado safe room(s)
 - Decorah High School has added safe room areas
9. Purchase and implement countywide interagency portable mobile data
 - Records management system implemented
 - Computer-aided dispatch system implemented
10. Purchase mobile generators for deployment countywide as needed
 - Not yet completed
11. Improve land use management to minimize water runoff and soil conservation
 - Turkey River Management Authority created
12. Obtain an oblique photography product/program
 - Completed

Mitigation Actions to Pursue Through MJ-9 Implementation:

- Promote the Winneshiek County Hazard Mitigation Plan to the public
- Ensure the Winneshiek County Hazard Mitigation Plan is reviewed and kept current
- Acquisition and demolition of damaged structures
- Improve data collection software and technology resources
 - Interagency VoIP phone systems
 - Provide stability to countywide technology resources through the addition of suitable back-up power at Decorah Middle School/Carrie Lee Campus
 - Computer mobile data terminals
- Evaluate and purchase automated reverse 911 system
- Purchase generator for Frankville Community Center

Figure 5: Map of Winneshiek County and its Incorporated Communities



Land Cover and Land Use

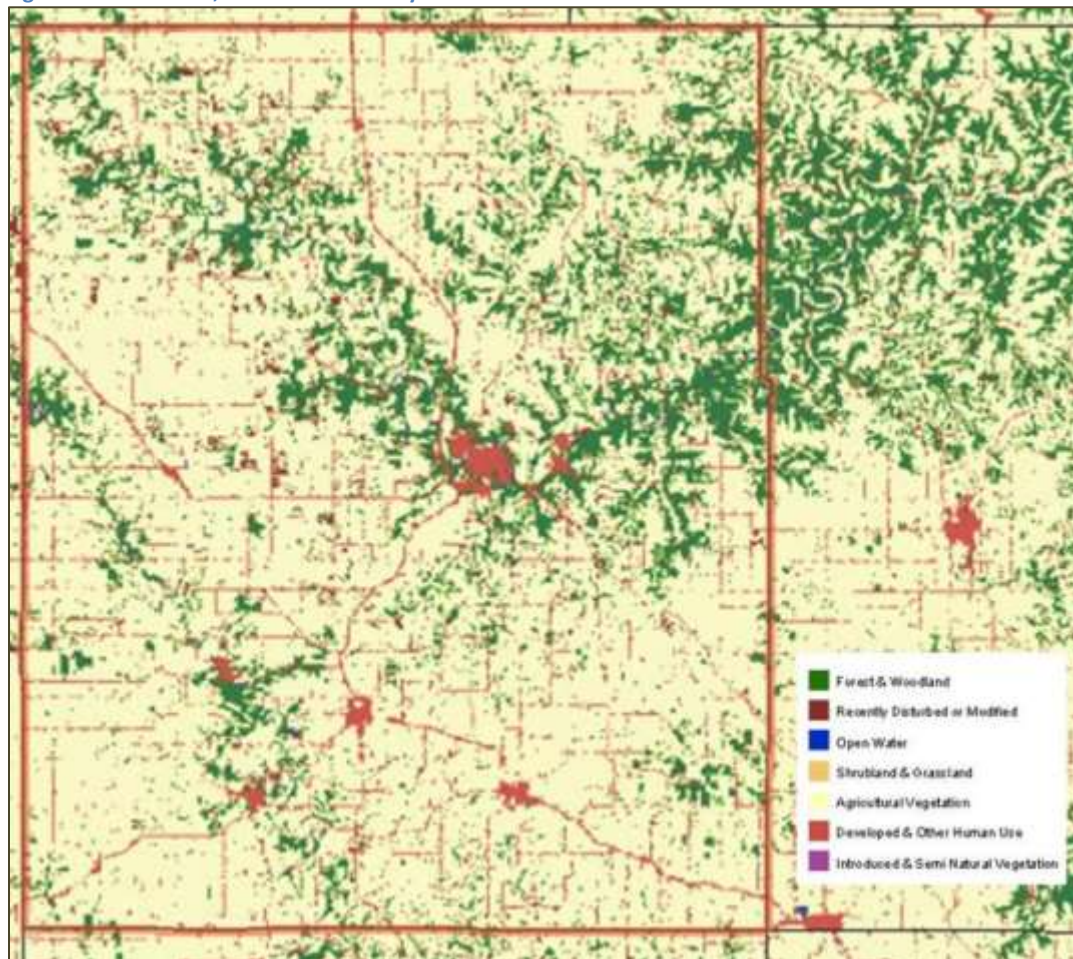
Originally, the land surrounding and including Winneshiek County was covered with prairie grass and light forestation. Modern agricultural practices have changed this setting to predominately row crop and pasture settings in the rural areas. Agricultural operations utilize 339,558 acres of land in the county, nearly 77% of the total land cover (USGS, 2011). Table 3 breaks down the land cover by type for Winneshiek County. Figure 6 illustrates the land cover for the county, with a clear majority in agricultural vegetation.

Table 3: Land Cover for Winneshiek County

Land Cover Type:	Square Miles	% Total Area
Forest and Woodland	97.60	14.15%
Recently Disturbed or Modified	17.55	2.54%
Open Water	1.03	.15%
Shrub land and Grassland	.26	.04%
Agricultural Vegetation	530.56	76.91%
Developed and other Human Use	42.20	6.12%
Introduced and Semi-Natural Vegetation	.61	.09%

Source: (USGS, 2011)

Figure 6: Land Cover, Winneshiek County



Source: (USGS, 2011)

Forestland offers both scenic and natural benefits to the residents of Winneshiek County. Forests help decrease soil erosion on the bluff lands and play a role in preventing pollution from reaching streams, rivers and watersheds. Forest coverage is also necessary for some wildlife habitat within the county. The recreational benefits from forestland are also important for the county as it provides great opportunities for hunting, hiking, camping and many other outdoor activities.

According to the USDA Forest Service, the area of forestland in the county from 1990 to 2010 has actually increased. In 1990, acres of forest numbered 50,996, or approximately 12% of the total land cover. In 2010, 71,569 acres were in forestland, or approximately 16% (USDA Forest Service, 2011).

Land use differs from land cover in that various land covers could potentially fall under the same land use (agriculture, for example). The current land uses in Winneshiek County, as categorized by the County Assessor for taxing purposes, are identified in Table 4. While not completely accurate as actual use and classification may differ slightly, the data provides a snapshot of how the land in the county is being utilized and taxed. The largest land use category is agricultural, accounting for 92% of the land area. After “other” uses, the next largest categories are exempt, residential, commercial and industrial.

Table 4: Land Use Breakdown by Property Tax Classification

Land Use Classification	Acres	Percent
Agriculture	406,563	92.05%
Residential	8,880	2.01%
Commercial	1,388	.31%
Industrial	126	.03%
Exempt Properties (non-taxable properties e.g. churches, government buildings and nonprofits)	11,107	2.51%
Other (right-of-ways)	13,620	3.08%
Total	441,684	100%

Source: (Winneshiek County, GIS Coordinator. (2013))

Elevation

The topography of Winneshiek County ranges from relatively flat farm land to hilly terrain with bluffs. The lowest elevation in Winneshiek County is approximately 615 feet and the highest elevation is approximately 1360 feet. The highest point in the county is located near Burr Oak (Peakbagger, 2012). Table 5 indicates the elevation for each community within the county.

Table 5: Community Elevations

City	Elevation	City	Elevation
Calmar	1,260	Jackson Junction	1,125
Castalia	1,247	Ossian	1,220
Decorah	866	Ridgeway	1,180
Fort Atkinson	1,030	Spillville	1,076

Source: (Onboard Informatics, 2012)

Rivers, Streams and Lakes

The Upper Iowa River, Turkey River and Lake Meyer are the largest surface waters in Winneshiek County. The Yellow River originates in the county and there are many additional tributaries, small creeks and streams found throughout the county. Small constructed surface waters include a few quarry lakes and municipal wastewater treatment lagoons.

The Upper Iowa River winds 156 miles from southeastern Minnesota and Northeast Iowa through Howard, Winneshiek and Allamakee counties to the Mississippi River. The river travels through Kendallville, Bluffton and Decorah and with its tributaries, drains most of the county. The Turkey River is a 153 mile long tributary of the upper Mississippi River. It flows from the northwest starting north of Cresco in Howard County and flows southeast through Winneshiek County before entering Fayette County, joining the Little Turkey River in Eldorado. The Turkey River and its tributaries drain the southwest corner of the county. The Yellow River drains part of the county around Ossian, Frankville and Castalia. These drainage areas are best delineated by the wetlands map shown later as Figure 8.

Lake Meyer is a 38- acre artificial lake managed by the Winneshiek County Conservation Board. The lake has a maximum depth of 25 feet and supports a diverse stocked fish population including Northern Pike, Bluegill, Black Crappie, Largemouth Bass and Channel Catfish. The Turkey River is fed by Lake Meyer.

The following list indicates some additional popular water bodies within the county:

- Bohemian Creek
- Canoe Creek
- Cardinal Marsh
- Casey Springs
- Coldwater Creek
- Coon Creek
- Dry Run
- Dunning Spring
- East Pine Creek
- Malanaphy Springs
- North Bear Creek
- Pine Creek
- Silver Creek
- Silver Springs Pond
- South Bear Creek
- Ten Mile Creek
- Trout Creek
- Trout River
- Twin Springs

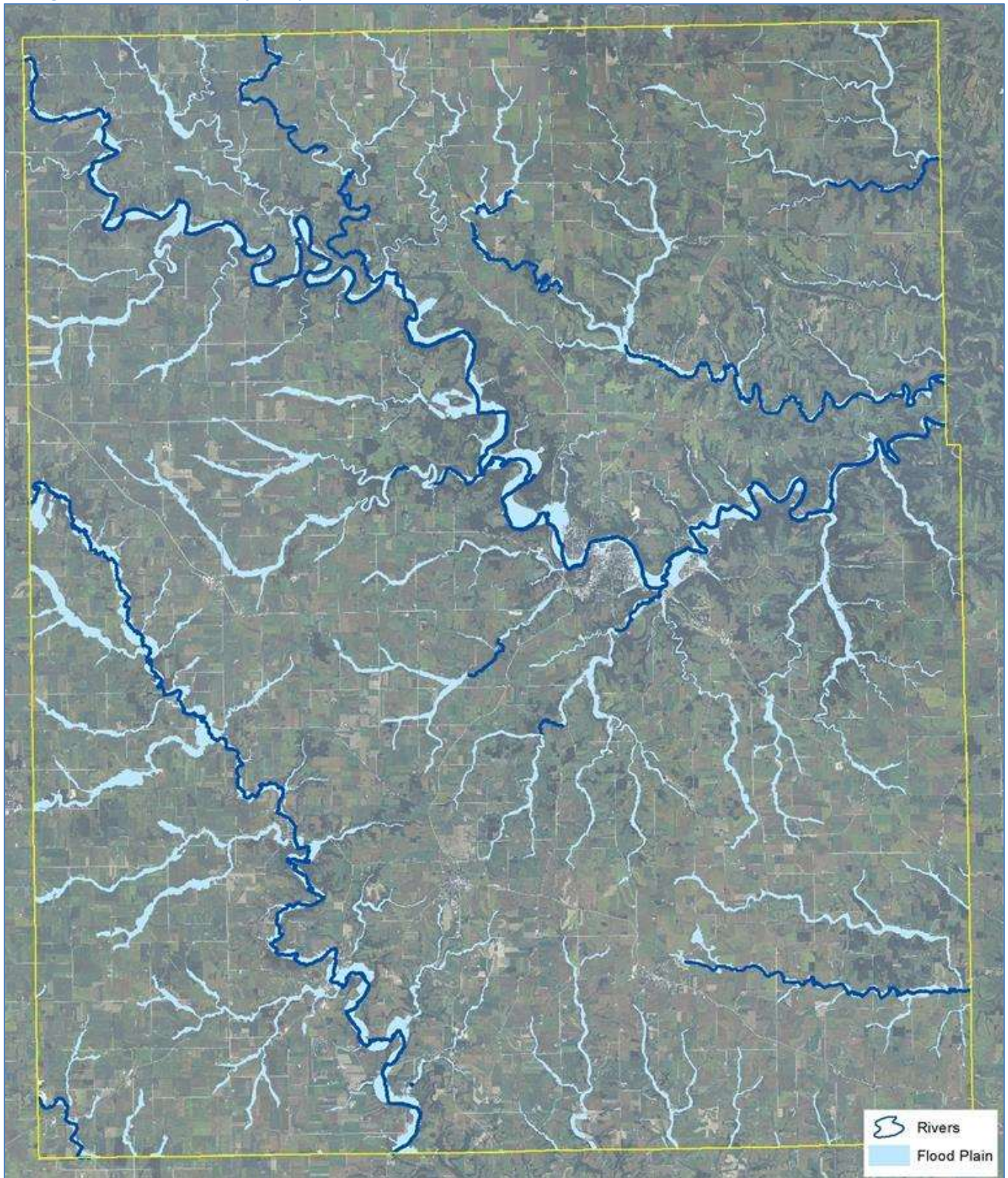
Streams and rivers naturally wind through the landscape and change their course over time. The streams and rivers of the county have, for the most part, been allowed to evolve naturally without channelization (straightening of a stream). Some areas around the community of Decorah, such as “The Cut” have been channelized as part of flood prevention efforts. The county has seen the replacement of surrounding natural vegetation with row crops, with a majority of streams and rivers having agricultural vegetation as near as 10 to 20 feet from the stream beds (Reis, 2013). This not only eliminates habitat but also reduces the water retention ability of the land, promoting faster runoff of water and less cleansing and cooling before discharge into the streams and rivers.

The County’s floodplain areas are illustrated in Figure 7.

Ponds and Wetlands

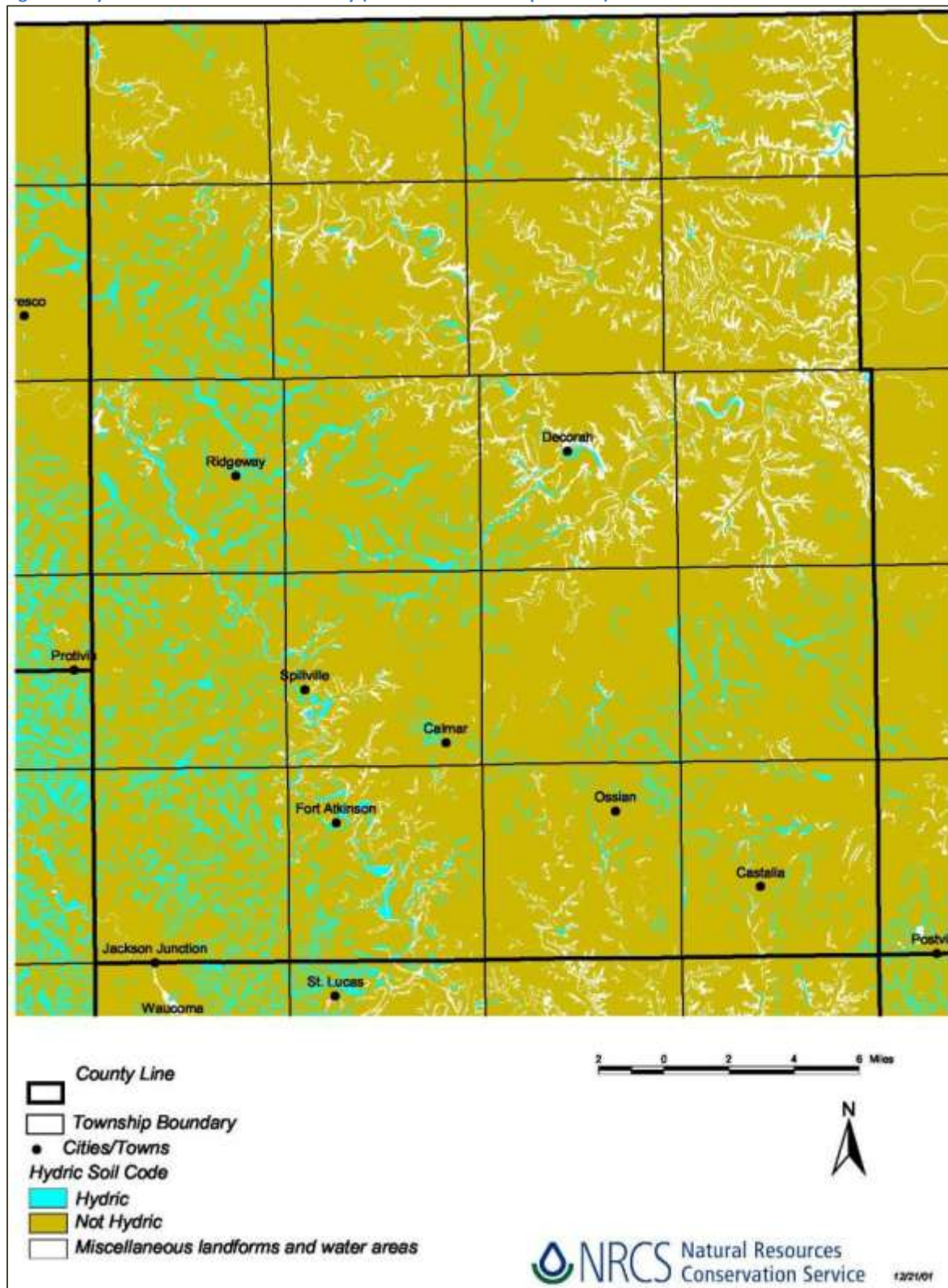
Ponds and wetlands play a role in water retention, cleansing and cooling. Winneshiek County has several small farm ponds, generally less than 10 acres in size. Ponds dot the countryside and are fed by field tile in many locations. Most wetlands, or potential wetlands, within the county are located on private land. Publicly held Cardinal Marsh is a DNR Wildlife Management Area located northwest of Ridgeway. The county has plans to secure a 35-acre parcel that is currently being pastured to convert back to a wetland in the future (Reis, 2013; Schroeder, 2013). The county is fortunate to have some Oxbow wetland areas in the county. These remnant wetlands with unique micro ecosystems can be found in their most pristine state along the Turkey and Yellow Rivers (Meyer, 2013). Other wetlands include wet meadows, bogs and fens and wet prairies. Fens are formed only under very specific conditions and no known fens exist in the county at this time, although as Figure 8 illustrates, the potential for wetlands of any nature do exist throughout the county. According to Winneshiek County Soil and Water Conservation District (SWCD), the county has lost approximately 99% of its original wetlands (Meyer, 2013).

Figure 7: Winneshiek County Floodplains



Source: (UERPC, 2014)

Figure 8: Hydric Soils in Winneshiek County (wetland or wetland potential)



Source: (USDA-NRCS, 2012)

Watersheds

Watersheds are divided and subdivided into successively smaller units; each is given a number, called a Hydrologic Unit Code, or HUC. Eight-digit HUCs, called sub-basins, are the largest watershed units. As illustrated in Figure 9, Winneshiek County crosses three watershed sub-basins: Upper Iowa, Coon-Yellow and Turkey. A negligible portion of the Root Watershed falls within the county on the very north edge. The Upper Iowa watershed covers the largest area within the county and consists of six 10-digit HUCs, five of which fall within Winneshiek County borders. They are: Staff Creek, Cold Water Creek, Trout Creek, Canoe Creek, Bear Creek and French Creek. The Turkey watershed has nine smaller HUCs, only three of which fall within the southeastern corner of the county, called the Little Turkey River, the Upper Turkey River and the Middle Turkey River sub-basins. The Coon-Yellow watershed juts into Winneshiek County on the southeastern corner and is further divided into six smaller HUCs, only one that falls within the county, the Yellow River watershed.

Figure 9: Watersheds in Winneshiek County



Climate and Weather

The area experiences a temperate climate with both warm and cold season extremes. The summer high is around 83 degrees in July and the winter low is 6 in January. Winter months can bring occasional heavy snows, intermittent freezing precipitation or ice and prolonged periods of cloudiness. On average, there are 176 cloudy days per year in the county. While true blizzards are rare, winter storms impact the area about four times per season. The average cumulative snowfall for the county is nearly 40 inches. The recorded temperatures in the county have ranged from -43 degrees Fahrenheit to 111 degrees Fahrenheit in 1936 (NOAA, 2010).

Table 6: Climate Statistics (long term averages 1971-2000)

Average Temperature December/January/February	19.2
Average Temperature March/April/May	46.7
Average Temperature June/July/August	70.3
Average Temperature September/October/November	48.9
Average Annual Temperature	46.3
Average Precipitation December/January/February	2.88
Average Precipitation March/April/May	9.39
Average Precipitation June/July/August	13.23
Average Precipitation September/October/November	7.96
Average Annual Precipitation	33.48
Average Annual Snowfall	39.6

Source: (Natural Resources Conservation Service (NRCS), n.d.)

Population and Households

Population

The population of Winneshiek County as of the 2010 Census was 21,056, ranking 29th out of 99 counties in Iowa. In the last century, the County's population declined from a high in 1900 of 23,731 to a low of 20,847 in 1990, noting an overall decline to 2010 of 11%. Table 7 compares the population growth or decline for each of the county's jurisdictions from 1980 to 2010 to the county as a whole and the state. The County's largest community is Decorah, the county seat. Calmar and Ossian are the next largest communities.

Table 7: Population Comparison, 1980-2010, All Cities, County and State

Community	1980	1990	2000	2010	% Change 1980-2010
Calmar	1,053	1,026	1,058	978	-7.1%
Castalia	188	177	175	173	-8.0%
Decorah	8,068	8,063	8,172	8,127	0.7%
Fort Atkinson	374	367	389	349	-6.7%
Jackson Junction	94	87	60	58	-38.3%
Ossian	829	810	853	845	1.9%
Ridgeway	308	295	293	315	2.3%
Spillville	415	387	386	367	-11.6%
Winneshiek County	21,876	20,847	21,310	21,056	-3.7%
State of Iowa	2,913,808	2,776,831	2,926,324	3,046,355	4.5%

Source: (State Data Center of Iowa, n.d.); (U.S. Census Bureau, 2010 Decennial)

The county is projected to reach a population of 21,268 by 2030 if the 20-year annualized growth rate of .05% is maintained. Table 8 illustrates the population projections for each of the communities within the county. The population density in the County is 30.5, compared to 54.5 statewide.

Table 8: Population Projections, Winneshiek County and Communities

Community	2010	Annualized 20-year Growth Rate	2030 Projection
Calmar	978	-.23%	934
Castalia	173	-.11%	169
Decorah	8,127	.04%	8192
Fort Atkinson	349	-.25%	332
Jackson Junction	58	-1.65%	41
Ossian	845	.22%	883
Ridgeway	315	.34%	337
Spillville	367	-.26%	348
Winneshiek County	21,056	.05%	21,268

Source: (U.S. Census Bureau, 2012; State Data Center of Iowa, n.d.; UERPC, 2012)

Winneshiek County has a median population age of 39.4, ranking it 23rd in the state from youngest median age (26.7 in Story County) to oldest (48.1 in Dickinson County). Table 9 provides the median age, by rank, for each community in the county.

Table 9: Median Age of Winneshiek County Communities

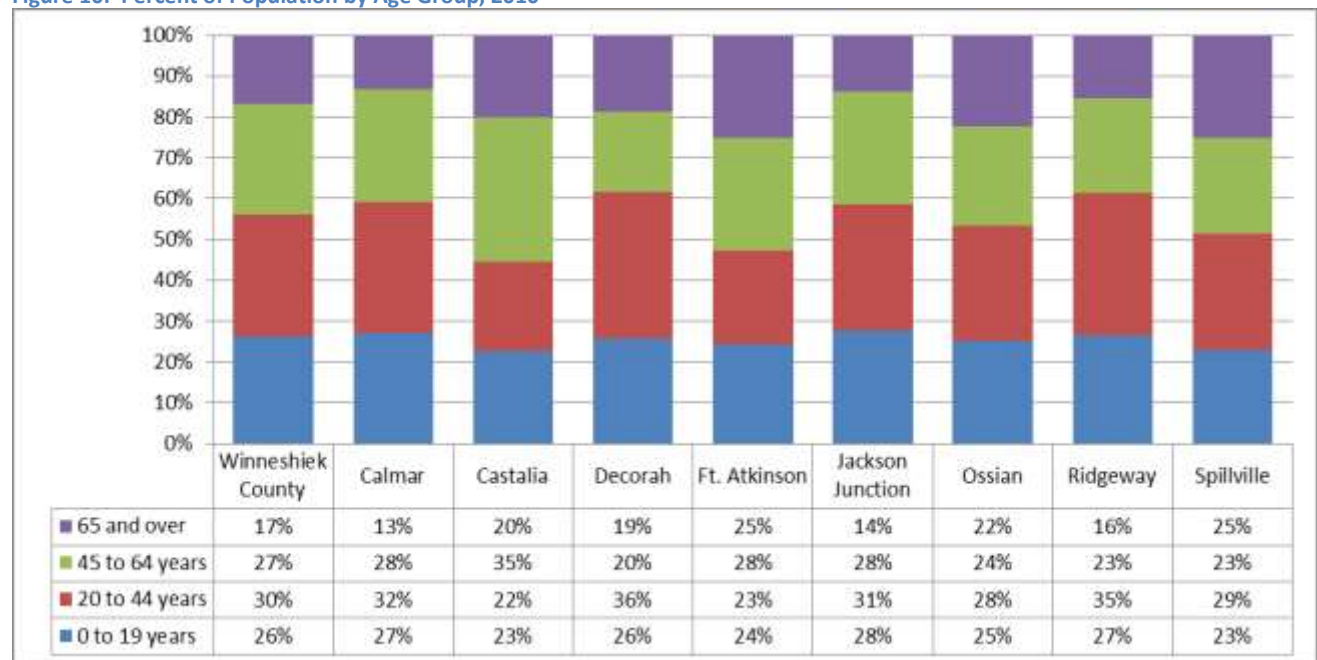
Community:	Median Age:
Ridgeway	29.9
Decorah	30.6
Calmar	31.8
Spillville	35.0
Ossian	40.1
Countywide	40.2
Jackson Junction	44.2
Fort Atkinson	47.1
Castalia	48.3

Source: (U.S. Census Bureau, ACS 2008-2012)

Winneshiek County has little diversity in race, with 97% of the population self-identifying as “white” in the 2010 Census. The County’s heritage is European, with 45% of the population from German ancestry, and Norwegian and Irish ancestries adding up to another 44% of the population (U.S. Census Bureau, ACS 2008-2012).

Figure 10 illustrates the population breakdown by age group for the county and each community. In all jurisdictions but Castalia and Fort Atkinson, less than 50% of the population is over the age of 45.

Figure 10: Percent of Population by Age Group, 2010



Source: (U.S. Census Bureau, 2010 Decennial)

Households

As of the 2010 Census, there were nearly 8,000 households in the county. Of these households overall, 65% were families and 35% represented non-families. In the incorporated communities, only Jackson Junction and Ossian had higher percentages of family households. Spillville and Fort Atkinson have the highest percentages of householders over the age of 65 living alone. Table 10 provides additional household and family data for each jurisdiction.

Table 10: Household Data, Winneshiek County and Communities

	Total house- holds	Family households		Non-family households		Householder living alone		Householder 65 years and older (living alone)		Average house- hold size	Average family size
	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Number
Winneshiek County	7997	5193	65%	2804	35%	2304	29%	1004	13%	2.35	2.9
Calmar	444	252	57%	192	43%	140	32%	48	11%	2.2	2.84
Castalia	82	49	60%	33	40%	29	35%	15	18%	2.11	2.71
Decorah	2855	1527	53%	1328	47%	1099	38%	532	19%	2.09	2.76
Ft. Atkinson	160	102	64%	58	36%	55	34%	32	20%	2.18	2.78
Jackson Junction	21	18	86%	3	14%	3	14%	2	10%	2.76	3
Ossian	339	223	66%	116	34%	97	29%	43	13%	2.36	2.91
Ridgeway	138	77	56%	61	44%	48	35%	19	14%	2.28	3.03
Spillville	168	96	57%	72	43%	60	36%	36	21%	2.18	2.9

Source: (U.S. Census Bureau, 2010 Decennial)

Housing

As of the 2010 Census, there were 8,721 housing units in the county. Of these units, 38% were in the urban clusters of the county. This is an increase from 33% in the urban clusters in 2000, indicative of where the newer housing is being constructed within the county (U.S. Census Bureau, 2010 Decennial). Table 11 demonstrates the change in the number of housing units in each of the jurisdictions.

Table 11: Number of Housing Units and Percent Change from 1990-2000

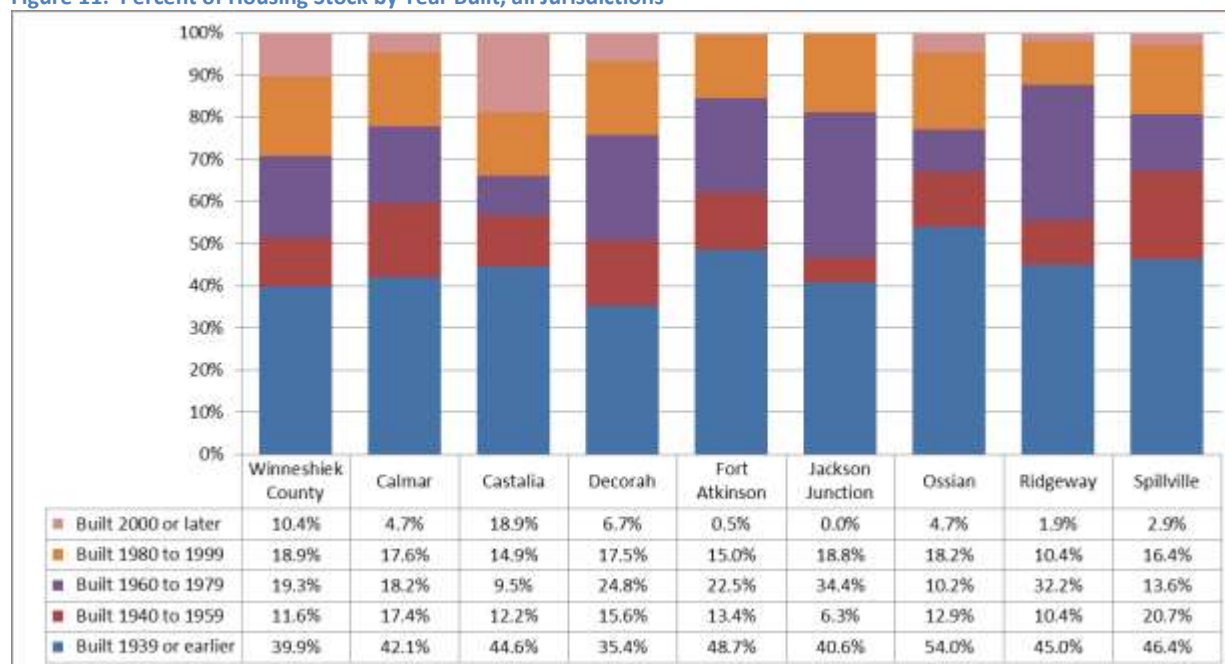
Community	1990	2000	2010	% Change, 1990 - 2010
Calmar	438	482	492	12.3%
Castalia	83	81	84	1.2%
Decorah	2,836	2,968	3,121	10.0%
Fort Atkinson	166	169	170	2.4%
Jackson Junction	32	24	23	-28.1%
Ossian	333	350	360	8.1%
Ridgeway	127	137	147	15.7%
Spillville	179	184	182	1.7%
Winneshiek County	7,726	8,204	8,721	12.9%
State of Iowa	1,143,669	1,232,511	1,336,417	16.9%

Source: (State Data Center of Iowa, n.d.; U.S. Census Bureau, 2010 Decennial)

Single unit homes constitute the majority of housing in the county at nearly 84%. Mobile homes represent 3.5% of the county's housing stock and multi-unit dwellings nearly 13%. Nearly 42% of the

housing units in the county were built prior to 1940. Figure 11 identifies the age of housing units for each jurisdiction.

Figure 11: Percent of Housing Stock by Year Built, all Jurisdictions



Source: (U.S. Census Bureau, ACS 2008-2012)

Table 12 compares the percentage of owner occupied housing units in each community, the county and state. Overall, county homeownership has declined by 4% since 1990 and as of the 2010 Census, 71% of the county's housing units were owner occupied. However, the communities of Castalia, Decorah, Ridgeway, Ossian and Spillville noted an increase in homeownership.

Table 12: Percentage of Owner Occupied Units

Community	1990	2000	2010	% Change
Calmar	74%	69%	71%	-4%
Castalia	79%	75%	87%	10%
Decorah	62%	63%	65%	5%
Fort Atkinson	81%	80%	77%	-5%
Ridgeway	77%	80%	81%	5%
Ossian	66%	73%	70%	5%
Ridgeway	78%	82%	74%	-5%
Spillville	71%	73%	76%	7%
Winneshiek County	74%	69%	71%	-4%

Source: (State Data Center of Iowa, n.d.); (U.S. Census Bureau, 2010 Decennial)

The median values of owner-occupied units have steadily increased over time in all county jurisdictions. Table 13 demonstrates this change from 1990 to 2010 for each community and the county in comparison to the state.

Table 13: Median Value of Specified Owner Occupied Units in Selected Communities

Community	1990	2000	2012 ACS	% Change, 1990-2000	% Change, 2000-2010
Calmar	\$39,800	\$67,800	\$92,200	70%	36%
Castalia	\$25,800	\$39,600	\$79,000	53%	99%
Decorah	\$58,000	\$96,000	\$146,400	66%	53%
Fort Atkinson	\$38,100	\$70,300	\$77,500	85%	10%
Ossian	\$38,500	\$68,300	\$116,400	77%	70%
Ridgeway	\$31,800	\$55,800	\$94,300	75%	69%
Spillville	\$29,600	\$61,100	\$108,600	106%	78%
Winneshiek County	\$50,900	\$86,000	\$154,300	69%	79%
State of Iowa	\$45,500	\$82,500	\$123,000	81%	49%

Source: (State Data Center of Iowa, n.d.; U.S. Census Bureau, 2008-2012 ACS)

Note: (Jackson Junction not included due to outlying data)

Most jurisdictions noted larger percentage increases in value from 1990 to 2000 than in the following decade. Castalia and the county as a whole were the only exceptions. Spillville and Castalia saw the largest community percentage increases overall from 1990 to 2012, with values increasing by 267% and 206% respectively. The county as a whole experienced an increase in median value of 203% from 1990 to 2012.

Public and Private Infrastructure

Highways and Roads

Winneshiek County roads consist of approximately 1,175 total miles of roadway. The Winneshiek County Road Department is responsible for the maintenance of all county roads with the exception of state highways and roads and streets within the boundaries of incorporated cities in the county, this is approximately 1,056 miles. There are about 250 miles of paved roads under the county's jurisdiction and include over 400 bridges, 328 of which are on the National Bridge Inventory. As of 2014, 99 of the bridge structures are posted with weight restrictions and six are closed to traffic (Winneshiek County Engineer's Office, 2014). There are 15,279 licensed drivers in the county, with an additional 56,192 licensed drivers in the adjacent Iowa counties. Between the years of 2007 and 2011, the county experienced 1,505 crashes, 67 of them major crashes resulting in 15 fatalities (Iowa DOT, 2012).

Rural roads are labeled, and jurisdiction is determined, by the following classifications: local roads, minor collectors, major collectors, minor arterials, other principal arterials and interstates. Federal aid money is available to maintain major collectors, minor arterials and principal arterials. Table 14 indicates the classifications and jurisdictions of the county's "federal aid" roadways and provides a description of each classification as defined by the Federal Highway Administration.

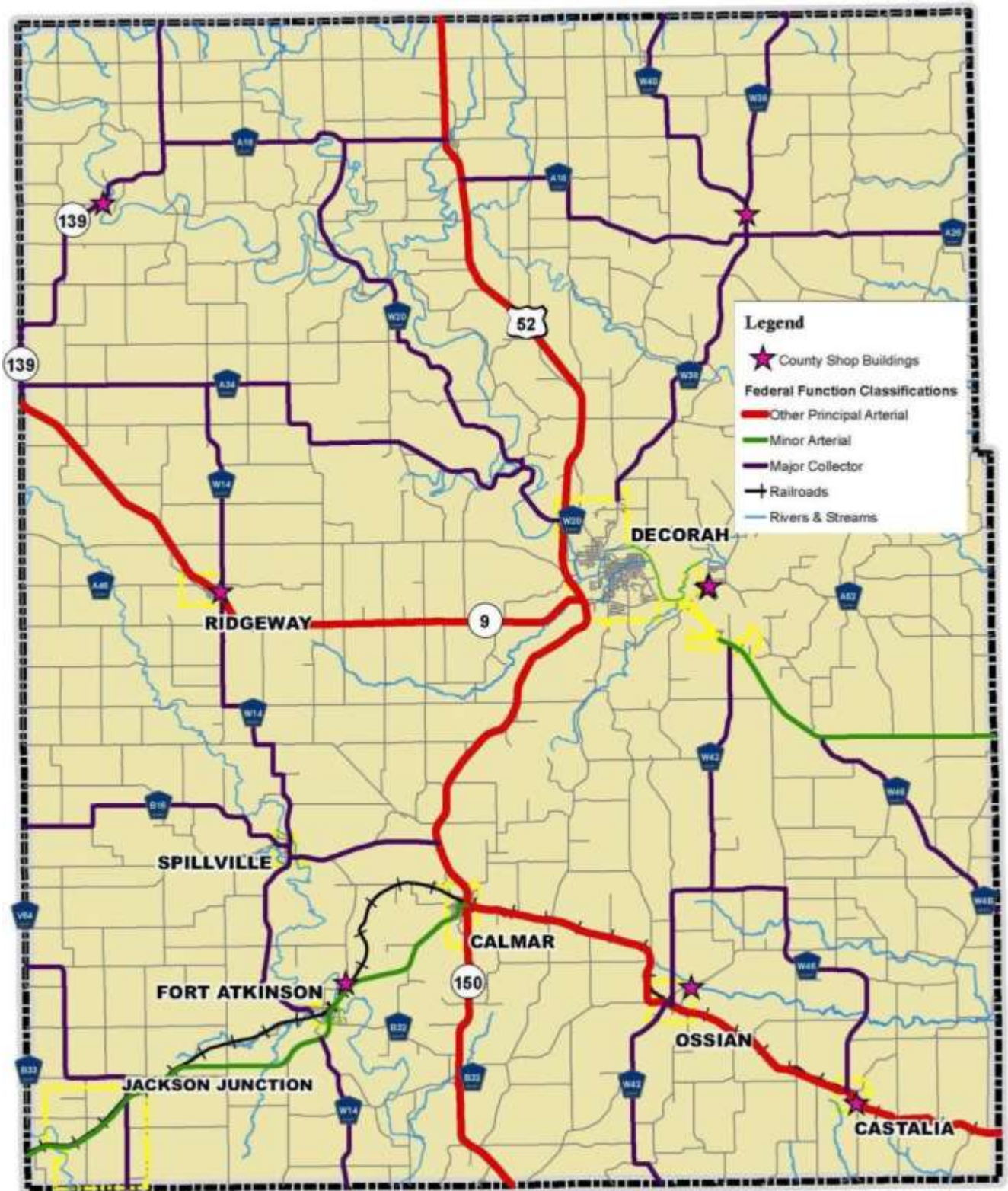
Table 14: Federal Functional Classifications, Winneshiek County

Roadway	Classification	Jurisdiction	Miles	Classification Description
US Hwy 52	Principal Arterial	State	62	Consists of a connected network of continuous routes that have substantial trip length and travel density for statewide or interstate travel.
State Hwy 150	Principal Arterial	State		
State Hwy 9 (west of Decorah)	Principal Arterial	State		
State Hwy 9 (east of Decorah)	Minor Arterial	State	21	With the principal arterials, form rural networks that link cities and larger towns and provide interstate and inter-county service. These roads are spaced so that all developed areas of the State are within a reasonable distance of an arterial highway.
State Hwy 24	Minor Arterial	State		
State Hwy 139	Major Collector	County	155	These routes, also known as federal aid farm to market roads, provide service to any county seat not on an arterial route, to the larger towns not directly served by the higher systems, and to other traffic generators, such as schools, shipping points, county parks, important mining and agricultural areas and link these places with nearby larger towns or cities, or with routes of higher classification. Federal aid can be used by the county in conjunction with farm to market funds to maintain these roads.
A18 (from 139 to 52)	Major Collector	County		
W20 (from A18 to Decorah)	Major Collector	County		
W14 (from A34 So.)	Major Collector	County		
W40	Major Collector	County		
W38	Major Collector	County		
A26	Major Collector	County		
A34	Major Collector	County		
W42	Major Collector	County		
W4B	Major Collector	County		
B16	Major Collector	County		
V64	Major Collector	County		
W46	Major Collector	County		

Source: (Iowa Department of Transportation, 2011; Federal Highway Administration, 2012)

There are several minor collectors throughout the county that account for about 216 miles of roadway. Minor collectors are also considered farm to market only roads and are spaced at intervals, consistent with population density, to collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road. They also provide service to the remaining smaller communities and link the locally important traffic generators with the rural areas. Local roads constitute the rest of the roadways in the county, with over 720 miles. The rural local road system provides access to adjacent land and provides service to travel over relatively short distances as compared to collectors or other higher systems. There are no interstates within the county boundaries. Figure 12 illustrates the FCC roads in the county in addition to the County Road Department Shop locations.

Figure 12: FCC Classification Map



Source: (Iowa Department of Transportation, 2011); (Winnesiek County Engineer's Office, 2014)

Trails

Winneshiek County has several walking and biking trails as well as snowmobile trails as options for non-vehicular transportation. The Prairie Farmer Recreation Trail stretches 20 miles from Calmar to Cresco through the community of Ridgeway. The Trout Run Trail in Decorah is an 11 mile urban trail system that complements the existing sidewalk infrastructure to create a safe environment for walking and biking around the community. There are existing plans to expand The Prairie Farmer Trail to connect to the Trout Run Trail via the “Dry Run Trail.” Snowmobilers enjoy nearly 150 miles of groomed and marked trails within the county.

Railway

The Canadian Pacific Railroad, owner of Dakota, Minnesota & Eastern Railroad Corp. (DME) has been operating a line through Winneshiek County since 2008 when it acquired DME. The railroad operates track running parallel to the Mississippi River through Iowa as well as the line across Northern Iowa. Total Iowa operations consist of about 660 miles of rail and in Winneshiek County it runs through the communities of Jackson Junction, Fort Atkinson, Calmar, Ossian and Castalia. The main products handled by the rail include coal, farm products, food products, chemicals, waste products, primary metal products, nonmetallic metals and stone (Iowa Department of Transportation, 2012). Calmar experiences five trains a day, Jackson Junction and Fort Atkinson, four trains a day and Ossian and Castalia, three trains a day. From 2003 through 2012 there were eight railway accidents or incidents reported. Four of them were highway-rail incidents that resulted in seven injuries (Federal Railroad Administration, 2013)

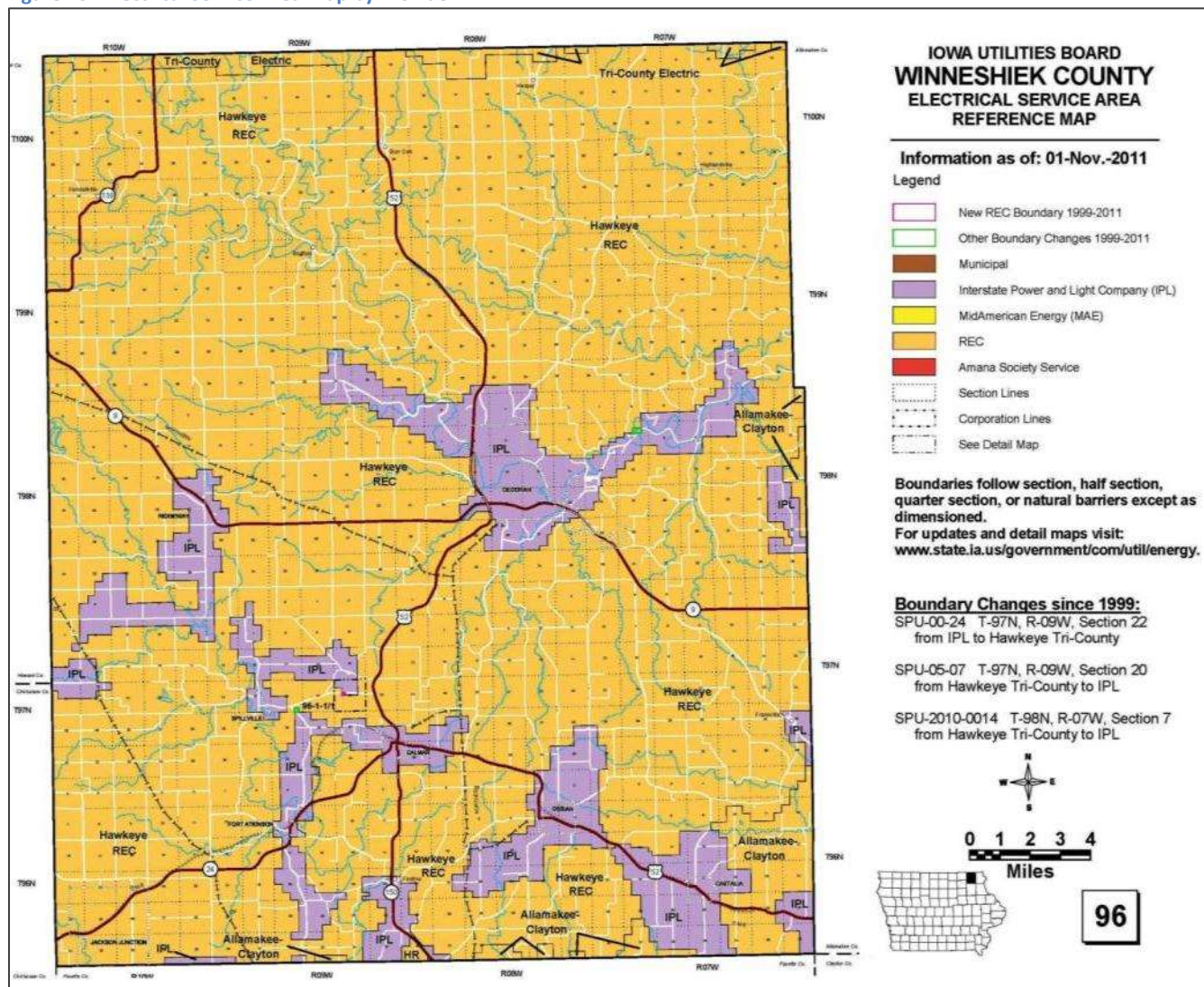
Airports

Winneshiek County has one publicly owned general aviation airport, the Decorah Municipal Airport. Located southeast of the city along Highway 9, the airport is an "uncontrolled" facility with a fulltime Fixed Based Operator available 24/7 to service any aviation need. The Airport runway system consists of a lighted 4,001' long by 75' wide concrete runway with a load bearing strength of 28,000 pounds single wheel load. The runway is accessed by a 1,200' taxiway, with a partial parallel taxiway from the runway to the terminal. The facilities include the terminal with office, a maintenance hangar and three T-hangars. The facility offers jet fuel and aviation gas for purchase, a tie-down area and 16 rental hangers. The airport has 22 aircraft based on the field, 21 single engine planes and one ultralight. The airport averages around 25 operations per day, 55% of which are local general aviation and 45% transient general aviation (AirNav, LLC, 2010/2012), (City of Decorah, n.d.). The Decorah Municipal Airport maintains and regularly updates an Airport Layout Plan which includes an inventory of existing conditions and issues and outlines short and long term capital improvement plans.

Utilities and Pipelines

Residents in the county are provided electrical service from a mixture of investor-owned utilities (IOU) and rural electric cooperatives (REC). The largest power suppliers for the county are Hawkeye Rural Electric Cooperative and Interstate Power and Light (Alliant Energy). Figure 13 delineates the electrical service area for the county and indicates the provider responsible for that area. Recent Census data indicates that nearly 14% of county residents utilize electricity for home heating.

Figure 13: Electrical Service Area Map by Provider

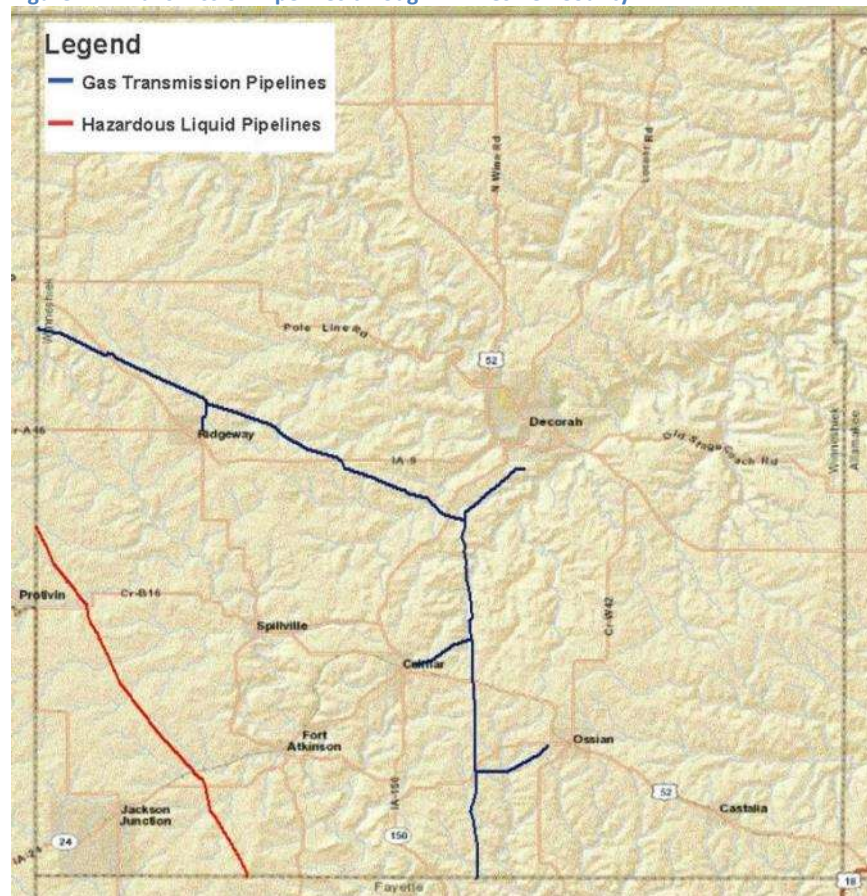


Source: (Iowa Utilities Board, 2012)

Natural gas is not available in all parts of the county. Black Hills Energy provides natural gas service to the communities. Residents also have access to LP gas from a variety of private providers. Over 43% of the county's residents rely on natural gas for home heating and 31% on bottled, tank or LP gas.

There are two pipelines through the county, one is a gas transmission pipeline operated by Northern Natural Gas Co. and the other a hazardous liquid pipeline operated by Amoco Oil (Pipeline and Hazardous Materials Safety Administration, 2007). Figure 14 illustrates the general location of these lines within the county.

Figure 14: Transmission Pipelines through Winneshiek County



Source: (Pipeline and Hazardous Materials Safety Administration, 2007)

Dams

There are 17 dams within Winneshiek County, each with a low hazard potential. Three of the dams are concrete or masonry gravity dams and the others are earthen dams. The primary purposes of the dams within the county are flood control, recreational or for small fish ponds. (U.S. Army Corps of Engineers, 2012)

Source Water

The water supply for Winneshiek County residents comes from two sources, public or private systems, depending on the location. Both public and private systems operate on groundwater wells located throughout the county and draw from several aquifers, depending on the depth of the well. For the most part, water is drawn from the Galena, St. Pete or Jordan Aquifers (Groux, 2013). Municipal water systems provide water to nearly 12,000 residents and include the following systems (Iowa DNR, n.d.):

Calmar Water Supply
Castalia Water Works
Decorah Water Department
Fort Atkinson Water Works
Frankville Water System

Freeport Water District
Ossian Water Supply
City of Ridgeway
Spillville Water Supply

Several rural locations that serve the public outside of municipal service areas operate water systems regulated by the DNR as well. They include:

Barneys Bar And Grill	North Terrace Mobile Home Park
Big Canoe Lutheran Church	North Winneshiek Com. School
Big Springs Well	Pine Bluff 4H Camp
Bluffton Store	Pinters Garden Center & Pumpkin Patch
Chimney Rock Canoe Rental & Campground	Plantation Country View Subdivision
Decorah Fish Hatchery	Pulpit Rock Camp Grounds
Decorah Implement Company	Scenic View Estates
Decorah Sales Commission	Seed Savers Exchange
Deerfield Heights Association	Shermans Water & Road, Inc.
Harvest Farm Campground	Silvercrest Golf & Country Club, Inc.
Haugen Hummel Enterprises	South Winn Golf Club
Haugen Hummel, Subdivision 2	The Country Express
High Point East	The Old Store (demolition pending)
Highland General Store & Campground	The Zipper
Jackson Heights Golf Course	Turkey Valley Community School
Jewels Skate Country	Twin Springs Camp Area
Kendallville Park	Twin Springs West
Lake Meyer Park	Washington Prairie Lutheran Church
Laura Ingalls Wilder Museum Well	Windridge Implements
Nob Hill Supper Club	

Wastewater

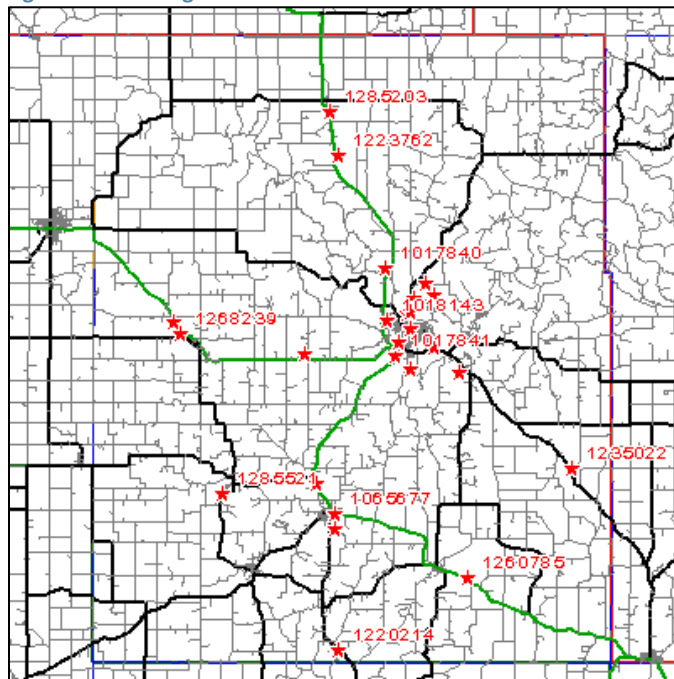
Winneshiek County household wastewater is treated by either public sanitary systems or a private sewage disposal system such as a septic system. The following communities maintain public sewer systems:

Burr Oak	City of Decorah	City of Ridgeway
City of Calmar	City of Fort Atkinson	City of Spillville
City of Castalia	City of Ossian	Festina

Communications

Landline telephone service is provided throughout the county by a variety of telecommunications companies depending on location. Landline telephone service has decreased from 99.1% of households in 2000 to 98.6% in 2011 (U.S. Census Bureau, 2010 Decennial). According to the FCC, there are cellular towers in Calmar, Decorah, Fort Atkinson, Ossian, Ridgeway and Spillville. Internet service is available at some level throughout most of the county. Connect Iowa reports that there are four DSL providers, three mobile providers, three fixed wireless, two fiber, three satellite and one cable provider. Decorah MetroNet is fiber optic infrastructure that runs through the community of Decorah. This project also addresses the community's needs for disaster recovery opportunities and network sharing. County residents also have access to local radio, newspaper and website resources for communications. Figure 15 maps out all FCC registered towers in the county. Table 15 provides a list of county communication providers.

Figure 15: FCC Registered Towers



Source: (Federal Communications Commission, n.d.)

Table 15: Communications Provider List

Provider:	Type:
Ace Communications	Landline Telephone, Internet
Century Link	Landline Telephone, Internet
Harmony Telephone Company	Landline Telephone, Internet
Mabel Cooperative Telephone Company	Landline Telephone, Internet
Mediacom	Landline Telephone, Internet
NE Iowa Telephone	Landline Telephone, Internet
OmniTel Communications	Landline Telephone, Internet
Windstream	Landline Telephone, Internet
U.S. Cellular	Cellular Telephone, Internet
Verizon	Cellular Telephone, Internet
iWireless	Cellular Telephone
Decorah MetroNet	Internet
Community Digital Wireless	Internet
Hughes Net Systems	Internet
StarBand Communications	Internet
ViaSat	Internet
Decorah Broadcasting, Inc. (KDEC AM/FM)	Commercial Radio
Wennes Communications, Inc. (KVIK-FM, KHPP/KNEI)	Commercial Radio
Luther College (KWLC)	Noncommercial Radio
KPVL-FM	Noncommercial Radio
Calmar Courier	Newspaper
Decorah Journal	Newspaper
Decorah Public Opinion	Newspaper
Ossian Bee	Newspaper
Decorahnews.com	News Website

In addition to these local communication systems, several regional television stations from Iowa and Minnesota broadcast to the county. Most commonly watched local channels are broadcast from Cedar Rapids, Waterloo, Mason City, Iowa Public Television, Rochester, MN and La Crosse, WI. The county has a Public Safety Answering Point (PSAP) located in Decorah as well.

Care Facilities

Medical and Hospital Facilities

One hospital and several clinics serve the residents of Winneshiek County. The hospital is located in Decorah. Clinics can be accessed in Decorah and Calmar.

The Winneshiek Medical Center is a 25-bed Critical Access Hospital located in Decorah. The hospital is owned by Winneshiek County and is governed by an elected Board of Trustees. The Winneshiek Medical Center is managed by the Mayo Clinic Health System. The Center offers many services and programs including emergency services, urgent care, geriatrics, midwifery, rehabilitation and sports medicine, surgery, radiology, audiology, oncology, home health care, hospice and pharmacy.

Table 16 lists the clinics, home health agencies and specialty care available to county residents within the county:

Table 16: Health Care Entities in Winneshiek County

Facility Name	Facility Type	City
Gundersen Lutheran - Calmar Clinic	Rural Health Clinic	Calmar
Gundersen Lutheran - Decorah Clinic	Rural Health Clinic	Decorah
Mayo Dialysis Center	End Stage Renal Disease	Decorah
Winneshiek County Public Health Nursing Service	Home Health Agency	Decorah
Winneshiek Medical Center – Mayo Decorah Clinic	Rural Health Clinic	Decorah
Winneshiek Medical Center – Ossian Clinic	Rural Health Clinic	Ossian
Northeast Iowa Community Action Health Services	Family Planning	Decorah

Source: (Iowa DIA, Health Facilities Division, 2012; Gundersen Lutheran, 2013)

Child and Senior Care Facilities

Winneshiek County has 25 registered home care and 8 licensed child care centers in the county. Table 17 lists the child care centers, their locations and licensed capacities.

Table 17: Child Care Providers, Winneshiek County

Community	Provider Name	Provider Capacity
Calmar	NICC Child Development Center	90
Decorah	Kinderhaus	15
Decorah	NEICAC Child Development Center	20
Decorah	Nisse Preschool and Kid's Place	30
Decorah	Northeast Iowa Montessori School	52
Decorah	Sunflower Child Care	123
Ossian	Ossian-De Sales Child Care Center	68
Ossian	South Winneshiek Early Childhood Program	18

Source: (Iowa DHS, 2012)

Senior care within the county ranges from assisted living facilities to skilled nursing facilities. Table 18 lists the senior care facilities which are located in three of the county's communities.

Table 18: Senior Care Facilities, Winneshiek County

Facility Name	Facility Type	City
Aase Haugen Assisted Living	Assisted Living Program	Decorah
Aase Haugen Home	Free Standing Nursing Facility/Skilled Nursing Facility	Decorah
Arlin Falck Assisted Living	Free Standing Nursing Facility/Skilled Nursing Facility	Decorah
Barthell OES Home	Free Standing Nursing Facility/Skilled Nursing Facility	Decorah
Oneota Housing, Assisted Living	Assisted Living Program	Decorah
Ossian Senior Hospice	Free Standing Nursing Facility/Skilled Nursing Facility	Ossian
Wellington Place	Free Standing Nursing Facility/Skilled Nursing Facility	Decorah
Wellington Place	Assisted Living Programs	Decorah

Source: (Iowa DIA, Health Facilities Division, 2012)

Economy

The two leading employment industries in the county are “Educational services, health care and social services” and “Manufacturing,” together employing over 45% of the employed labor force. Table 19 compares the leading industries in the county to the state. Table 20 classifies employees into categories by occupation for the county and state. Occupations describe the type of work in which an employee is engaged, regardless of the industry.

Table 19: Economic Base of Winneshiek County and the State of Iowa in 2011

Industry Category	Winneshiek County		State of Iowa	
	Number	Percent	Number	Percent
Agriculture, forestry, fishing, mining	1,013	8.6%	62,188	4.0%
Construction	908	7.7%	95,581	6.1%
Manufacturing	1,348	11.5%	229,557	14.7%
Wholesale trade	221	1.9%	46,372	3.0%
Retail trade	1,151	9.8%	181,666	11.7%
Transportation, warehousing and utilities	395	3.4%	73,661	4.7%
Information	86	0.7%	30,862	2.0%
Finance and insurance, real estate, rental and leasing	399	3.4%	119,357	7.7%
Professional, scientific, management, admin and waste services	549	4.7%	106,174	6.8%
Educational services, health care and social assistance	4,047	34.4%	372,756	23.9%
Arts, entertainment, recreation, accommodation and food	920	7.8%	118,557	7.6%
Other services, except public administration	491	4.2%	68,747	4.4%
Public administration	235	2.0%	51,853	3.3%
Total Employed Persons	11,763	100.0	1,557,331	100.0

Source: (U.S. Census Bureau, ACS 2008-2012)

Table 20: Occupation Classification of Winneshiek County Workers

Occupation Description	Winneshiek County		State of Iowa	
	Number	Percent	Number	Percent
Management, business, science, arts	4,029	34.3%	524,386	33.7%
Service	2,314	19.7%	258,756	16.6%
Sales and office	2,355	20.0%	374,917	24.1%
Natural resources, construction, maintenance	1,234	10.6%	148,358	9.5%
Production, transportation, material moving	1,822	15.5%	250,914	16.1%
Total Employed Persons	11,763	100.0	1,557,331	100.0

Source: (U.S. Census Bureau, ACS 2008-2012)

Agriculture plays a more important role in the economy locally than at the state level. A 2009 report from Iowa State University Extension noted that agriculture and ag-related businesses provided 2,358 jobs in Winneshiek County, nearly 16% of its workforce. This compares to an average of nearly 17% of the workforce statewide. The majority of these jobs are directly involved in agricultural production. The report also calculated that “all ag-related production, processing and input supplying activities in Winneshiek County” amounted to 20% of the county’s total industrial output (Otto & Parkinson, 2009). Table 21 indicates the agricultural production in Winneshiek County as of the latest Census of Agriculture.

Table 21: Winneshiek County Agricultural Production Value, 2007

Commodity	Percent of Total Annual Production Value	Production Value (\$)
Grains, oilseeds, dry beans, and dry peas	34.3%	68,321,000
Milk and other dairy products from cows	25.0%	49,751,000
Cattle and calves	20.8%	41,438,000
Hogs and Pigs	14.7%	29,384,000
Other	5.2%	10,419,000
Total	100%	199,313,000

Source: (United States Department of Agriculture, 2013)

Table 22 provides harvest and yield information for major crops in Winneshiek County for 2012-2013.

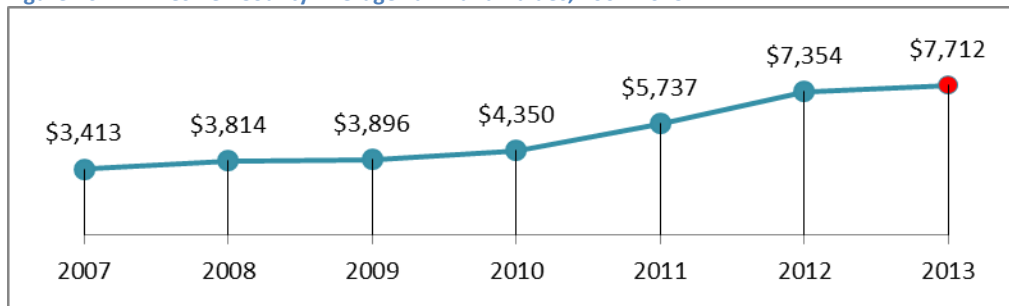
Table 22: Winneshiek County Crop Production, 2012-2013

Commodity	Harvested (acres)		Yield (bushels/acre)		Production (bushels)	
	2012	2013	2012	2013	2012	2013
Corn for grain	154,900	132,500	140.6	182.9	21,783,000	24,239,000
Soybeans for beans	61,300	56,200	44.4	47.8	2,722,000	2,685,000
Oats	4,420	5,700	67	68.3	296,000	395,000
Alfalfa/Mixtures	20,600		3.40 tons		69,900 tons	

Source: (United States Department of Agriculture, 2013)

Farmland values continue to rise in the county, with a 102% increase in value over the five year time period from 2008 to 2013. Figure 16 illustrates this trend over time.

Figure 16: Winneshiek County Average Farmland Values, 2007-2013



Source: (Iowa State University Extension, 2013)

Labor Force

Table 23 breaks down the labor force characteristics for Winneshiek County as it compares to the state.

Table 23: Labor Force Characteristics

	Winneshiek County	State of Iowa
Total population 16 years and over	17,290	2,405,664
Total in labor force	12,275	1,651,480
Percent in labor force	71.0%	68.6%
Employed labor force	11,763	1,557,331
Percent employed in labor force	68.0%	64.7%
Females 16 years and over	8,778	1,226,048
Females in labor force	5,770	787,537
Percent of females in labor force	65.7%	64.2%

Source: (U.S. Census Bureau, ACS 2008-2012)

Table 24 compares the state and county unemployment rates to national rates. National rates have been consistently higher than those of the state and county during the past decade. Winneshiek County as a whole has fluctuated along with the state but has consistently reported lower unemployment rates than the state. The only exception was in 2008. The unemployment rates have recently begun to drop in the state and county with the annual 2013 unemployment rate at a five-year low for the county.

Table 24: Unemployment Rates by Year: County, State and Nation

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Winneshiek County	4.2%	4.4%	4.2%	3.6%	3.7%	4.2%	6.1%	5.8%	5.2%	4.7%	4.2%
State of Iowa	4.4%	4.6%	4.3%	3.7%	3.8%	4.0%	6.2%	6.3%	5.9%	5.2%	4.7%
U.S.	6.0%	5.5%	5.1%	4.6%	4.6%	5.8%	9.3%	9.6%	8.9%	8.1%	7.4%

Source: (Iowa Workforce Development, 2014; U.S. Department of Labor, 2014)

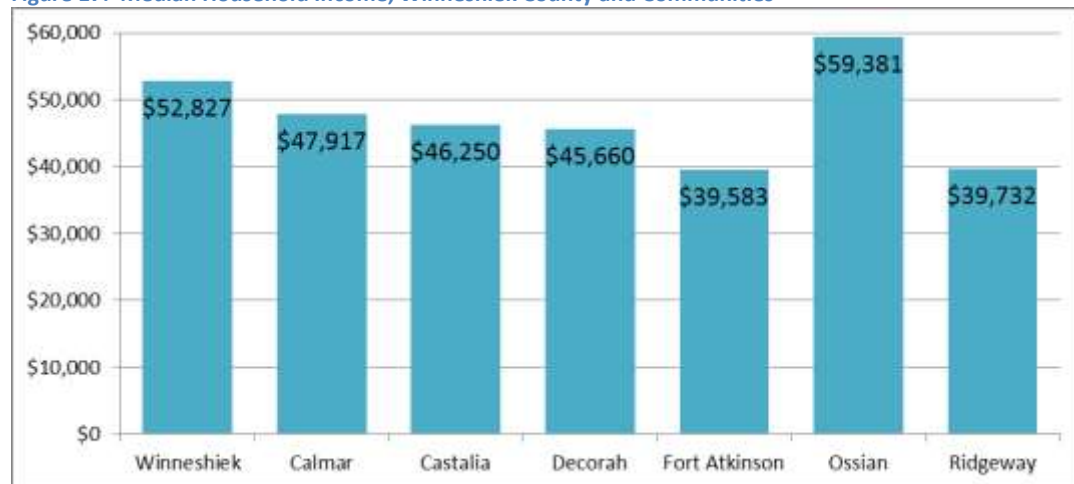
Income

According to the U.S. Bureau of Economic Analysis, Winneshiek County had a per capita personal income (PCPI) of \$41,471 in 2012. This compares to a state average of \$43,935 and a national average of \$43,735 and is an increase of 1.5% over the county's 2011 PCPI. Total personal income includes net

earnings; dividends, interest and rent; and personal current transfer receipts. In 2012, 63% of total personal income in the county was from net earnings (Bureau of Economic Analysis, 2012).

The median household income in Winneshiek County is higher than its neighboring counties and the state at \$52,827. Figure 17 compares the median household incomes for each of the incorporated communities and the county, with the exclusion of Jackson Junction and Spillville because of extreme margins of error (over \$22,000) in the available data. In this comparison, Ossian stands out as having the highest median income, while Fort Atkinson has the lowest.

Figure 17: Median Household Income, Winneshiek County and Communities



Source: (U.S. Census Bureau, ACS 2008-2012)

Brief History

Possibly as early as 1000 AD, Native American tribes had lived in the northeastern part of Iowa. Archeological sites of past Oneota/Ioway tribes have been dated to between 1000 and 1700 AD. These sites include the Lower Dam Group, the Bluffton Mound Group and the Freeport Prehistoric Indian Burial Mounds. According to some residents, there are also sites near Festina, in Washington Township. The Oneota relied on agriculture, plant gathering and hunting for their subsistence. Archaeologists have determined that the Oneota diet consisted of corn, squash, beans and even some plants now considered weeds, like pigweed and goosefoot. The main sources of meat were deer and bison. The Oneota stored food and other items in large bell-shaped pits dug into the ground. These pits have offered much information about the Oneota to archaeologists. It is thought that the Oneota tribes in this area became the Ioway tribes (Fishel, 1996).

These Late Prehistoric tribes eventually gave way to later groups such as the Sauk, Fox, Winnebago and Potawatomi tribes. The area of Winneshiek County became the home of the Winnebago Indian tribe. The county is named for a celebrated chief of the tribe. Fort Atkinson was built in 1840 to provide a headquarters for government in its supervision of the Winnebago reservation. In 1842, the government appointed the Reverend D. Lowery to act as Indian Agent for the Winnebago Indian reservation. Rev. Lowery directed the building of a Mission and farm on the reservation. The "Old Mission" was located about five miles southeast of Fort Atkinson. After a treaty in 1848, the Winnebago Indians were removed from the area and the first permanent white settlers to the area arrived, initially settling near

Fort Atkinson and the Old Mission. In 1849, the first settlers arrived in Decorah and Moneek and a small mill was constructed in Decorah. In 1850, the first Norwegian immigrants arrived in the area. As the population grew, Winneshiek County was formally organized in 1851 and the election of officers soon followed. The first Census of population in Winneshiek County occurred in 1850 and totaled 546 people. By 1880, the population had reached 23,938, the highest ever recorded in the county's history. The location of the county seat was contentious, with Lewiston, Moneek and Decorah as contenders. After an initial faulty election determined that Decorah should be the county seat location, residents of Freeport petitioned from 1854 to 1856 for another election to relocate the county seat. In the end, no second election was called and the county seat location remained in Decorah. (Alexander, 1882) The City of Calmar also made an attempt to secure the county seat in 1898, but that too, failed. The first courthouse was built in 1858 and housed the sheriff's residence, the jail, offices and a courtroom until 1902. The second courthouse was built in 1903 and is still in use today. New windows were installed in the 1970s and the second and third floors were renovated in 1990 and 1991. A new jail was constructed in 2000 (Winneshiek County, 2012). Over time, a few villages have disappeared, such as Lewiston, Moneek and Plymouth Rock and the towns of Decorah and West Decorah merged in 1902. Today, Decorah remains the County Seat and the communities Calmar, Castalia, Fort Atkinson, Jackson Junction, Ossian, Ridgeway and Spillville remain incorporated.

Jurisdictional Descriptions and Capabilities

Requirement §201.6(c)(3):

[The plan shall] document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs

Requirement §201.6(d)(3):

[The plan shall] be revised to reflect changes in development, progress in local mitigation efforts and changes in priorities

The mitigation capabilities for each city jurisdiction are profiled in the section that follows. This profile includes an overview of the jurisdictions and their organizational structure; a description of staff, fiscal, and technical resources; and information regarding existing hazard mitigation capabilities such as adopted plan policies and regulations, if any. The descriptions and capabilities assessments are based on available and applicable data, including information provided by the jurisdictions collected during the planning process. School District information and any unique risks are included within the jurisdictions in which school district buildings are located. In our rural environment, there have been no significant changes in development that have occurred in hazard prone areas. No significant changes in the vulnerability of jurisdictions were noted since the approval of previously approved plans, MJ-4 and MJ-5.

City of Calmar

History and Overview

In 1850, a Norwegian family headed by Thore P. Skotland, was the first recorded group of people to settle in the area that later became Calmar. They were joined by other settlers rather quickly and in the 1870s and 1890s, Calmar recorded a population growth from 700 to nearly 1,100 people.

The Calmar area was first referred to as "Marysville" when a group of settlers associated the area with a beloved mining town in California by that name, but when it was discovered a Marysville, Iowa already

existed, another name had to be chosen. Two Swedish settlers decided on “Calmar,” after the Kalmar Sound on the southeast coast of Sweden.

When the use of railways was common for both passengers and freight, Calmar was a major railroad hub of the Milwaukee Road. Passengers and those shipping freight had access to and from several locations in Iowa, Minnesota, Wisconsin, Illinois (Chicago), and South Dakota. This made Calmar a central market place as area farmers no longer had to travel over 40 miles to purchase supplies. Passenger trains were active on Calmar’s railroads until the 1960s and freight transport is still active through town today (City of Calmar, 2012)

Calmar is located in south central Winneshiek County at the intersection of U.S. Highway 52 and state Highways 150 and 24. The total land area of city limits is 1.07 square miles and is laid out as shown in Figure 18. The 2010 Census count for the City of Calmar is 978.

Figure 18: Calmar Street Map



Source: (Iowa Department of Transportation, 2011)

Governance, Facilities and Services

The governing body includes one mayor and five council members. City employees include:

- City Clerk/Treasurer
- Street Superintendent
- Water/Wastewater Superintendent
- Police Chief
- Patrol Officer (1)
- Library Director

City contracted services include:

- City Engineer
- City Attorney
- City Health Officer
- Civil Defense Director

The Calmar Police Department consists of a Police Chief and Patrol Officer. The Calmar Police Department also provides service to the community of Ossian through a shared services agreement.

The Calmar Fire Department consists of approximately 22 volunteer members and is funded by the City of Calmar along with township trustees in the department's service area. The Calmar Fire Station is located on the corner of Main and Charles (Highway 24) and serves the communities of Calmar and Spillville, along with most of Calmar Township and sections of Springfield, Military and Washington Townships.

The South Winn First Responders operate out of the Calmar Fire Station and have about 15 trained volunteers able to respond to any trauma or medical emergency. The South Winn Responders are a collaboration of the communities of Calmar, Fort Atkinson and Spillville. The group consists of Emergency Medical Responders (EMRs), Emergency Medical Technicians (EMTs) and Paramedics. Ambulance services are provided by Winneshiek Medical Center.

The South Winneshiek High School and administrative offices are located in Calmar and share the same hazard risks. South Winneshiek schools noted the following mitigation measures as ways they work to reduce the impact of hazards to their students, staff and facilities: weather radios, fire suppression system in kitchen, regular lock-down, evacuation and tornado drills, emergency information binders and response kits in each classroom, and regular staff safety trainings. The school district adheres to an emergency plan and crisis plan. Currently, Clark Goltz serves as the facility manager.

The CFS (Calmar, Festina and Spillville) Catholic School, Calmar Center is also located in Calmar. CFS listed the following as measures taken to mitigate the impact of hazards: weather radios, emergency warning systems/sirens, fire suppression system (in kitchen), emergency binders and response kits in each classroom, regular evacuation and tornado drills, and regular staff trainings on school safety. CFS has developed an emergency plan and crisis plan.

Northeast Iowa Community College has one of its two main campus facilities in Calmar. The Dairy Center adjoins the NICC campus which includes an educational facility, a milking parlor, a free-stall barn and calf barn. NICC has one campus emergency plan and follows the incident command system. The college provost (currently Rhonda Siebert) is in charge of security and emergency preparedness. NICC

maintains emergency information binders, emergency kits, emergency shelter kits, weather radios, a radio communication system, internal communication system, and are up to fire code. NICC practices regular fire and weather drills and are an ALICE school. Emergency plans are reviewed yearly and they work with Winneshiek County on county wide drills and training.

Only a small portion in the southern section of the community lies within any flood plain and it is well beyond any structures. Figure 19 illustrates the flood plain in the community.

Figure 19: Flood Plain, City of Calmar



Source: (The Schneider Corporation, 2013)

Fiscal and Technical Resources

Property valuations for the City of Calmar were \$49,973,375 as of January, 2014, giving them a debt limitation of \$2,498,669 per Iowa statute. This debt limit is not affected by Revenue Bonds. Calmar's fiscal tools for funding mitigation activities include bonding, both General Obligation and Revenue, loan agreements, fees, taxes for specific purposes and grants.

Winneshiek County Emergency Management provides technical resources and services to the City of Calmar and its emergency responders. The City has an outdoor warning system that is automatically activated by the County's 911 dispatch center. Winneshiek County contracts with the Northeast Iowa Response Group (NIRG), a specialized HAZMAT Team from the Waterloo Fire Department, to provide technician-level incident response throughout the county.

Existing Plans and Policies

The City of Calmar utilizes a City Code and zoning ordinances to control land use, direct decision-makers and protect the quality of life for its residents. The City is part of the recently adopted Winneshiek County Comprehensive Plan 2012 which outlines goals, strategies and actions for future growth and development. Calmar utilizes the Winneshiek County Emergency Operations Plan and the Winneshiek County Recovery Plan. All City Response Personnel follow appropriate protocol and guidance.

Key Issues

- Hazardous Materials – related to the train traffic and semi traffic through the middle of town, the cargo through town is becoming increasingly more volatile which worries city leaders and community members
- Tornadoes – located on flat terrain with little protection, tornadoes can spring up easily and unpredictably, high school athletic fields have little protection from storms of any kind
- Flash Floods – some poor city drainage causes flash flooding in some areas of town
- Hailstorm – along with other weather events, can be destructive, with no ability for avoidance
- Thunderstorms and Lightning – unpredictable, potentially dangerous weather event
- Transportation Incident – heavy truck and train traffic through town – only one rail crossing has traffic control arms, and many children crossing highways to get to schools and parks
- Windstorms – unpredictable, potentially damaging weather event
- Extreme Heat – economic impact of crop failure, etc.
- Severe Winter Storms – a regular occurrence, strains city budget when frequent and severe
- Terrorism – related to incidents in the schools – active shooting incidents have occurred
- Droughts – economic impact of crop failure, etc.
- Infrastructure Failure – in Calmar, concern is with transportation infrastructure

Mitigation Activities

Status and Progress on Previous Mitigation Actions

1. Construct FEMA-compliant tornado safe room(s)
 - Not yet completed
2. Maintain a well-equipped and well trained emergency response capability for appropriate and effective response
 - Purchased a grain bin rescue tube
 - New gas meter
 - New cutoff saws
 - New stack jacks
 - New hoses
 - New computer for jaws – to identify vehicle type for proper extractions
 - New rescue truck
 - New electronic control weapon
 - New vehicle with in-car camera
 - New warning siren (4 in city limits now)
3. Construct safe routes for travel and educate

- Education through newsletter and website
 - NICC continues to have discussions regarding safe pedestrian connectivity between the Dairy Center and Campus. Expect this to be included in a five-year plan due to the high cost.
4. Encourage the development of well head protection
 - Addressed well head protection
 5. Other improvements
 - Updated the lift station with generator
 - NICC updated the lift station on campus and includes a generator – this station has been given to the city to maintain.

Mitigation Actions to Pursue Through MJ-9 Implementation:

- Need generator for NE lift station and the water tower
- Storm shelter – FEMA compliant safe room – for community and students of South Winn and NICC
- Maintain/improve emergency responder equipment and training
- Identify/develop safe routes for vehicle and pedestrian traffic – educate the public

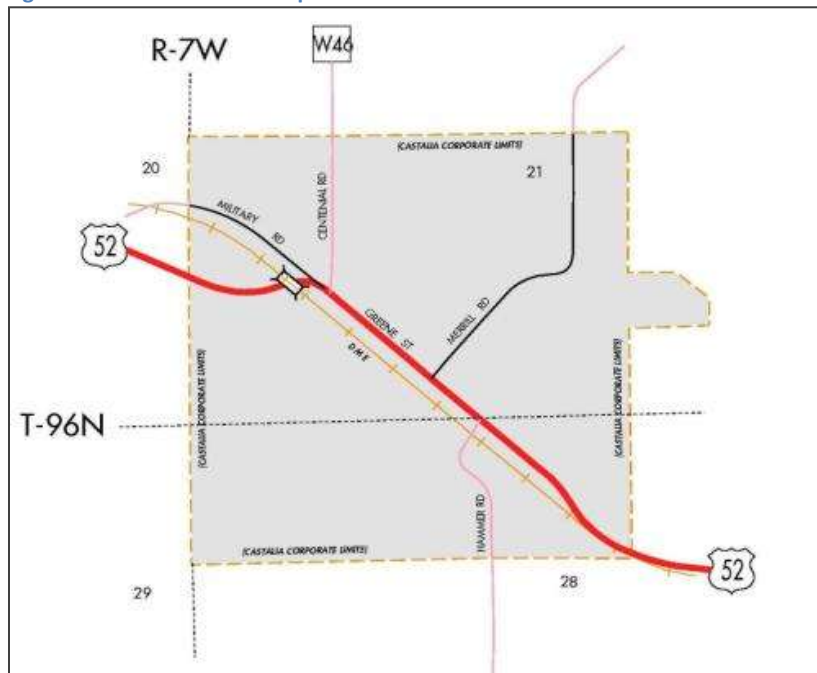
City of Castalia

History and Overview

In 1864, the Chicago, Milwaukee and St. Paul Railroad reached Castalia, once known as Rattletrap. The community was small with few buildings, but included two churches, post office and a general store. The population in 1880 was 108 (Alexander, 1882). The community has persevered over time and fared better than the community of Moneek, whose historic bridge has been moved to a park in Castalia.

Castalia is located in southeast Winneshiek County on U.S. Highway 52 between Ossian and Postville. The total land area of city limits is .58 square miles and is laid out as shown in Figure 20. The 2010 Census count for the City of Castalia is 173.

Figure 20: Castalia Street Map



Source: (Iowa Department of Transportation, 2011)

Governance, Facilities and Services

The governing body includes one mayor and five council members. City employees include:

- City Clerk
- Water/Wastewater Superintendent
- 2 part time maintenance employees

Law enforcement is provided to the residents of Castalia by the Winneshiek County Sheriff's Department.

The Castalia Fire Department consists of approximately 24 volunteer members and is supported by the City of Castalia and funded by township trustees in the department's service area. The Castalia Fire Station adjoins City Hall on Greene Street (Hwy. 52) and serves the community and Bloomfield Township.

Emergency Medical Responders (EMRs), Emergency Medical Technicians (EMTs) and Paramedics with the Postville Ambulance service respond to any trauma or medical emergency.

The City of Castalia is located in the Postville Community School District. Castalia children attend either the elementary/middle school or the high school, both of which are located in the nearby community of Postville. No school buildings are located in Castalia.

None of the community lies within any flood plain as noted in Figure 21.

Figure 21: Flood Plain, City of Castalia



Source: (The Schneider Corporation, 2013)

Fiscal and Technical Resources

Property valuations for the City of Castalia were \$6,074,976 as of January, 2014, giving them a debt limitation of \$303,749 per Iowa statute. This debt limit is not affected by Revenue Bonds. Castalia's fiscal tools for funding mitigation activities include bonding, both General Obligation and Revenue, loan agreements, fees, taxes for specific purposes and grants.

Winneshiek County Emergency Management provides technical resources and services to the City of Castalia and its emergency responders. The City has an outdoor warning system that is automatically activated by the County's 911 dispatch center or can be manually activated at the City's Fire Station. The City's community shelter location is the fire station. Winneshiek County contracts with the Northeast Iowa Response Group (NIRG), a specialized HAZMAT Team from the Waterloo Fire Department, to provide technician-level incident response throughout the county.

Existing Plans and Policies

The City of Castalia utilizes a City Code and mobile home ordinance to control land use, direct decision-makers and protect the quality of life for its residents. The City is part of the recently adopted Winneshiek County Comprehensive Plan 2012 which outlines goals, strategies and actions for future growth and development. Castalia utilizes the Winneshiek County Emergency Operations Plan and the Winneshiek County Recovery Plan. All City Response Personnel follow appropriate protocol and guidance.

Key Issues

- Hazardous Materials - related to the train traffic and semi traffic through the town, the cargo is becoming increasingly more volatile which worries city leaders and community members
- Severe Winter Storms - a regular occurrence, strains city budget when frequent and severe, also causes concern for elderly residents
- Tornadoes - located on flat terrain with little protection, tornadoes can spring up easily and unpredictably
- Thunderstorms and Lightning – along with other weather events, can be destructive and dangerous, with no ability for avoidance
- Transportation Incident – heavy truck and train traffic through town – must cross highway or rail to get to parks, some neighborhoods
- Infrastructure Failure – in Castalia, concern is with transportation infrastructure and sewer/water
- Grass or Wildfire – small community surrounded by crop and grassland, worry is about fast-moving grassfires
- Hailstorm – unpredictable, potentially damaging weather event
- Flash Floods – some poor city drainage causes flash flooding in some areas of town
- Windstorms – unpredictable, potentially damaging weather event
- Droughts – economic impact of crop failure, etc.
- Extreme Heat – economic impact of crop failure, also elderly residents

Mitigation Activities

Status and Progress on Previous Mitigation Actions

1. Develop and maintain a well-equipped and well-trained emergency response capability for appropriate and effective response
 - Purchased new bunker gear and air packs
 - Obtained a thermal imager
 - Obtained a gas detector
2. Purchase and install warning siren
 - Upgraded community siren to remote activation
3. Construct FEMA-compliant tornado safe room(s)
 - Not yet completed
4. Purchase generators to continue critical services
 - Purchased fixed generator for water pump house

Mitigation Actions to Pursue Through MJ-9 Implementation:

- Keep up training hours for emergency responders
- Replace existing siren with a siren that has a stronger coverage area
- Purchase new fire truck
- Expand station size to accommodate new truck sizes
- Continue to update existing equipment
- Purchase portable generator for lift stations

- Transfer switches and wiring for generators
- Develop an evacuation plan for community members
- Inform community members of suitable actions to take in the event of a rail/road/hazardous materials incident
- Promote the use/purchase of all-hazard radios – consider a purchase plan or subsidy to help with the cost.
- Construct FEMA-compliant tornado safe room and storm shelter

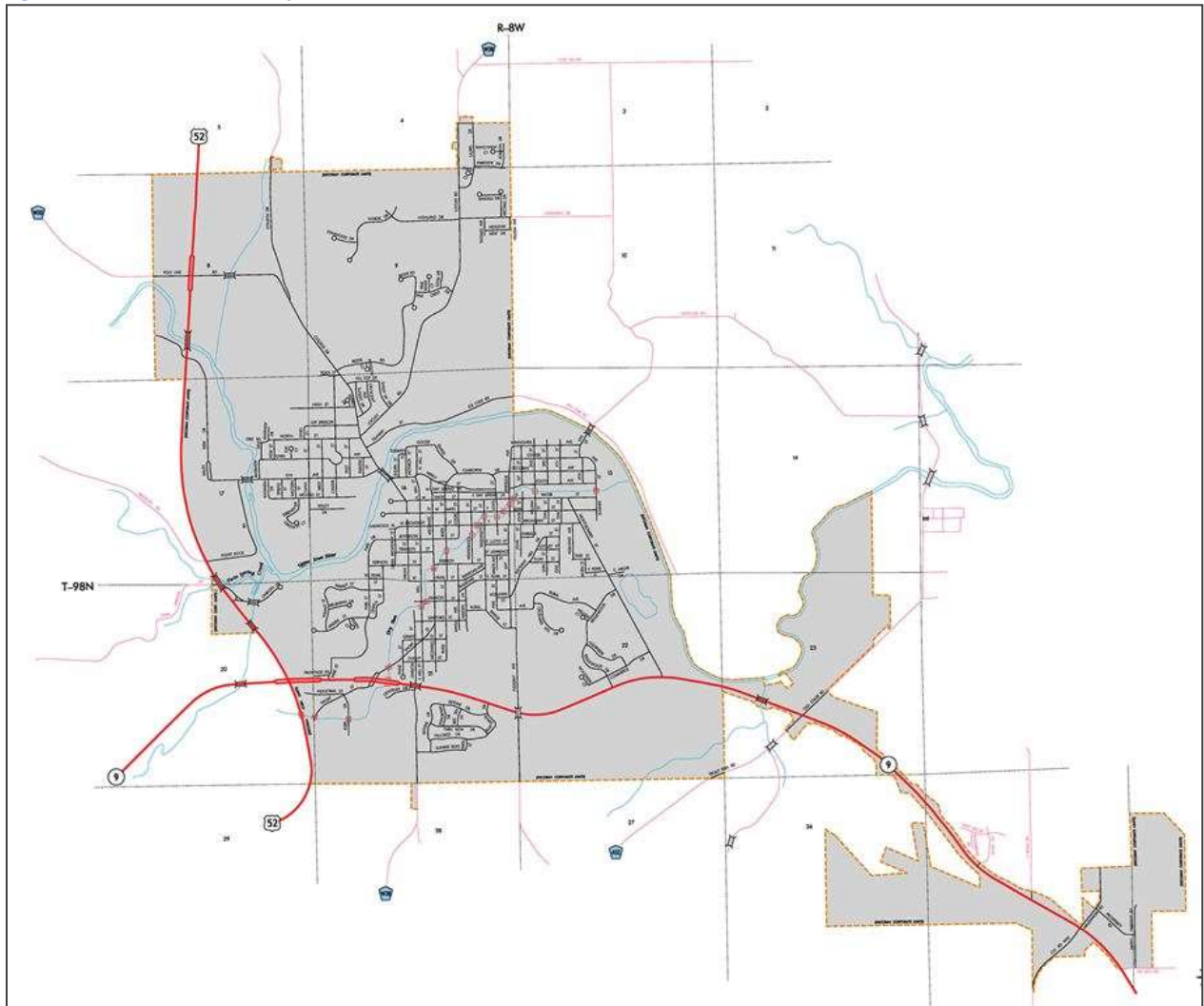
City of Decorah

History and Overview

The City of Decorah is named after Waukon-Decorah, a prominent Chief of the Winnebago Indian Tribe. Nine members of the William Day family are credited with being the first settlers of Decorah, arriving around 1849. The first plat of the city was made in 1853 and Decorah was incorporated as a city in 1857. Education was a priority for the community and its settlers. The Norwegian Luther College, a private four year liberal arts school, was established in Decorah in 1862 with the purchase of 32 acres for the college. The first building on campus was built in 1865. The railroad reached Decorah in 1869 and provided transportation for passengers and freight for nearly 100 years, ending in February of 1979. Decorah is located in the center of Winneshiek County on U.S. Highway 52 and Iowa Highway 9. The total land area of city limits is 7.01 square miles, with nearly 62 miles of roadways¹ as shown in Figure 22. The 2010 Census count for the City of Decorah is 8,127.

¹ 50.3 miles local developed, 2 miles local undeveloped, 6.5 local alleys, remainder highways

Figure 22: Decorah Street Map



Source: (Iowa Department of Transportation, 2011)

Governance, Facilities and Services

The governing body includes one mayor and seven council members. Key city employees include:

- City Administrator
- City Clerk/Treasurer
- Deputy City Clerk
- Water Superintendent
- Wastewater Superintendent
- Street Commissioner
- Library Director
- Park and Recreation Director
- Police Chief
- Fire Chief
- IT Manager (shared with the county)

Commissions and Boards include:

- Planning and Zoning
- Board of Adjustment and Zoning
- Airport Commission
- Library Board of Trustees
- Park & Recreation Commission
- Civil Service Commission
- Low Rent Housing Agency
- TIF/LMI Board
- Decorah Tree Committee
- Solid Waste Commission
- Cable TV Commission
- Human Rights Commission
- Historical Preservation Commission

The Decorah Police Department consists of a Police Chief and 11 sworn officers, 7 communication personnel, 1 clerical and 3 reserve officers.

The Decorah Fire Department consists of 32 volunteers and three paid staff. Most members are Firefighter I and Hazardous Materials Operation certified. The Department has one station, located at 400 Claiborne Drive. The Decorah Fire Department serves the community of Decorah and the townships of Decorah, Glenwood, Pleasant and Canoe; along with portions of Madison, Springfield, Bluffton, Hesper and Highland Townships.

The Winneshiek Medical Center of Decorah provides ambulance services.

The Decorah Community School District serves Decorah and a surrounding area encompassing nearly 175 square miles. The district includes the incorporated city of Decorah, and the unincorporated communities of Freeport, Locust and Nordness. Decorah CSD operates an early childhood center, two elementary schools, a middle school and senior high school, all located in the City of Decorah, and share the same hazard risks. The high school building has a FEMA-approved safe room. Kurt DeVore, director of IS and IT, is in charge of Emergency Planning for the district along with Mike Haluska, school superintendent and Greg Schaller, facilities manager. They meet regularly with Bill Nixon, Police Chief for the City of Decorah to communicate our plans as well as to ensure proper coordination with our emergency and crisis plans. All building principals have developed their individual plans for each of their respective facilities in coordination with Greg Schaller as the Director of Buildings and Grounds. Administratively, they meet to ensure all the plans are aligned and coordinate in the case of a district wide emergency and for communication purposes. All buildings have weather radios and conduct regular planning and drills, have building fire suppression systems, regular lockdown, evacuation and

tornado drills, emergency information binders in each classroom, emergency response kits in each classroom, and regular staff training on school safety.

St. Ben's is a parochial school in Decorah and has constructed a FEMA compliant safe room for students and staff. St. Ben's has a weather radio and has worked to mitigate the impact of hazards by having an emergency warning system and sirens, fire suppression system in the kitchen, emergency information binders and emergency response kits in each classroom, regular lockdown, evacuation and tornado drills, and regular staff training on school safety. The school maintains an emergency plan, master plan, capital plan, crisis plan and a full emergency procedures plan. The facility is managed by Steve Haluska and Kenny White.

Luther College, a private liberal arts campus, is also located in Decorah and shares the same hazard risks. Information was not available as to Luther's mitigation efforts.

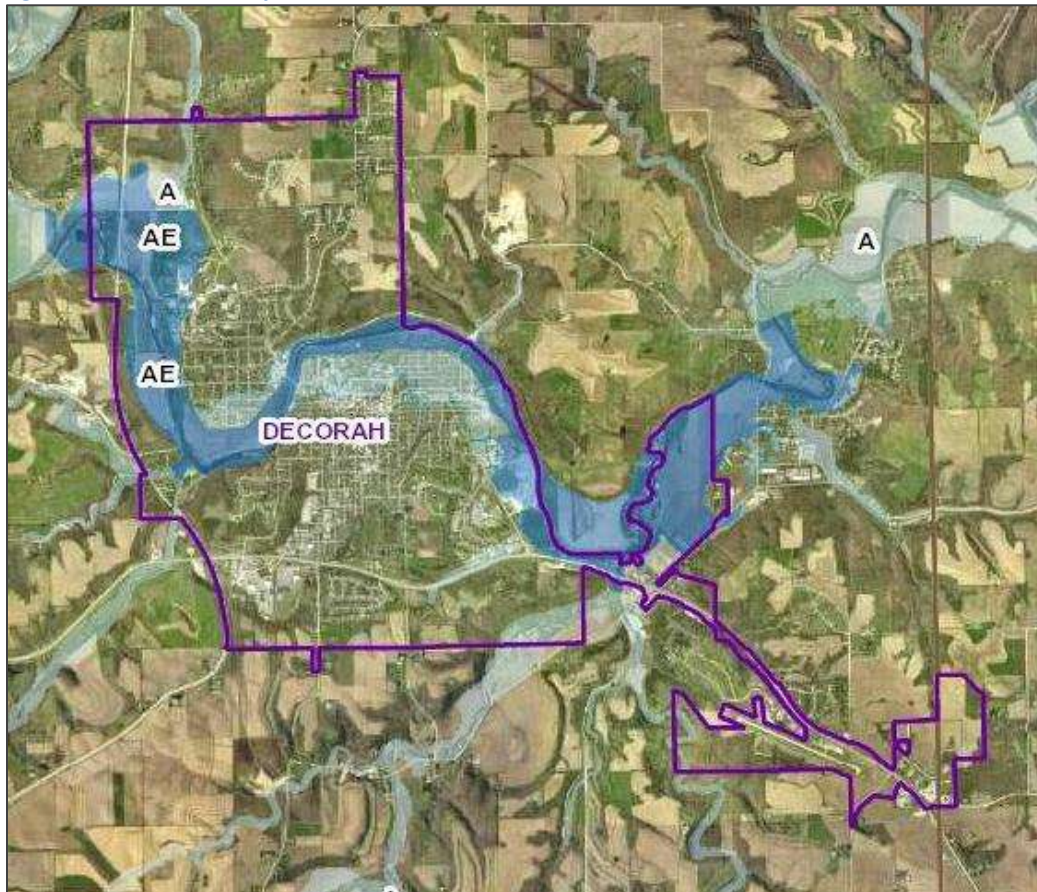
Fiscal and Technical Resources

Property valuations for the City of Decorah were \$484,581,434 as of January, 2014, giving them a debt limitation of \$24,229,072 per Iowa statute. This debt limit is not affected by Revenue Bonds. Decorah's fiscal tools for funding mitigation activities include bonding, both General Obligation and Revenue, loan agreements, fees, taxes for specific purposes and grants.

Winneshiek County Emergency Management provides technical resources and services to the City of Decorah and its emergency responders. The City has six outdoor warning sirens that are automatically activated by the Decorah Law Enforcement Center. Winneshiek County contracts with the Northeast Iowa Response Group (NIRG), a specialized HAZMAT Team from the Waterloo Fire Department, to provide technician-level incident response throughout the county.

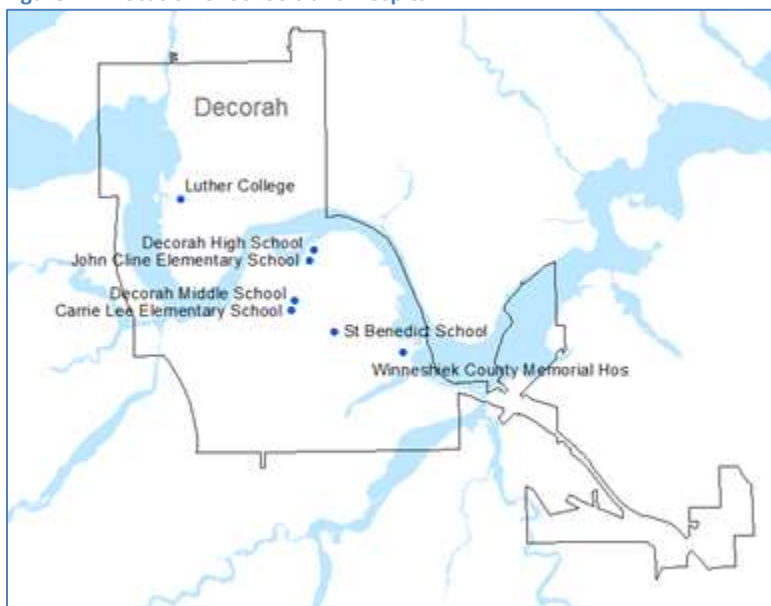
The City has many areas prone to flooding and has a flood plain ordinance in effect. Figure 23 illustrates the flood plain area in Decorah. Figure 24 illustrates the location of the school buildings and the hospital in relation to the flood plain. No buildings are located within the flood plain.

Figure 23: Flood Plain, City of Decorah



Source: (The Schneider Corporation, 2013)

Figure 24: Location of Schools and Hospital



Source: (UERPC, 2014)

Existing Plans and Policies

The City of Decorah utilizes a City Code, zoning ordinance, subdivision ordinance, tree trimming ordinance, nuisance ordinance and floodplain ordinance to control land use, direct decision-makers and protect the quality of life for its residents. The City has a Source Water Protection Plan completed in 2014. The City recently adopted a Comprehensive Plan in 2012 which outlines goals, strategies and actions for future growth and development. Decorah utilizes the Winneshiek County Emergency Operations Plan and the Winneshiek County Recovery Plan. All City Response Personnel follow appropriate protocol and guidance.

Key Issues

- Severe Winter Storms – Students coming in to school district from wide area, dangerous travel conditions
- Flash Floods – Heavy rains strain the storm drainage system – certain areas prone to flash flooding
- Thunderstorms and Lightning – Athletic fields at schools and college leave people unprotected, potentially dangerous and unavoidable
- Tornadoes – possible, potentially dangerous, and unavoidable
- Landslides – Decorah sits among many bluffs, development on tops and heavy rains can make bluffs more susceptible to landslides
- Hailstorm – unpredictable, potentially damaging weather event
- Windstorms– unpredictable, potentially damaging weather event
- River Floods – river runs through town, is mostly contained by levees or flood walls now, but climate change and surrounding development could impact future flood levels
- Levee Failure – always a concern where levees exist, the city inspects regularly
- Earthquakes – while unlikely to occur, if an earthquake were to occur, bluffs and historic buildings are at risk
- Droughts - economic impact of crop failure, etc.
- Extreme Heat - economic impact of crop failure, etc.
- Hazardous Materials – worry is from truck traffic downtown
- Animal/Plant/Crop Disease - economic impact of disease on agriculture
- Human Disease - becoming more prevalent, flu has had an impact on workforce and education
- Terrorism – domestic terrorism in the form of shootings and public misbehavior and/or violence

Mitigation Activities

Status and Progress on Previous Mitigation Actions

1. Purchase and maintain flood mitigation equipment, related safety measures and storage facility(ies)
 - Purchased sandbagging equipment
 - Purchased storage facility for street department
 - Purchased two new pumps
2. Construct FEMA-compliant storm shelter/Safe Room(s)
 - Storm shelter/safe room built in high school
3. Purchase and install generator(s) and necessary equipment

- Installed one new generator in fire department
- 4. Create and maintain a communication network for rainfall and flood gauge equipment along the Upper Iowa River
 - Added four gauges on the Upper Iowa and replaced one existing gauge
- 5. Purchase and install fiber optic cable and related equipment to allow for reliable movement of communication
 - Metronet fiber optic network installed in city
- 6. Contain water sources inside designated boundaries
 - Improved 5th Avenue bridge and added wing walls
- 7. Purchase, install, upgrade, and maintain warning siren and alert notification system and/or equipment
 - Emergency alert system implemented at Luther College
- 8. Maintain a well-equipped and well-trained emergency response capability for appropriate and effective response
 - Purchased 4 Stearns Ice Rescue Suits and 4 Dry Suits
 - Purchased 4 pairs of Water Rescue Boots and Water Rescue Gloves (worn with the dry suits)
 - Purchased 4 Swiftwater Helmets
 - Obtained 2- 500 ft. water rescue ropes, 2 water rescue slings and 24 water rescue throw discs
 - Sent two members to Ice Rescue Technician class
 - Also added a few small items such as personal rescue harnesses and rope for each member of the department
 - New Rescue/Pumper ordered and is scheduled to be delivered in September/October 2014
 - New/improved scene lighting to ATV/UTV for enhanced visibility during night operations
- 9. Upgrade water and wastewater treatment infrastructure
 - Have worked on sealing manholes to reduce inflow and infiltration
- 10. Continue National Flood Insurance Program (NFIP) Participation
 - Are participating
- 11. Purchase and implement City- and County-wide interagency portable mobile data
 - Added tower at the Law Enforcement Center and eliminated phone lines

Mitigation Actions to Pursue Through MJ-9 Implementation:

- Continue to maintain and improve flood mitigation equipment and related safety measures
- Continue to equip and train community emergency responders
 - New boat or rescue raft and new motor for the boat
- Purchase and install generators and related equipment:
 - Permanent generator for the Carrie Lee Campus/Middle School
 - Permanent generator for the water department at the main pumping station
 - Smaller permanent generator for the bus repeater
- Expand and maintain the Metronet fiber optic cable and related equipment – consolidate projects where feasible (i.e. lay conduit when city infrastructure projects occur)
- Continue to address waterway/infrastructure issues to minimize flooding
- Upgrade all sirens to be radio controlled and address all gaps in the city

- Cleanup/maintain the Dry Run levee
- Construct upstream water retention structures on Dry Run to control quantity and velocity of water
- Improve the emergency alert notification system for the Decorah Community School District
- Continue participation in the National Flood Insurance Program (NFIP)
- New well needed on west side of city – in remote and elevated area
- Enlarge the well at the business park
- Continue to work on wastewater system to reduce inflow and infiltration and reline sewers
- Continue to improve city and countywide interagency portable mobile data by implementing new technologies
- Develop truck routes that designate hazmat routes and safe harbors for parking
- Develop codes that encourage buildings with tornado-safe areas
- Construct another FEMA-compliant storm shelter/safe room
 - Decorah Community School District would like to construct one at the Carrie Lee Campus/Middle School

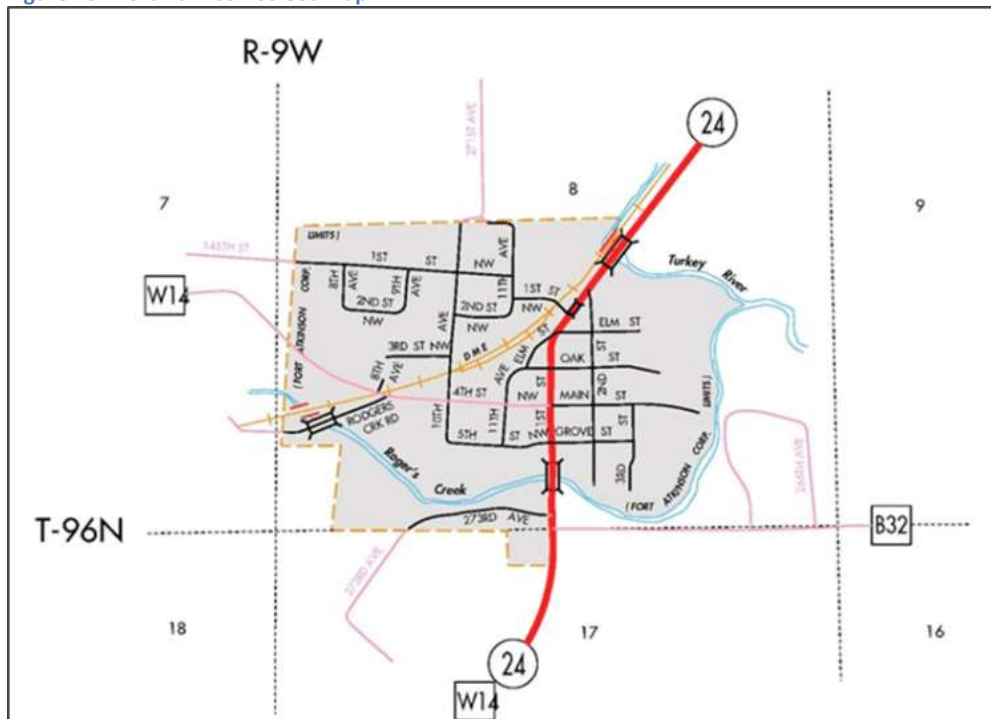
City of Fort Atkinson

History and Overview

Fort Atkinson, the fort constructed in 1842 by the US Army, is the namesake to the City of Fort Atkinson. The fort was built to maintain peace among the Indian tribes and to monitor any pioneer settlers that may try to claim land that belonged to the Winnebago tribe. In 1848, the Winnebago tribe was relocated out of the area at the insistence of white settlers and the impending statehood of Iowa. The first permanent settlers of the Fort Atkinson area were directly from South Germany and lived in a deserted Indian wigwam while they built a log house, the area's first house, in 1847. In 1849, five more German families settled in the area. A railroad was constructed in the area in 1869 and a town began to develop with the increase of activity. (Becker, 2011); (State Archaeologist, University of Iowa, 2012)

Fort Atkinson is located in southwest Winneshiek County along State Highway 24. The total land area of within the city limits is .313 square miles and is laid out as shown in Figure 25. The 2010 Census count for the City of Fort Atkinson is 349.

Figure 25: Fort Atkinson Street Map



Source: (Iowa Department of Transportation, 2011)

Governance, Facilities and Services

The governing body includes one mayor and five council members. Key city employees include:

- City Clerk/Treasurer
- Public Works Director
- Library Director
- Fire Chief

Commissions and Boards include:

- Library Trustees
- Historical Preservation Commission

Law enforcement for the community is provided by the Winneshiek County Sheriff's office.

The Fort Atkinson Fire Department consists of approximately 18 volunteer members and is funded by the City of Fort Atkinson along with township trustees in the department's service area. The Fort Atkinson Fire Department serves the communities of Fort Atkinson, along with most of Washington Township and sections of Jackson, Sumner and Calmar Townships.

The South Winn First Responders operate out of the Fort Atkinson Fire Station and have about 15 trained volunteers able to respond to any trauma or medical emergency. The South Winn Responders are a collaboration of the communities of Calmar, Fort Atkinson and Spillville. The group consists of Emergency Medical Responders (EMRs), Emergency Medical Technicians (EMTs) and Paramedics.

The City of Fort Atkinson is located in the Turkey Valley School District. Fort Atkinson children attend the school campus located in the nearby community of Jackson Junction. There are no district buildings in Fort Atkinson

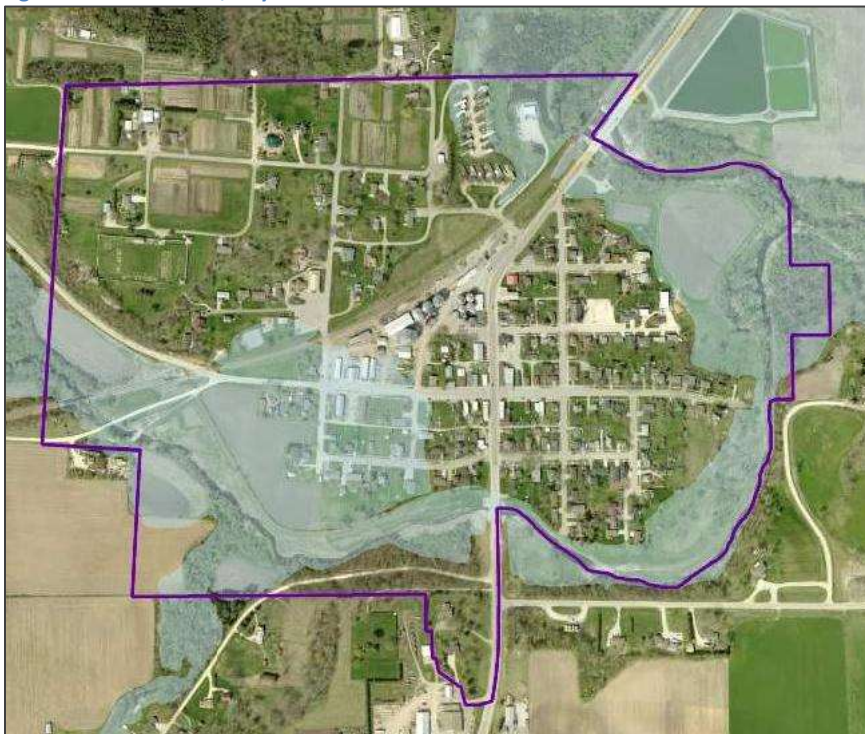
Fiscal and Technical Resources

Property valuations for the City of Fort Atkinson were \$15,517,345 as of January, 2014, giving them a debt limitation of \$775,867 per Iowa statute. This debt limit is not affected by Revenue Bonds. Fort Atkinson's fiscal tools for funding mitigation activities include bonding, both General Obligation and Revenue, loan agreements, fees, taxes for specific purposes and grants.

Winneshiek County Emergency Management provides technical resources and services to the City of Fort Atkinson and its emergency responders. The City has two outdoor warning sirens, one of which is automatically activated by the county's 911 dispatch center and the second of which is manually activated from the fire station. The designated community shelter for the City is the Fort Atkinson Community Center. Winneshiek County contracts with the Northeast Iowa Response Group (NIRG), a specialized HAZMAT Team from the Waterloo Fire Department, to provide technician-level incident response throughout the county.

The City has many areas prone to flooding and has a flood plain ordinance in effect. The City relies on a levee built in 1940 on the southwest side of the City for some flood control. Figure 26 illustrates the flood plain area in Fort Atkinson.

Figure 26: Flood Plain, City of Fort Atkinson



Source: (The Schneider Corporation, 2013)

Existing Plans and Policies

The City of Fort Atkinson utilizes a City Code, several ordinances including a floodplain ordinance to control land use, direct decision-makers and protect the quality of life for its residents. The City is part of the recently adopted Winneshiek County Comprehensive Plan 2012 which outlines goals, strategies and actions for future growth and development. Fort Atkinson utilizes the Winneshiek County Emergency Operations Plan and the Winneshiek County Recovery Plan. All City Response Personnel follow appropriate protocol and guidance.

Key Issues

- River Floods – river runs through town, significant portion of the community is in the flood plain
- Levee Failure – a concern where levees exist, the city inspects regularly
- Dam Failure – city leaders expressed some concern about the dam at Lake Meyer, should it fail, water may wash through the community. This concern was downplayed by others however
- Hailstorm – unpredictable, potentially damaging weather event
- Flash Floods – heavy rains can cause pooling and washouts in poorly drained areas of town
- Thunderstorms and Lightning – unpredictable, potentially damaging weather event
- Tornadoes - possible, potentially dangerous, and unavoidable
- Severe Winter Storms – treacherous travel, strains city budget when frequent and severe

Mitigation Activities

Status and Progress on Previous Mitigation Actions

1. Purchase and install generator(s)
 - Purchased portable generator
2. Purchase and install power supply transfer switch(es)
 - Not yet completed
3. Upgrade water and wastewater treatment infrastructure
 - Not yet completed
4. Purchase, update, and maintain water gauge equipment for Spillville water sources, monitoring during high water events
 - Adding two water gauges in Spillville and two in Fort Atkinson
5. Purchase, install, and maintain warning siren equipment
 - Added one warning siren
6. Purchase and manage flood mitigation equipment
 - Nothing new to report
7. Continue the process to re-join the National Flood Insurance Program (NFIP)
 - Rejoined the National Flood Insurance Program (NFIP)
8. Create and maintain a communication system along the Turkey River Corridor
 - Not yet completed
9. Contain river and creek waters inside designated boundaries
 - Have improved river and creek containment by adding a drainage overflow ditch
10. Construct FEMA-compliant storm shelter/Safe Room(s)
 - Not yet completed

Mitigation Actions to Pursue Through MJ-9 Implementation:

- Purchase and install power supply transfer switches
- Upgrades to water and wastewater treatment infrastructure
- Continue to maintain city warning system
- Purchase and manage flood mitigation equipment
- Create and maintain a communication system along the Turkey River Corridor
- Continue to take actions that contain the river and creek within designated boundaries
- Construct FEMA-compliant storm shelter/safe room
- Maintain membership in NFIP

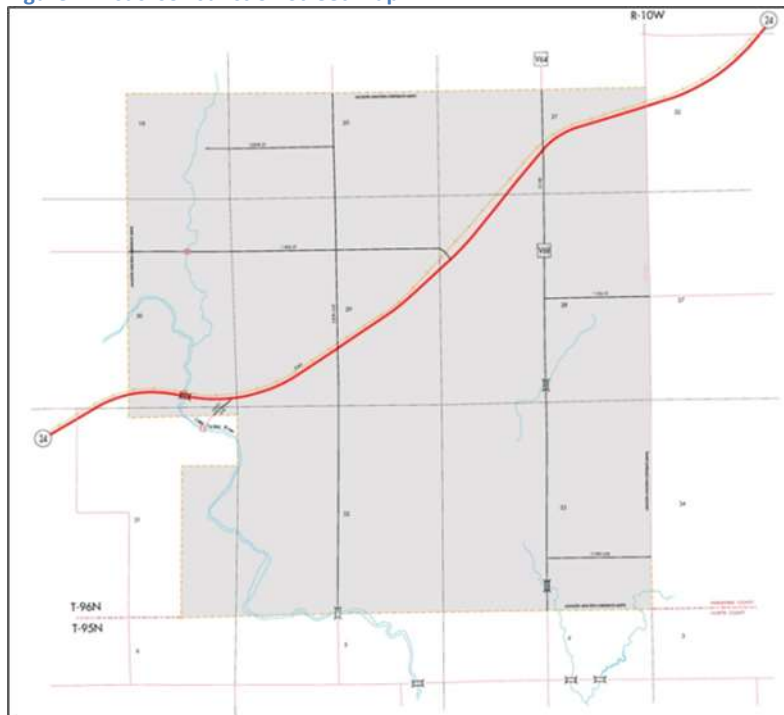
City of Jackson Junction

History and Overview

Jackson Junction is located in Jackson Township, which as of 1882 when it was separated from Washington Township, had yet to develop any villages. The first settler and recorded taxpayer in the township was Joseph Spielman, or Spillman, who arrived in the area in 1851 and was namesake for the community of Spillville. A station called Jackson Station was established in the Township by the railroad in 1881 (Alexander, 1882). The community of Jackson Junction was incorporated in 1897. (Iowa Secretary of State, 2012)

Jackson Junction is located in southwestern corner Winneshiek County on Highway 24. The total land area of city limits is 5.991 square miles and is laid out as shown in Figure 27. The 2010 Census count for the City of Jackson Junction is 58.

Figure 27: Jackson Junction Street Map



Source: (Iowa Department of Transportation, 2011)

Governance, Facilities and Services

The governing body includes one mayor and five council members. Key city employees include:

- City Clerk/Treasurer

Law enforcement for the community is provided by the Winneshiek County Sheriff's office.

The Waucoma Fire Department provides service to the City of Jackson Junction. There are a few first responders who live in the Jackson Junction area and ambulance services are provided by the Winneshiek Medical Center.

Jackson Junction is home to the Turkey Valley Community School District which covers an area of approximately 170 square miles in the southwestern corner of the county. The district includes the incorporated communities of Jackson Junction and Fort Atkinson. The campus is laid out with an elementary school and a middle/high school all in one location in Jackson Junction and shares the same hazard risks. The campus has a weather radio and maintains an emergency plan and crisis plan. The crisis team is led by Rhonda Drilling. The school has an emergency warning system – as part of their bell system for fire and announcements for fire or tornado, fire extinguishers throughout the building, regular lockdown drills, bus and site evacuation drills, and mock disasters. All rooms, the office and bus barn have emergency information binders and response kits. Staff members undergo regular school safety training and they have completed ALICE training.

Fiscal and Technical Resources

Property valuations for the City of Jackson Junction were \$13,181,616 as of January, 2014, giving them a debt limitation of \$659,081 per Iowa statute. This debt limit is not affected by Revenue Bonds. Jackson Junction's fiscal tools for funding mitigation activities include General Obligation bonding, loan agreements, fees, taxes for specific purposes and grants.

Winneshiek County Emergency Management provides technical resources and services to the City of Jackson Junction and its emergency responders. The community has recently installed an outdoor warning siren that is automatically activated by the county's 911 dispatch center. Winneshiek County contracts with the Northeast Iowa Response Group (NIRG), a specialized HAZMAT Team from the Waterloo Fire Department, to provide technician-level incident response throughout the county.

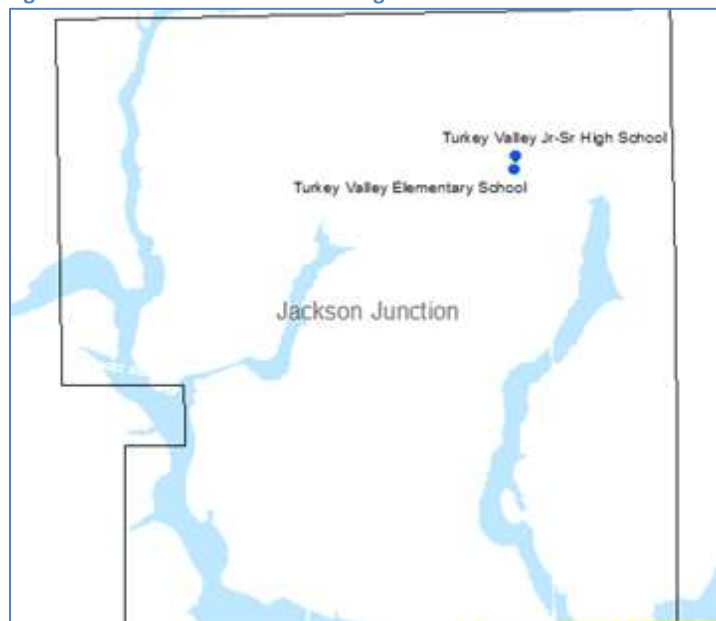
The City has many areas prone to flooding, but generally away from structures, causing minimal damage when flooding does occur. Figure 28 illustrates the flood plain area in Jackson Junction and Figure 29 illustrates the location of the school buildings in relation to the flood plain.

Figure 28: Flood Plain, City of Jackson Junction



Source: (The Schneider Corporation, 2013)

Figure 29: Location of School Buildings



Source: (UERPC, 2014)

Existing Plans and Policies

The City is part of the recently adopted Winneshiek County Comprehensive Plan 2012 which outlines goals, strategies and actions for future growth and development. Jackson Junction utilizes the Winneshiek County Emergency Operations Plan and the Winneshiek County Recovery Plan. All City Response Personnel follow appropriate protocol and guidance. In addition, the Fredericksburg Farmer's Coop keeps a Risk Management Plan to address protocols for anhydrous safety.

Key Issues

- Hazardous Materials – the highway, railroad and co-op all bring the potential of hazardous material spills to the community and school district
- Transportation Incident - a concern again with the highway and railroad
- Severe Winter Storms – treacherous travel, students come from a good distance to the school, strains city budget when frequent and severe
- Infrastructure Failure - related to transportation infrastructure and sewer/water
- Hailstorm – potentially damaging, unavoidable
- Tornadoes – athletic fields out in open, with no shelter
- Flash Floods – roads can washout after heavy rains, many roads in town are gravel
- Terrorism – related to school incidents
- Thunderstorms and Lightning – severe weather concerns – at athletic fields and in farm fields
- River Floods – can cause washouts and damage to roadways
- Droughts - economic impact of crop failure, etc.
- Windstorms - potentially damaging, unavoidable weather incidents

Mitigation Activities

Status and Progress on Previous Mitigation Actions

1. Purchase, install, upgrade, and maintain warning siren equipment and alert notification system
 - All-hazards/weather radios purchased for school and country club
 - Warning siren purchased and installed
2. Construct FEMA-compliant storm shelter/Safe Room(s)
 - Not yet completed
3. Purchase and install generator(s) and associated equipment
 - Backup generator purchased for community hall
4. Coordinate and maximize partnerships for a well-equipped and well-trained emergency response capability for appropriate and effective response
 - Financial support provided to area first responders and the Waucoma Fire Department
5. Begin researching the process to join the National Flood Insurance Program (NFIP)
 - Not yet completed
6. Other improvements
 - Developed building permits to manage agricultural uses within the city limits
 - Several new wells have been dug in response to a dropping water table including the school, several homes and businesses
 - Added lights at the railroad crossings to increase safety

- Added flashing lights on stop signs at highway intersection to reduce crashes
- Added flashing lights to speed limit signs, which can be turned on for school events
- Installed new lights at the school entrance on Highway 24
- Installed several new streetlights, including one at the back school entrance
- Rumble strips installed as part of road resurfacing on Highway 24

Mitigation Actions to Pursue Through MJ-9 Implementation:

- Replace existing fixed generator at Turkey Valley school for compatibility with new boiler system (boiler system is being changed from fuel oil to LP)
- Construct a FEMA-compliant storm shelter/safe room
- Maintain partnerships to ensure swift and effective emergency response to community needs
- Continue to consider joining the National Flood Insurance Program (NFIP)
- Consider a program to subsidize the purchase of All-Hazards radios for all households and businesses in the community.

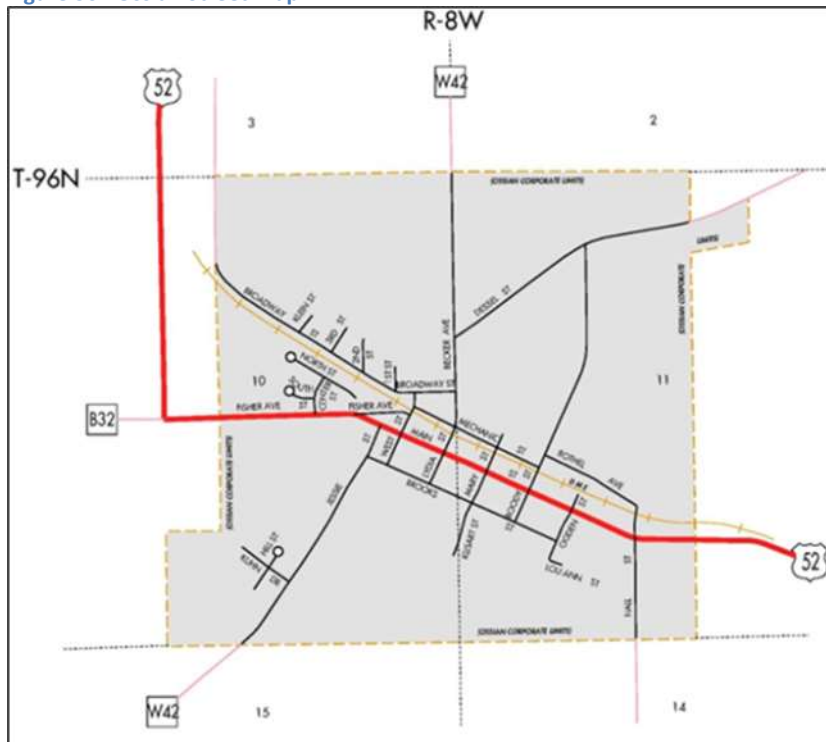
City of Ossian

History and Overview

John Ossian Porter, a native of Pennsylvania, settled the second village in the County, Ossian, in 1850. The original plat consisted of three blocks, divided into 14 lots. The village was incorporated in 1876. In 1865, the railroad was constructed through town and by 1880, the population had reached 444. At this time, the thriving community had one bank, a hotel, two churches, a public school, a creamery and two newspapers. (Alexander, 1882)

Ossian is located in southeast Winneshiek County along US Highway 52. The total land area of within the city limits is 1.11 square miles and is laid out as shown in Figure 30. 2010 Census count for the City of Ossian is 845.

Figure 30: Ossian Street Map



Source: (Iowa Department of Transportation, 2011)

Governance, Facilities and Services

The governing body includes one mayor and five council members. City employees include:

- City Clerk/Treasurer
- Public Works Director
- Water/Wastewater Superintendent
- Library Director

Law enforcement for the community is provided by the Calmar Police Department.

The City of Ossian is served by the Tri-Township Fire Department housed in Ossian. The Department consists of approximately 30 volunteer members and is funded by the City of Ossian along with township trustees in the department's service area. The Tri-Township Fire Department serves the communities of Ossian, Military and Springfield Townships and a portion of Dover Township.

Ossian has a volunteer ambulance service with EMTs to respond to medical emergencies.

The City of Ossian is located in the South Winneshiek Community School District. The early childhood program, elementary school and middle school are located in Ossian. The school maintains an emergency plan, capital plan and crisis plan. The facility is managed by Jeff Schissel, head custodian. South Winn works to reduce the impact of hazards by having a weather radio, tornado and fire drills, emergency contact information in all classrooms and office, emergency response kits in classrooms, regular ALICE staff training on lockdowns/intruders, locked outside doors/security cameras and a security system to enter building.

The De Sales School is also located in Ossian and enrolls children grades pre-K through 8. De Sales has a storm shelter in the basement for students and staff, a weather radio, fire alarms and on call system, a fire suppression system in the kitchen, regular tornado and fire drills, lockdown and evacuation plans, and ALICE training for all school staff. De Sales maintains an emergency plan, master plan and crisis plan

Only a small portion in the northeastern section of the community lies within any flood plain and it is well beyond any structures. None of the school buildings are located in or near the flood plain area. Figure 31 illustrates the flood plain in the community.

Figure 31: Flood Plain, City of Ossian



Source: (The Schneider Corporation, 2013)

Fiscal and Technical Resources

Property valuations for the City of Ossian were \$41,074,694 as of January, 2014, giving them a debt limitation of \$2,053,735 per Iowa statute. This debt limit is not affected by Revenue Bonds. Ossian's fiscal tools for funding mitigation activities include bonding, both General Obligation and Revenue, loan agreements, fees, taxes for specific purposes and grants.

Winneshiek County Emergency Management provides technical resources and services to the City of Ossian and its emergency responders. The City has an outdoor warning system that is automatically activated by the County's 911 dispatch center. Winneshiek County contracts with the Northeast Iowa Response Group (NIRG), a specialized HAZMAT Team from the Waterloo Fire Department, to provide technician-level incident response throughout the county.

Existing Plans and Policies

The City of Ossian utilizes a City Code and various ordinances to control land use, direct decision-makers and protect the quality of life for its residents. The City is part of the recently adopted Winneshiek County Comprehensive Plan 2012 which outlines goals, strategies and actions for future growth and development. Ossian utilizes the Winneshiek County Emergency Operations Plan and the Winneshiek County Recovery Plan. All City Response Personnel follow appropriate protocol and guidance.

Key Issues

- Hazardous Materials – related to the train traffic and semi traffic through the middle of town, the cargo through town is becoming increasingly more volatile which worries city leaders and community members
- Thunderstorms and Lightning – along with other weather events, can be destructive and dangerous, with no ability for avoidance
- Windstorms – potentially damaging, unavoidable
- Tornadoes - located on flat terrain with little protection, tornadoes can spring up easily and unpredictably
- Transportation Incident – heavy truck and train traffic through town and many children crossing highways to get to schools and parks
- Terrorism – related to active shooting incidents that have occurred during the school day, domestic violence
- Severe Winter Storms – treacherous travel, students come from a good distance to the school, strains city budget when frequent and severe
- Hailstorm - potentially damaging, unavoidable
- Flash Floods – a problem in some areas of the community, poor drainage has caused wet basements
- Droughts – could impact the ag. economy

Mitigation Activities

Status and Progress on Previous Mitigation Actions

1. Purchase generators for community center and general back-up power supply for community use
 - Purchased 80kw fixed generator for water system
 - Wired the community center for a generator
 - New fire station wired for generator
2. Construct FEMA-compliant tornado safe room(s)
 - Not yet completed
3. Construct new fire station building
 - New fire station constructed

Mitigation Actions to Pursue Through MJ-9 Implementation:

- Purchase portable generator for lift stations
- Purchase generator for community center
- Continue to wire lift stations for generator

- Pursue crossing arms or signals for rail crossings on Hall, West and Lydia streets
- Encourage and educate residents to utilize “all-hazards” radios
- Construct FEMA-compliant storm shelter/safe room

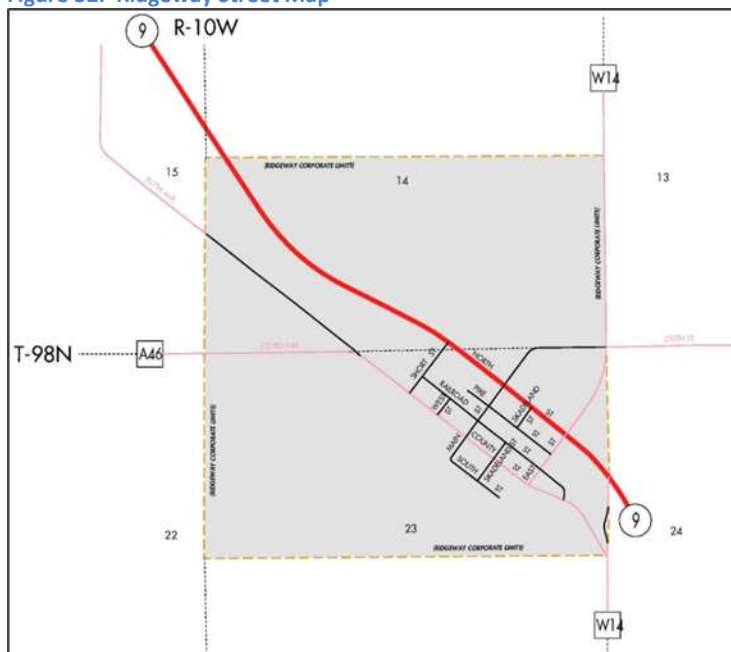
City of Ridgeway

History and Overview

The first settlement in what later became Ridgeway was in the spring of 1852. In 1857, the Chicago, Milwaukee and St. Paul Railroad built a small depot in Ridgeway and in 1866, a house. At that time, there was little but the depot in Ridgeway. After a road was completed to Cresco, more development began. In 1867, a grain warehouse, drug store, general store and post office were constructed. The community took a devastating blow on May 9, 1874, when the village of Ridgeway was swept by a fire that destroyed 34 of 89 existing buildings. Immediately a new depot was constructed and the rest of the town soon followed to recover quickly (Alexander, 1882). The City was incorporated on March 15, 1894.

Ridgeway is located in western Winneshiek County on Highway 9 between Decorah and Cresco. The total land area of city limits is 1.02 square miles and is laid out as shown in Figure 32. The 2010 Census count for the City of Ridgeway is 315.

Figure 32: Ridgeway Street Map



Source: (Iowa Department of Transportation, 2011)

Governance, Facilities and Services

The governing body includes one mayor and five council members. City employees include:

- City Clerk/Treasurer
- City Maintenance

Law enforcement is provided to the community by the Winneshiek County Sheriff's Department.

The Ridgeway Fire Department consists of approximately 24 volunteer members and is funded by the City of Ridgeway along with township trustees in the department's service area. The Ridgeway Fire Station is located on Main Street and serves the community and most of Lincoln Township along with sections in Sumner, Madison and Bluffton Townships.

There is one first responder who lives in the Ridgeway area and ambulance services are provided by the Winneshiek Medical Center.

The City of Ridgeway is located in the Howard-Winneshiek Community School District. Ridgeway children attend the campus in Cresco. Many families have chosen to open enroll their children in the Decorah Community School District, but bus service is not provided to the community. The City has recently taken responsibility for the vacated elementary school in Ridgeway.

None of the community lies within any flood plain as noted in Figure 33.

Figure 33: Flood Plain, City of Ridgeway



Source: (The Schneider Corporation, 2013)

Fiscal and Technical Resources

Property valuations for the City of Ridgeway were \$16,721,810 as of January, 2014, giving them a debt limitation of \$836,091 per Iowa statute. This debt limit is not affected by Revenue Bonds. Ridgeway's fiscal tools for funding mitigation activities include bonding, both General Obligation and Revenue, loan agreements, fees, taxes for specific purposes and grants.

Winneshiek County Emergency Management provides technical resources and services to the City of Ridgeway and its emergency responders. The City has an outdoor warning system that is automatically activated by the County's 911 dispatch center. Winneshiek County contracts with the Northeast Iowa Response Group (NIRG), a specialized HAZMAT Team from the Waterloo Fire Department, to provide technician-level incident response throughout the county.

Existing Plans and Policies

The City of Ridgeway utilizes a City Code, subdivision and zoning ordinances to control land use, direct decision-makers and protect the quality of life for its residents. The City is part of the recently adopted Winneshiek County Comprehensive Plan 2012 which outlines goals, strategies and actions for future growth and development. Ridgeway utilizes the Winneshiek County Emergency Operations Plan and the Winneshiek County Recovery Plan. All City Response Personnel follow appropriate protocol and guidance.

Key Issues

- Severe Winter Storms – a regular occurrence, strains city budget when frequent and severe
- Extreme Heat – economic impact of crop failure, etc.
- Windstorms – unpredictable, potentially damaging weather event
- Thunderstorms and Lightning – unpredictable, potentially dangerous weather event
- Hailstorm – unpredictable, potentially damaging weather event
- Droughts - economic impact of crop failure, etc.
- Tornadoes – unpredictable, potentially dangerous weather event
- Hazardous Materials – with co-op and highway in town, more hazardous materials in the area
- Flash Floods – some poor city drainage causes flash flooding in some areas of town
- Grass or Wildfire – small community surrounded by crop and grassland, worry is about fast-moving grassfires
- Infrastructure Failure – city sewer/water system older, stormwater system too
- Transportation Incident - highway through town – crosswalks are not well marked, trucks and tractors turning for co-op

Mitigation Activities

Status and Progress on Previous Mitigation Actions

1. Purchase and install generator(s) for Ridgeway
 - Not yet completed
2. Construct FEMA-compliant tornado safe room(s)
 - Not yet completed
3. Upgrade water supply and water and wastewater treatment infrastructure
 - Replaced and upgraded three fire hydrants
 - Completed smoke testing and telescoping of sewer system to address I & I
4. Construct safe routes for travel and educate residents on the proper use of these routes
 - Improved bicycle trail crossing demarcations for increased rider safety

5. Maintain a well-equipped and well trained emergency response capability for appropriate and effective response
 - In the process of building a new water tanker truck
 - 75% of firefighters have completed Firefighter I training and are certified
 - Purchased, and received training on, grain bin rescue tubes

Mitigation Actions to Pursue Through MJ-9 Implementation:

- Purchase and install a fixed generator for the water tower and a portable or fixed generator for the community center
- Construct a FEMA-Compliant storm shelter/tornado safe room for residents
- Develop safe pedestrian and bicycle routes/crossings and provide information to residents about their locations and proper use
- Continue to improve and maintain emergency response capabilities – in training and equipment

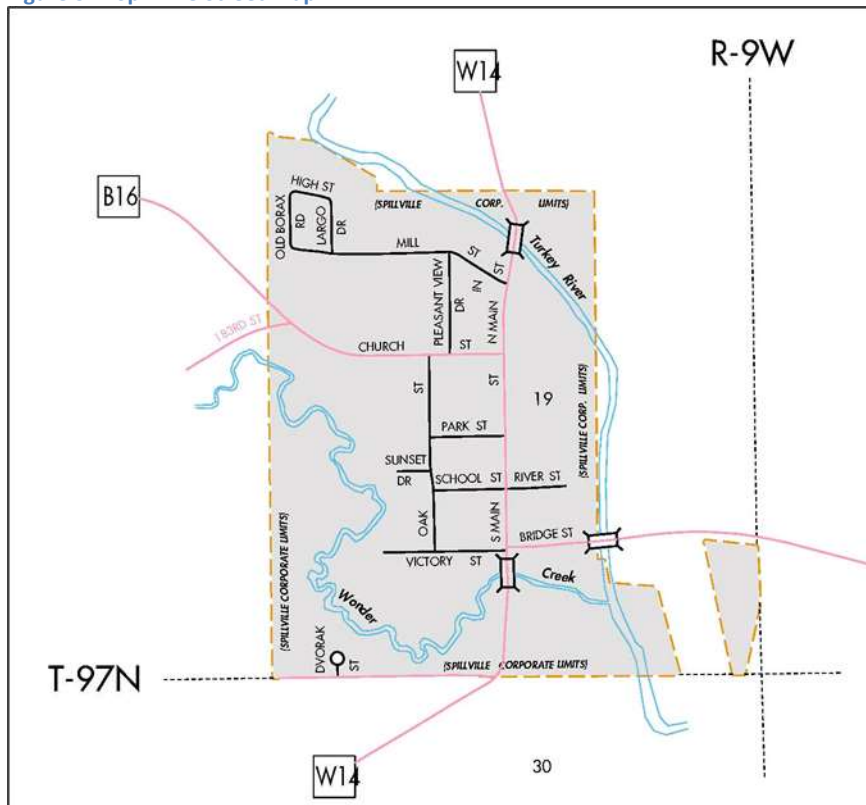
City of Spillville

History and Overview

The village of Spillville was first settled in 1851 by Joseph Spielman, or Spillman. Mr. Spielman platted the village in 1860 and operated a mill which had become the Spillville Mill Co. by 1882. The community was a refuge for Czech immigrants and has developed a strong Czech heritage. By 1860, St. Wenceslaus Catholic Church was completed and is now the oldest Czech Catholic church in the United States. The addition of a bell tower occurred in 1869 and a pipe organ was installed in 1876 and remains to this day. Famous Czech composer Antonin Dvorak played the organ while spending a summer in the community in 1893. Named after Joseph Spielman, Spillville was incorporated on December 5, 1894. (Alexander, 1882); (City of Spillville, n.d.)

Spillville is located in southwest Winneshiek County at the intersections of County Roads W14 and B16. The total land area of within the city limits is .42 square miles and is laid out as shown in Figure 34. The 2010 Census count for the City of Spillville is 367.

Figure 34: Spillville Street Map



Source: (Iowa Department of Transportation, 2011)

Governance, Facilities and Services

The governing body includes one mayor and five council members. Key city employees include:

- City Clerk/Treasurer
- Public Works Director
- Library Director

Commissions and Boards include:

- Library Trustees
- Senior Housing Board
- Planning and Zoning

Law enforcement for the community is provided by the Winneshiek County Sheriff's office.

The Calmar Fire Department provides firefighting services to the community.

The South Winn First Responders operate out of the Calmar Fire Station and have about 15 trained volunteers able to respond to any trauma or medical emergency. The South Winn Responders are a collaboration of the communities of Calmar, Fort Atkinson and Spillville. The group consists of Emergency Medical Responders (EMRs), Emergency Medical Technicians (EMTs) and Paramedics. Ambulance service is provided by the Winneshiek Medical Center.

The City of Spillville is located in the South Winneshiek School District. Spillville children either attend the school campus located in Calmar or Ossian, depending on grade level. The CFS Catholic School has its grade K-3 campus in Spillville and shares the same hazard risk as the community. CFS maintains an emergency plan and crisis plan. The building has a weather radio, and emergency warning system and siren, a fire suppression system in the kitchen and emergency information binders and response kits in each classroom. The school conducts regular evacuation and tornado drills, and staff members are provided regular school safety training.

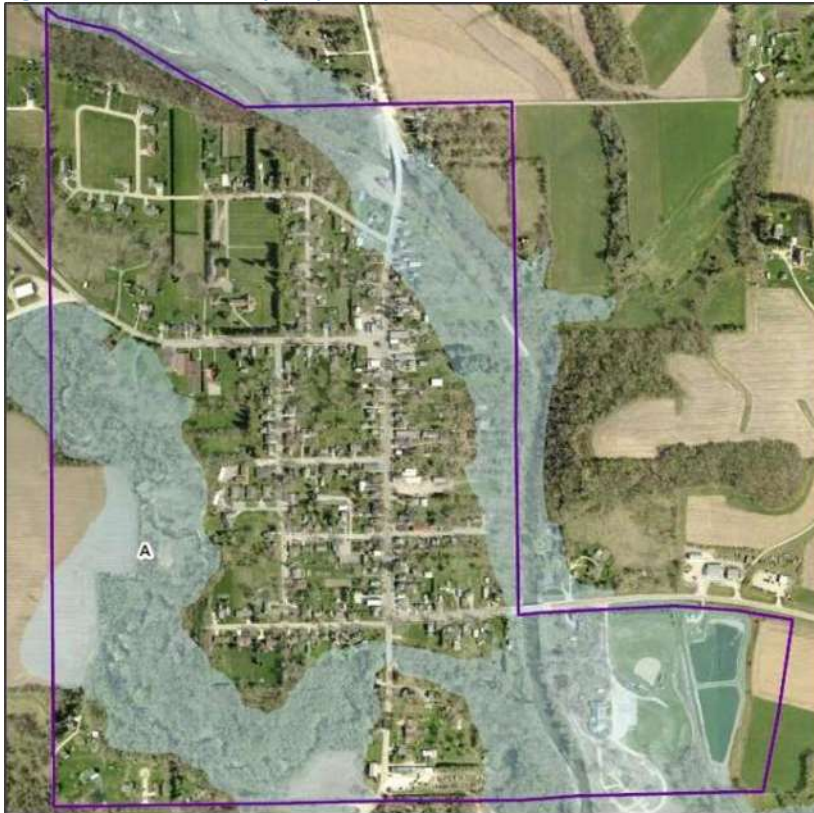
Fiscal and Technical Resources

Property valuations for the City of Spillville were \$18,566,047 as of January, 2014, giving them a debt limitation of \$928,302 per Iowa statute. This debt limit is not affected by Revenue Bonds. Spillville's fiscal tools for funding mitigation activities include bonding, both General Obligation and Revenue, loan agreements, fees, taxes for specific purposes and grants.

Winneshiek County Emergency Management provides technical resources and services to the City of Spillville and its emergency responders. The City has two outdoor warning sirens that are automatically activated by the county's 911 dispatch center. Winneshiek County contracts with the Northeast Iowa Response Group (NIRG), a specialized HAZMAT Team from the Waterloo Fire Department, to provide technician-level incident response throughout the county.

The City has many areas prone to flooding and has a flood plain ordinance in effect. Figure 35 illustrates the flood plain area in Spillville. Figure 36 illustrates the location of the school building in relation to the flood plain area.

Figure 35: Flood Plain, City of Spillville



Source: (The Schneider Corporation, 2013)

Figure 36: Location of CFS School Building



Source: (UERPC, 2014)

Existing Plans and Policies

The City of Spillville utilizes a City Code, several ordinances including a floodplain ordinance to control land use, direct decision-makers and protect the quality of life for its residents. The City is part of the recently adopted Winneshiek County Comprehensive Plan 2012 which outlines goals, strategies and actions for future growth and development. Spillville utilizes the Winneshiek County Emergency Operations Plan and the Winneshiek County Recovery Plan. All City Response Personnel follow appropriate protocol and guidance.

Key Issues

- River Floods – much of the city is in a flood plain, so is a continual issue for community leaders and residents
- Flash Floods – heavy rains cause washouts and pooling water in certain locations in town
- Transportation Incident - highway comes through town, traffic doesn't slow down enough for city comfort
- Droughts – can have economic impact on surrounding agriculture
- Animal/Plant/Crop Disease – can have economic impact on surrounding agriculture
- Hailstorm – unavoidable, potentially damaging weather incidents
- Thunderstorms and Lightning – unpredictable, potentially dangerous weather event
- Infrastructure Failure - storm sewer issues during heavy rains and flooding – also protecting the water/sewer system from flood waters
- Windstorms – unavoidable, potentially damaging weather incidents
- Extreme Heat – possible economic impact to surrounding agriculture, senior citizens at risk
- Levee Failure – an issue near river – city inspects regularly
- Severe Winter Storms – treacherous travel, strains city budget when frequent and severe
- Tornadoes – unpredictable, potentially dangerous weather event

Mitigation Activities

Status and Progress on Previous Mitigation Actions

1. Purchase and install generator(s)
 - Purchased one portable generator
2. Purchase and install power supply transfer switch(es)
 - Purchased and installed power transfer switches for both well houses and both well stations
3. Purchase and maintain flood mitigation equipment, related safety measures and storage facility(ies)
4. Purchase, update, and maintain water gauge equipment for Spillville water sources, monitoring during high water events
 - Water gauges on both the north and south bridges are now direct read
 - Have requested four additional gauges for the Turkey
5. Construct FEMA-compliant storm shelter/Safe Room(s)
 - Not yet completed
6. Purchase and install rip-rap along Turkey River
 - Purchased and installed some riprap along the river to protect sanitary sewer area, intakes, manholes and lines

7. Continue the process to join the National Flood Insurance Program (NFIP)
 - Joined the National Flood Insurance Program (NFIP)
8. Purchase, install, and maintain warning siren(s)
 - Not yet completed/undertaken
9. Contain river and creek waters inside designated boundaries
 - Raised the lagoon and armored and stabilized the bank

Mitigation Actions to Pursue Through MJ-9 Implementation:

- Purchase and install generators as needed for replacements and new needs
- Purchase and install power supply transfer switch for the Community Center
- Obtain responder boat and life jackets
- Purchase portable flood barriers
- Continue armoring assets and installing rip-rap along the river
- Increase the number of gauges within the watershed
- Monitor and maintain manhole covers to avoid floodwater in the sanitary sewer system
- Purchase flood-proof covers for manholes
- Maintain membership in NFIP
- Construct new or improve existing tornado shelter (in library basement) to be FEMA-compliant
- Improve roadway safety by adding additional speed limit signs and road markings
- Purchase a portable speed monitor sign
- Purchase and install warning siren near lagoon, upgrade all warning sirens to battery backup
- Consider water conservation strategies and programs to prepare and/or react to drought
- Prepare for probable damage to city trees from the Emerald Ash Borer by setting aside funds for replacement and research Alliant Energy's tree program
- Update existing wells to increase depth in response to falling water table
- Review water study and implement the recommendations

Risk Assessment

The risk assessment process identifies and profiles relevant hazards and assesses the exposure of lives, property, and infrastructure to these hazards. The goal of the risk assessment is to estimate the potential loss in the County, including the loss of life, personal injury, property damage, and economic loss from a natural hazard event. The risk assessment process allows the community to better understand their potential risk from natural hazards and provides a framework for developing and prioritizing mitigation actions to reduce risk from future hazard events.

The risk assessment for the County followed the methodology described in FEMA publication 386-2, Understanding Your Risks: Identifying Hazards and Estimating Losses (2001), which includes a four-step process:

1. Identify Hazards
2. Profile Hazards
3. Inventory Assets
4. Estimate Losses

This section is divided into four parts:

- **Hazard Identification** – Identifies the types of natural hazards that threaten the planning area and describes why some hazards have been omitted from further consideration.
- **Hazard Profiles** – Describes the location and extent of each natural hazard that can affect the planning area and describes previous occurrences of hazard events and the probability of future occurrences.
- **Vulnerability Assessment** – Assesses the County’s vulnerability to hazards, considering the impact of each identified hazard on the communities’ critical facilities and other identified assets.
- **Repetitive Loss** – Addresses the NFIP insured structures within each jurisdiction that have been repetitively damaged by floods.

Multi-Jurisdictional Risk Assessment

For this county-wide, multi-jurisdictional plan, the risk assessment assesses the entire geographic area of the planning area’s risks. Should the risks deviate for a participating jurisdiction; the location-specific information will be included in each identified hazard’s profile. The participating jurisdictions are all located within Winneshiek County; Winneshiek County is not a large county geographically (690 square miles) and is fairly uniform in terms of climate. Accordingly, overall hazards and vulnerability do not vary greatly across the planning area for most hazards. Weather-related hazards, such as drought, extreme heat, hailstorm, lightning, severe winter storm, tornado, and windstorm affect the entire planning area. Hazards that do vary across the planning area include flooding, dam or levee failure and landslides.

Hazard Identification

Requirement §201.6(c)(2)(i):

[The risk assessment shall include a] description of the type...of all natural hazards that can affect the jurisdictions...

Selection Process

The county-wide Hazard Mitigation Planning Committee (HMPC) and other meeting attendees reviewed data and discussed the impacts of the hazards listed alphabetically below as suggested by Iowa Homeland Security and Emergency Management Division (HSEMD), hazards included in the statewide plan, and FEMA.

- Animal/Plant/Crop Disease
- Avalanche
- Coastal Erosion
- Coastal Storm
- Dam Failures
- Debris Flow
- Drought
- Earthquakes
- Expansive Soils
- Extreme Heat
- Fires
- Flash Floods
- Grass or Wild Land Fire
- Hailstorms
- Hazardous Material Events
- Human Disease
- Hurricane/Tropical Cyclones
- Infrastructure Failure
- Land Subsidence
- Landslides
- Levee Failure
- Nuclear/Radiological Accidents
- River Flooding
- Severe Winter Storms
- Sink Holes
- Terrorism
- Thunderstorms and Lightning
- Tornadoes
- Transportation Incident
- Tsunami
- Volcano
- Windstorms

Data on the past occurrences, impacts and future probability of these hazards in the planning area was collected from several sources including the following:

- Iowa Hazard Mitigation Plan, September 2010
- Information on past extreme weather and climate events from the National Oceanic and Atmospheric Administration's (NOAA) National Climatic Data Center (NCDC)
- Federal Disaster Declarations from the Federal Emergency Management Agency (FEMA)
- USDA Farm Service Agency (FSA) Disaster Declarations
- Various websites, articles and publications (sources are referenced where data is cited)

The HMPC eliminated certain hazards from further profiling due to no known history of occurrence in the planning area and/or their impacts were not considered significant in relation to other hazards.

Table 25 lists alphabetically the hazards not profiled in the plan and provides the explanation for their omission.

Table 25: Hazards Considered, But Not Profiled in the Plan

Hazard	Explanation for Omission
Avalanche	There are no mountains in the planning area
Coastal Erosion	Planning area is not near coastal areas
Coastal Storm/Tsunami	Planning area is not near coastal areas
Debris Flow	Will be covered through river flooding
Expansive Soils	There are no known expansive soils in the planning area and no known historical occurrences of this hazard
Fires	Will be covered through infrastructure failure
Hurricane/Tropical Cyclones	Planning area is not near coastal areas
Land Subsidence	There are no known subsurface void spaces in the planning area and no known historical occurrences of this hazard
Volcano	There are no volcanic mountains in the planning area

After review of the existing data on the remaining hazards, the HMPC considered and agreed upon the hazards to be included in the county list of identified hazards. Several hazards discussed in previous meetings were consolidated into general categories for the purpose of the risk assessment. The hazards of human disease incident and pandemic human disease were combined into human disease. Fixed hazardous materials incidents, pipeline incidents, and transportation hazardous materials incidents were combined into hazardous material events. Communication failures, massive power of energy failures, structural failures, and structural fires were combined into infrastructure failure. Roadway transportation incidents and railway transportation incidents were combined into transportation incident. Biological terrorism, agricultural terrorism, domestic terrorism and active shooting incidents were combined into terrorism. The following 22 hazards were identified by the HMPC as significant to the planning area. Profiles of each begin on page 75.

- Animal/Plant/Crop Disease
- Dam Failures
- Drought
- Earthquakes
- Extreme Heat
- Flash Floods
- Grass or Wild Land Fire
- Hailstorms
- Hazardous Material Events
- Human Disease
- Infrastructure Failure
- Landslides
- Levee Failure
- Nuclear/Radiological Accidents
- River Flooding
- Severe Winter Storms
- Sink Holes
- Terrorism
- Thunderstorms and Lightning
- Tornadoes
- Transportation Incident
- Windstorms

The State of Iowa Hazard Mitigation Plan covers all natural and human caused/combination hazards identified for the State of Iowa. Accordingly, the State of Iowa hazard information, details, and risk assessment prevails for hazards not discussed for the County.

Disaster Declaration History

One method used by the county to identify hazards was to examine events that triggered federal and/or state disaster declarations. Federal and/or state declarations may be granted when the severity and magnitude of an event surpasses the ability of the local government to respond and recover. Disaster assistance is supplemental and sequential. When the local government's capacity has been surpassed, a state disaster declaration may be issued, allowing for the provision of state assistance. Should the disaster be so severe that both the local and state governments' capacities are exceeded; a federal emergency or disaster declaration may be issued, allowing for the provision of federal assistance for affected areas.

The federal government may issue a disaster declaration through FEMA, the U.S. Department of Agriculture (USDA), and/or the Small Business Administration (SBA). FEMA also issues emergency declarations, which are more limited in scope and do not include the long-term federal recovery programs of major disaster declarations. Determinations for declaration type are based on the scale and type of damages, and institutions or industrial sectors affected.

A USDA disaster declaration certifies that the affected county has suffered at least a 30 percent loss in one or more crop or livestock areas and provides affected producers with access to low-interest loans and other programs to help mitigate disaster impacts. In accordance with the Consolidated Farm and

Rural Development Act, counties neighboring those receiving disaster declarations are named as contiguous disaster counties and are eligible for the same assistance.

Table 26 reflects FEMA presidentially declared disasters received by multiple counties in Iowa including Winneshiek County, and the Participating Jurisdictions from 1990 to the present.

Table 26: Presidential Disaster Declarations Including Winneshiek County, 1990-2013

Declaration Number	Declaration Date	Disaster Description	Counties Included
DR-4135-IA	7/31/2013	Severe Storms, Tornadoes and Flooding	Allamakee, Benton, Buchanan, Butler, Cedar, Clayton, Delaware, Howard, Jones, <u>Winneshiek</u>
DR-1763-IA	5/27/2008	Severe Storms, Tornadoes and Flooding	Adair, Adams, Allamakee, Appanoose, Audubon, Benton, Black Hawk, Boone, Bremer, Buchanan, Butler, Carroll, Cass, Cedar, Cerro Gordo, Cherokee, Chickasaw, Clarke, Clayton, Clinton, Crawford, Dallas, Davis, Decatur, Delaware, Des Moines, Dubuque, Fayette, Floyd, Franklin, Fremont, Greene, Grundy, Guthrie, Hamilton, Hancock, Hardin, Harrison, Henry, Howard, Humboldt, Iowa, Jackson, Jasper, Johnson, Jones, Keokuk, Kossuth, Lee, Linn, Louisa, Lucas, Lyon, Madison, Mahaska, Marion, Marshall, Mills, Mitchell, Monona, Monroe, Montgomery, Muscatine, Page, Palo Alto, Pocahontas, Polk, Pottawattamie, Poweshiek, Ringgold, Scott, Story, Tama, Taylor, Union, Van Buren, Wapello, Warren, Washington, Wayne, Webster, Winnebago, <u>Winneshiek</u> , Worth, Wright
DR-1727-IA	9/14/2007	Severe Storms, High Winds and Flooding	Allamakee, Appanoose, Boone, Calhoun, Cherokee, Davis, Humboldt, Mahaska, Montgomery, Palo Alto, Pocahontas, Union, Van Buren, Wapello, Wayne, <u>Winneshiek</u> , Webster
DR-1688-IA	3/14/2007	Severe Winter Storms	Benton, Black Hawk, Boone, Bremer, Buchanan, Butler, Calhoun, Cedar, Chickasaw, Clinton, Des Moines, Fayette, Floyd, Franklin, Greene, Grundy, Hamilton, Hardin, Henry, Howard, Humboldt, Iowa, Jackson, Jasper, Jefferson, Johnson, Jones, Keokuk, Lee, Linn, Louisa, Marion, Marshall, Mitchell, Muscatine, Pocahontas, Poweshiek, Story, Tama, Van Buren, Wapello, Washington, Winnebago, <u>Winneshiek</u> , Worth, Wright
EM-3239-IA	9/10/2005	Hurricane Katrina Evacuation	<u>All</u>
DR-1518-IA	5/25/2004	Severe Storms, Tornadoes and Flooding	Adair, Allamakee, Appanoose, Audubon, Benton, Black Hawk, Boone, Bremer, Buchanan, Butler, Calhoun, Cass, Cerro Gordo, Chickasaw, Clay, Clayton, Dallas, Delaware, Dubuque, Fayette, Franklin, Fremont, Grundy, Guthrie, Hancock, Howard, Humboldt, Ida, Jasper, Jones, Kossuth, Linn, Lucas, Marshall, Mitchell, Page, Pocahontas, Polk, Story, Tama, Taylor, Webster, Winnebago, <u>Winneshiek</u> , Worth, Wright
DR -1420-IA	6/1/2002	Severe Storms, Tornadoes and Flooding	Allamakee, Benton, Buchanan, Cedar, Clayton, Clinton, Delaware, Des Moines, Dubuque, Fayette, Henry, Iowa, Jackson, Johnson, Jones, Lee, Linn, Louisa, Muscatine, Scott, <u>Winneshiek</u>

DR-1230-IA	7/1998	Severe Storms	Adair, Allamakee, Appanoose, Audubon, Benton, Black Hawk, Boone, Buchanan, Buena Vista, Butler, Calhoun, Carroll, Cass, Cedar, Cerro Gordo, Chickasaw, Clarke, Clay, Clayton, Clinton, Crawford, Dallas, Davis, Decatur, Delaware, Des Moines, Dickinson, Emmet, Fayette, Floyd, Franklin, Fremont, Greene, Grundy, Guthrie, Hamilton, Hancock, Hardin, Harrison, Henry, Howard, Humboldt, Iowa, Jasper, Jefferson, Johnson, Keokuk, Kossuth, Lee, Linn, Louisa, Lucas, Madison, Mahaska, Marion, Marshall, Mills, Monona, Montgomery, Muscatine, Osceola, Page, Palo Alto, Pocahontas, Polk, Pottawattamie, Poweshiek, Ringgold, Sac, Shelby, Story, Tama, Taylor, Union, Wapello, Washington, Warren, Webster, Winnebago, Winneshiek , Wright
DR-996-IA	6/1993	Flooding	All
DR-879-IA	9/1990	Flooding	Black Hawk, Bremer, Buchanan, Cerro Gordo, Chickasaw, Clayton, Clinton, Fayette, Franklin, Fremont, Howard, Johnson, Jones, Linn, Pottawattamie, Winneshiek , Worth

Source: (Iowa HSEMD, 2013)

Table 27 reflects U.S. Department of Agriculture disaster declarations and their related causes for Winneshiek County, which includes the Participating Jurisdictions, from 2005 to the present.

Table 27: USDA Declared Disasters, 2005 to Present

USDA Disaster Number	Start Date	Causes						
		Hail	Drought	Tornadoes	Severe Storms	Winter Storms	Excessive Moisture	Frosts Freezes
M1688	2/23/2007					X		
M1717	8/18/2007				X		X	
M1727	8/17/2007				X		X	
S2898	5/15/2009	X			X		X	
S3264	4/6/2012							X
S3305	7/17/2012		X					
S3553	1/1/2013						X	X
S3605	4/1/2013						X	
S3618	7/15/2013		X					

Hazard Profiles

Requirement §201.6(c)(2)(i):

[The risk assessment shall include a] description of the...location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

Each hazard that can affect the jurisdiction is profiled individually in this section. The level of information presented in the profiles varies by hazard based on the information available. This plan update has incorporated new information to provide for better evaluation and prioritization of the hazards that affect the county. Detailed profiles for each of the identified hazards include information on the following characteristics of the hazard:

Hazard Description

This section consists of a general description of the hazard and the types of impacts it may have on a community.

Geographic Location

This section describes the geographic extent or location of the hazard in the Planning Area. When applicable, a specific jurisdiction's risks are noted if it varies from the risks facing the entire Planning Area. Where available, maps are utilized to indicate the areas of the Planning Area that are vulnerable to the subject hazard.

Previous Occurrences

This section includes information on historic incidents and their impacts to the affected area.

Probability of Future Occurrence

The frequency of past events is used to gauge the likelihood of future occurrences. Where possible, the probability or chance of occurrence was calculated based on historical data. Probability was determined by dividing the number of events observed by the number of years and multiplying by 100. This gives the percent chance of the event happening in any given year. An example would be three droughts occurring over a 30-year period, which suggests a 10 percent chance of a drought occurring in any given year.

Magnitude

The magnitude of the impact of a hazard event (past and perceived) is related directly to the vulnerability of the people, property and the environment it affects. This is a function of when the event occurs, the location in which it occurs, the resiliency of the community and the effectiveness of the emergency response and disaster recovery efforts.

Warning Time

The warning time of the impact of a hazard event (past and perceived) is related directly to the amount of notice a community has before an event will occur.

Duration

The duration of the hazard consists of the typical amount of time the affected areas is impacted by the hazard.

Spatial Extent

The spatial extent of the impact of a hazard event (past and perceived) is related directly to the geographic extent of jurisdiction(s) impacted and is another measure of severity.

Hazard Summary

To maintain a consistent reporting format, a mathematical methodology was used to prioritize the hazards. This prioritization was based on a Calculated Priority Risk Index (CPRI) that considered five elements of risk: probability, magnitude, warning time, duration, and spatial extent. Table 28 identifies the scoring criteria for each element of risk.

Table 28: Calculated Priority Risk Index (CPRI) Criteria Chart

Probability: Reflects the likelihood of the hazard occurring in the future, considering both the hazard's historical occurrence and the projected likelihood of the hazard occurring in any given year		
Score:	Description:	
1	Unlikely	Event is probable within the next 10 years Event has up to 1 in 10 year chance of occurring (1/10=10%) History of events is less than or equal to 10% likely per year
2	Occasional	Event is probable within the next five years Event has up to 1 in 5 year chance of occurring (1/5=20%) History of events is greater than 10% but less than or equal to 20% likely per year
3	Likely	Event is probable within the next three years Event has up to 1 in 3 year chance of occurring (1/3=33%) History of events is greater than 20% but less than or equal to 33% likely per year
4	Highly Likely	Event is probable within the calendar year Event has up to 1 in 1 year chance of occurring (1/1=100%) History of events is greater than 33% likely per year
Magnitude: An assessment of severity in terms of injuries and fatalities, personal property, and infrastructure		
Score:	Description:	
1	Negligible	Injuries and/or illnesses are treatable with first aid Minor quality of life lost Shutdown of critical facilities and services for 24 hours or less Less than 10% of property is severely damaged
2	Limited	Injuries and/or illnesses do not result in permanent disability Complete shutdown of critical facilities for more than one week 10-25% of property is severely damaged
3	Critical	Injuries and/or illnesses result in permanent disability Complete shutdown of critical facilities for at least two weeks 25-50% of property is severely damaged
4	Catastrophic	Multiple deaths Complete shutdown of facilities for 30 or more days More than 50% of property is severely damaged

Warning Time: The potential amount of warning time that is available before the hazard occurs		
Score:	Description:	
1	24+ Hours	
2	12-24 Hours	
3	6-12 Hours	
4	Less Than 6 Hours	
Duration: How long the hazard will affect the planning area		
Score:	Description:	
1	Less Than 6 Hours	
2	Less Than 1 Day	
3	Less Than 1 Week	
4	More Than 1 Week	
Spatial Extent: How much of the jurisdiction will be affected		
Score:	Description:	
1	Negligible	Less than 10% of the jurisdiction to be impacted
2	Limited	10 – 25% of the jurisdiction to be impacted
3	Critical	25 – 50% of the jurisdiction to be impacted
4	Catastrophic	More than 50% of the jurisdiction to be impacted

Using the ranking described in CPRI Criteria Table, a formula that includes weighting factors is used to determine each hazard's CPRI. This plan uses the same weighting criteria that the State of Iowa in order to be consistent with the state's priorities and allow for a higher priority to be placed on hazards that have a higher occurrence in the state and have a high potential for adverse impact. The formula is:

$$\text{CPRI} = (\text{Probability} \times .45) + (\text{Magnitude} \times .25) + (\text{Warning Time} \times .15) + (\text{Duration} \times .10) + (\text{Spatial Extent} \times .05)$$

Based on the calculated CPRI scores, the Participating Jurisdictions' hazards were separated into three categories of planning significance:

- High (3.00-4.00)
- Moderate (2.00-2.99)
- Low (1.00-1.99)

These terms relate to the level of planning analysis to be given to the particular hazard in the risk assessment process and are not meant to suggest that a hazard would have only limited impact. In order to focus on the most critical hazards, those assigned a level of significance as high or moderate were given more extensive attention in the remainder of this document, while those with a low planning significance were addressed in more general or qualitative ways. Table 29 summarizes the completed county-wide Hazard Profiles results².

² Note: City CPRI Scores included separately

Table 29: Winneshiek County Hazard Profile Summary

Hazard	Probability	Magnitude	Warning Time	Duration	Spatial Extent	CPRI	Planning Significance
Flash Floods	4	3	4	3	2	3.55	High
Infrastructure Failure	3	2	4	3	3	2.9	Moderate
Thunderstorms and lightning	4	1	4	1	3	2.9	Moderate
Transportation Incident	3	2	4	2	1	2.7	Moderate
Animal/Plant/Crop Disease	3	2	1	4	2	2.5	Moderate
Windstorms	3	1	4	1	2	2.4	Moderate
River Floods	2	2	3	3	2	2.25	Moderate
Hailstorm	2	2	4	1	2	2.2	Moderate
Droughts	2	2	1	4	4	2.15	Moderate
Tornadoes	2	2	4	1	1	2.15	Moderate
Extreme Heat	2	2	1	3	4	2.05	Moderate
Hazardous Materials	2	1	4	2	1	2	Moderate
Terrorism	2	1	4	2	1	2	Moderate
Human Disease	2	1	2	4	2	1.95	Low
Levee Failure	1	2	3	4	2	1.9	Low
Severe Winter Storms	2	1	1	3	4	1.8	Low
Radiological	1	1	4	3	1	1.65	Low
Grass or Wildfire	1	1	4	2	1	1.55	Low
Sink Holes	1	1	4	2	1	1.55	Low
Earthquakes	1	1	4	1	1	1.45	Low
Landslides	1	1	4	1	1	1.45	Low
Dam Failure	1	1	1	3	1	1.2	Low

Hazard Information

Animal/Plant/Crop Disease

Hazard Type:	Probability:	Magnitude:	Warning Time:	Duration:	Spatial Extent:
Animal/Plant/Crop Disease	4	2	1	4	2

Description

Any outbreak of disease that can be transmitted from animal to animal or plant to plant is an animal/crop/plant disease. An animal or plant disease outbreak could have serious economic implications or public health impact. Plant disease, insects and mycotoxins are three of the top 20 causes of crop loss. Avian influenza, BSE and Bovine TB are threats to the county's livestock. The HMPC include invasive species, pests and noxious weeds within this hazard element.

Geographic Location

Animal, plant or crop disease can occur anywhere within the planning area.

Previous Occurrences

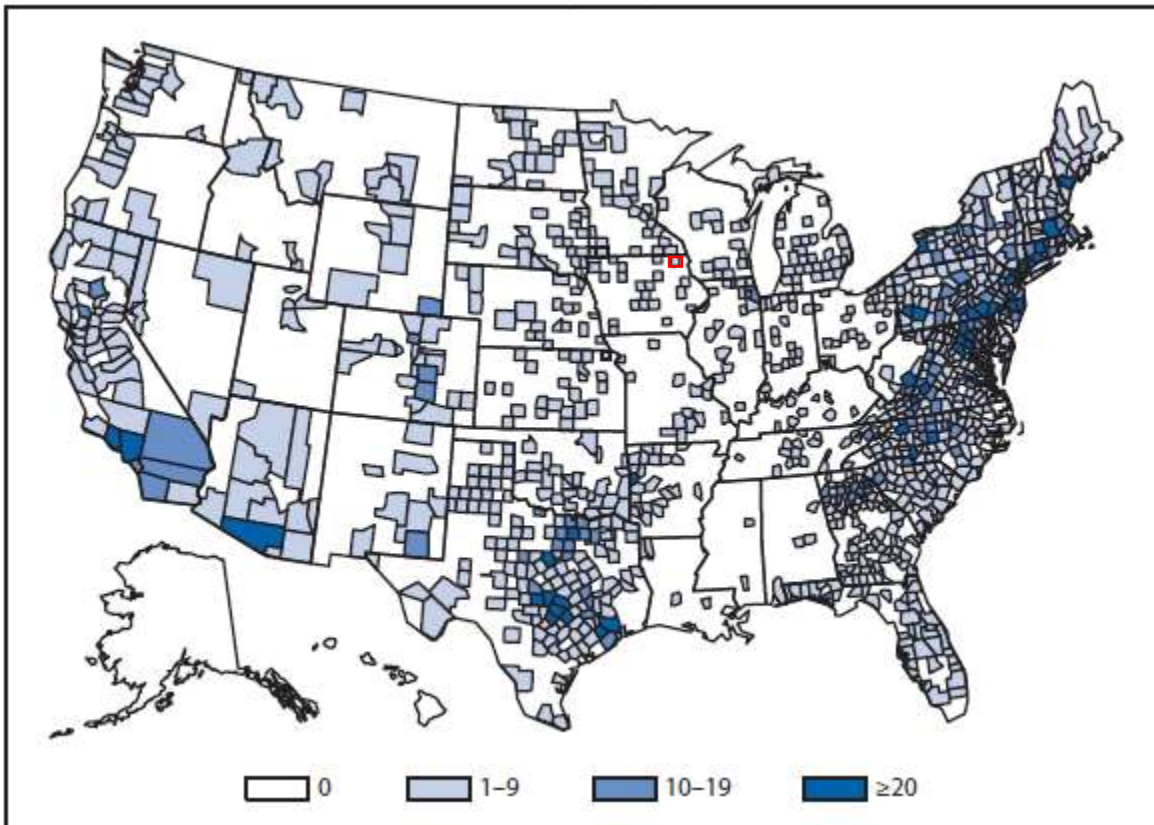
There have been isolated occurrences of animal, plant or crop disease within the county. For example, rabies is rare in Iowa with just 25 animal cases statewide in 2011, but as Figure 37 indicates, Winneshiek County was one of the counties where cases were reported. However, even rumors of outbreaks can be damaging to the farm economy. Crop loss due to plant disease has occurred in the county as indicated in Table 30.

Table 30: Crop Loss Due to Plant Disease, 2007-2012

Year	Crop	Hazard	Claims Paid (\$)
2007	All Other Crops	Plant Disease	15,506
2009	All Other Crops	Plant Disease	45,553
2010	All Other Crops	Plant Disease	5,768
Total			66,827

Source: (USDA Risk Management Agency, 2012)

Figure 37: Animal Rabies Cases Reported in 2011



Source: (Centers for Disease Control and Prevention, 2011)

Probability of Future Occurrences

Previous occurrences would indicate a probability of a 60% chance of an animal/plant/crop disease occurring in any given year, putting the probability of future occurrence as “highly likely.” The HMPC noted concern over the increasing encroachment of invasive insects and plants into Iowa and the growing resistance of some animal, plant or crop diseases to the current chemical control efforts.

Highly Likely: Event is probable within the calendar year. Event has up to 1 in 1 year chance of occurring (1/1=100%). History of events is greater than 33% likely per year.

Magnitude

Given the ability of the state and local jurisdictions to respond, control and contain this type of hazard, the HMPC rated the magnitude as limited.

Limited: Injuries and/or illnesses do not result in permanent disability; Complete shutdown of critical facilities for more than one week; 10-25% of property is severely damaged

Warning Time

Over 24 hours

Duration

Greater than one week

Spatial Extent

Limited: 10 to 25% of the jurisdiction would be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
2.95	Moderate

Dam Failure

Hazard Type:	Probability:	Magnitude:	Warning Time:	Duration:	Spatial Extent:
Dam Failure	1	1	1	3	1

Description

Dam failure is the uncontrolled release of impounded water that can result in flooding. Dams are built for a variety of reasons such as flood control, erosion control, water supply storage, power generation, and recreation. There are 17 dams within Winneshiek County. Three of the dams are concrete or masonry gravity dams and the others are earthen dams. The primary purposes of the dams within the county are flood control, recreational or for small fish ponds. (U.S. Army Corps of Engineers, 2012)

Dam failures can be caused by several events including flooding, earthquakes, blockages, landslides, lack of maintenance, improper operation and poor construction, vandalism, or terrorism. Failure of earthen dams occurs through three scenarios: overtopping, seepage, and/or structural issues. Overtopping failures result from the erosive action of water on the embankment. Erosion is due to uncontrolled flow of water over, around and adjacent to the dam. Earth embankments are not designed to be overtopped and therefore are particularly susceptible to erosion. Once erosion has begun during overtopping, it is almost impossible to stop. A well vegetated earth embankment may withstand limited overtopping if its crest is level and water flows over the crest and down the face as an evenly distributed sheet without becoming concentrated.

All earth dams have seepage resulting from water permeating slowly through the dam and its foundation. Seepage must be controlled in both velocity and quantity. If uncontrolled, it can progressively erode soil from the embankment or its foundation, resulting in rapid failure of the dam. Erosion of the soil begins at the downstream side of the embankment, either in the dam proper or the foundation, progressively works toward the reservoir, and eventually develops a direct connection to the reservoir. This phenomenon is known as "piping." Piping action can be recognized by an increased seepage flow rate, the discharge of muddy or discolored water, sinkholes on or near the embankment or a whirlpool in the reservoir. Once a whirlpool (eddy) is observed on the reservoir surface, complete failure of the dam will probably follow in a matter of minutes. As with overtopping, fully developed piping is virtually impossible to control and will likely cause failure. Seepage can cause slope failure by creating high pressures in the soil pores or by saturating the slope. The pressure of seepage within an embankment is difficult to determine without proper instrumentation. A slope which becomes saturated and develops slides may be showing signs of excessive seepage pressure.

Structural failures can occur in either the embankment or the appurtenances³. Structural failure of a spillway, lake drain or other appurtenance may lead to failure of the embankment. Cracking, settlement, and slides are the more common signs of structural failure of embankments. Large cracks in either of an appurtenance or the embankment, major settlement and major slides will require emergency measures to ensure safety, especially if these problems occur suddenly.

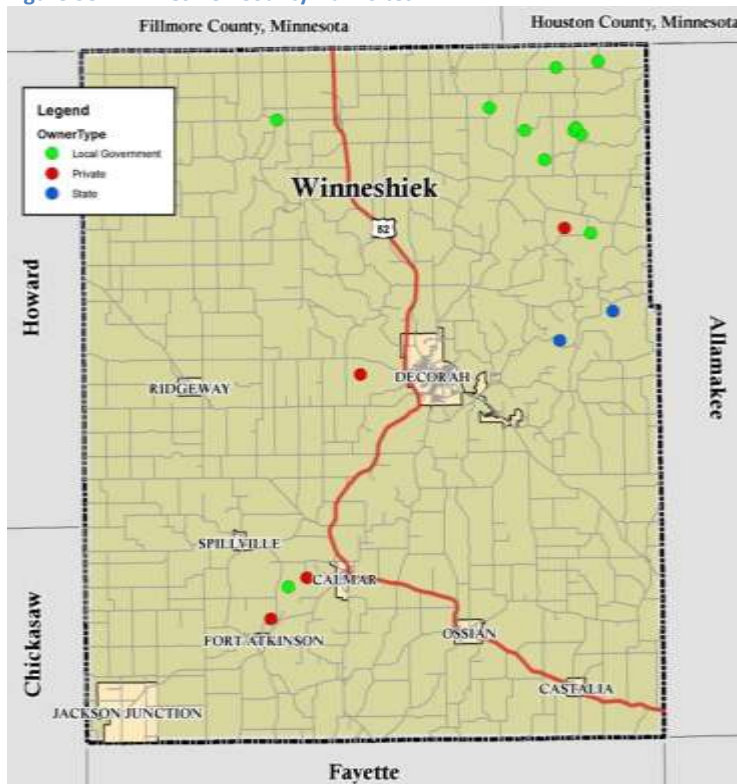
The three types of failure previously described are often interrelated in a complex manner. For example, uncontrolled seepage may weaken the soil and lead to a structural failure. A structural failure may shorten the seepage path and lead to a piping failure. Surface erosion may result in structural failure.

Geographic Location

Figure 38 illustrates the approximate location of the 17 dams within the county. Four are privately owned, two are state-owned and the rest are owned by county governmental entities.

³ Structures associated with dams such as spillways, gates, outlet works, ramps, docks, etc. that are built to allow proper operation of dams.

Figure 38: Winneshiek County Dam Sites



Previous Occurrences

There has never been a dam failure within the county and all of the dams have a low hazard potential. However, it is important to note that by 2025, 29% of the existing dams will be more than 50 years old (the normal design life of a dam). Two of these older dams, the Decorah Lower Mill Dam and the Lake Meyer Dam, are intermediate-sized dams⁴ with the largest normal storage space in the county.

Probability of Future Occurrences

Previous occurrences would indicate a probability of a 0% chance of a dam failure occurring in any given year. The HMPC determined the probability of future occurrence is “unlikely”

Unlikely: Event is probable within the next 10 years; event has up to 1 in 10 year chance of occurring (1/10=10%); history of events is less than or equal to 10% likely per year.

Magnitude

Lake Meyer is located approximately 2.5 miles to the northeast of Fort Atkinson. The elevations of the land would direct the water associated with a dam failure toward the City of Fort Atkinson. Residents in Fort Atkinson expressed concern about a breach at Lake Meyer, but given the distance the water would have to travel from Lake Meyer, the severity of damage would likely be limited damage to property, facilities, and infrastructure. Operations could be affected by communication loss and/or critical facilities. No inundation maps were available to planners for the dams in Winneshiek County.

⁴ Structures that are 40 to 100 feet high or that impound 1,000 to 50,000 acre-feet of water (U.S. Fish & Wildlife Service, 2008)

Negligible: Injuries and/or illnesses are treatable with first aid; Minor quality of life lost; shutdown of critical facilities and services for 24 hours or less; less than 10% of property is severely damaged

Warning Time

Over 24 hours

Duration

Less than 1 week

Spatial Extent

Negligible: Less than 10% of the jurisdiction would be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
1.20	Low

Drought

Hazard Type:	Probability:	Magnitude:	Warning Time:	Duration:	Spatial Extent:
Drought	2	2	1	4	4

Description

Drought is generally defined as a period of prolonged lack of precipitation for weeks at a time producing severe dry conditions. There are three types of drought conditions that are relevant to Iowa: Meteorological drought, which refers to precipitation deficiency; hydrological drought, which refers to declining surface water and ground water supplies; and agricultural drought, which refers to soil moisture deficiencies. A prolonged drought can have serious economic impact on a community. Increased demand for water and electricity may result in shortage of resources. Moreover, food shortages may occur if agricultural production is damaged or destroyed by a loss of crops or livestock. In 2012, drought was the nation's second most costly weather event overall, and the most costly in terms of crop damage. Drought caused over \$5.7 billion in property and crop damage (National Weather Service, 2013).

Periods of drought are normal occurrences in all parts of Iowa. Drought in Iowa is caused by severely inadequate amounts of precipitation that adversely affect farming, surface and ground water supplies, and uses of surface waters for navigation and recreation. Drought can cause significant economic and environmental impacts and also create favorable conditions for wildfires and wind erosion. While droughts are generally associated with extreme heat, droughts can and do occur during cooler months. Drought can lead to shortages in municipal water supplies due to deficiency of the raw water supply and greatly increased customer water demand. In other cases the raw water supply may remain adequate, but problems can be encountered due to limited treatment or distribution capacity.

Geographic Location

Drought can occur in any part of the planning area.

Previous Occurrences

According to the National Climatic Data Center (NCDC), Iowa has had nine periods of drought from 1998-2013. The most common trend was the consistency of drought periods during the month of August. While some may have been more severe than others, agricultural areas were impacted much more than urbanized areas were impacted.

The NCDC indicates that three of these nine events directly impacted Winneshiek County and provides the following details:

- **July 17, 2012 – October 31, 2012.** Severe drought conditions developed across Winneshiek County because of a persistent lack of precipitation. Effects of the drought included damaged crops, pastures that have stopped growing, river flows that were less than 20 percent of normal on the Turkey River and falling ground water levels. As of July 22nd, the U.S.G.S. reported the flow on the Upper Iowa River in Decorah and the Turkey River in Spillville to be in the 20th percentile for low flow. In mid-September, the USDA declared Winneshiek County a federal disaster area due to the drought.
- **July 1, 2005-January 31, 2006.** The drought that began back in June 2005 continued through January 2006. Severe to extreme drought continued across the northern half of Illinois, eastern third of Iowa, and northeast Missouri. The severe dryness of the drought continued to place it equal to or exceeding the drought of 1988. In Iowa, crop losses rapidly decreased the further west one went from the Mississippi River Valley and were near or just slightly below normal upon reaching an Independence to Oskaloosa Iowa line. Soybean crop losses generally were estimated at a 10-15% reduction in yield across Illinois, eastern Iowa, and northeast Missouri. There were pockets across eastern Iowa and northeast Missouri where an estimated 20-30% reduction in yield for soybeans was expected. By September, the drought was affecting mainly hydrologic aspects and to a lesser extent agricultural. A report of the hydrologic issues affected by the drought is supplied by the service hydrologist. In January, 2006, the six-month precipitation total is 12.30 inches or 3.69 inches below normal and 77% of normal. The 12-month precipitation total is 23.95 inches or 12.28 inches below normal and 66% of normal.
- **August 1, 1995-August 31, 1995.** August precipitation was confined to widely scattered thunderstorm activity. The dry weather conditions combined with well above normal temperatures translated to the warmest month recorded in Iowa since July 1988 and the 4th warmest August of record. For the summer as a whole, June through August of 1995 ranked as the 14th warmest in the 123 years of record. The dry conditions resulted in deterioration of Iowa's corn and soybean crops. Reports indicate losses in the corn of between five and 25 bushels per acre with the greatest over the south. Soybean losses were not that great and were generally 5% or less. In dollars this translates to about \$420 million in corn and \$116 million in soybeans.

Table 31 provides additional details regarding the affected crops and amounts annually from 2007 to 2012.

Table 31: Claims Paid in Winneshiek County for Crop Loss as a Result of Drought, 2007-2012

Year	Crop	Hazard	Claims Paid (\$)
2007	Oats	Drought	240
2007	Corn	Drought	77,993
2007	Soybeans	Drought	6,511
2008	Oats	Drought	64
2008	Forage Production	Drought	2,197
2008	Corn	Drought	915,940
2008	Soybeans	Drought	561,616
2009	All Other Crops	Drought	6,443
2011	All Other Crops	Drought	310,919
2012	Forage Production	Drought	50,109
2012	Green Peas	Drought	5,697
2012	All Other Crops	Drought	24,759,858
Total			26,687,587

Source: (USDA Risk Management Agency, 2012)

Probability of Future Occurrences

Previous occurrences would indicate a probability of 20% chance of a drought occurring in any given year (NCDC: 3 in Winneshiek County from 1998-2013). According to the Palmer Drought Severity Index 1895-1995, Winneshiek County experienced severe and extreme drought 10-14.9 percent of the time during that 100-year period. Using either source, the probability of future occurrence falls within the definition of “occasional.”

Occasional: Event is probable within the next five years; event has up to 1 in 5 year chance of occurring (1/5=20%); history of events is greater than 10% but less than or equal to 20% likely per year

Magnitude

Drought impacts are wide-reaching and may be economic, environmental, and/or societal. The most significant impacts associated with drought in Iowa are those related to agriculture. The agricultural industry provides an economic base for Winneshiek County, which includes the Participating Jurisdictions. A prolonged drought could have severe economic impacts.

Drought conditions can also cause soil to compact and not absorb water well, potentially making an area more susceptible to flooding. An ongoing drought may also leave an area more prone to wildfires. Water supply can also be of concern during periods of prolonged drought. Drought impacts increase with the length of a drought.

Limited: Injuries and/or illnesses do not result in permanent disability; complete shutdown of critical facilities for more than one week; 10-25% of property is severely damaged

Warning Time

Over 24 hours

Duration

More than 1 week

Spatial Extent

Catastrophic: More than 50% of the jurisdiction could be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
2.15	Moderate

Earthquake

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Earthquake	1	1	4	1	1

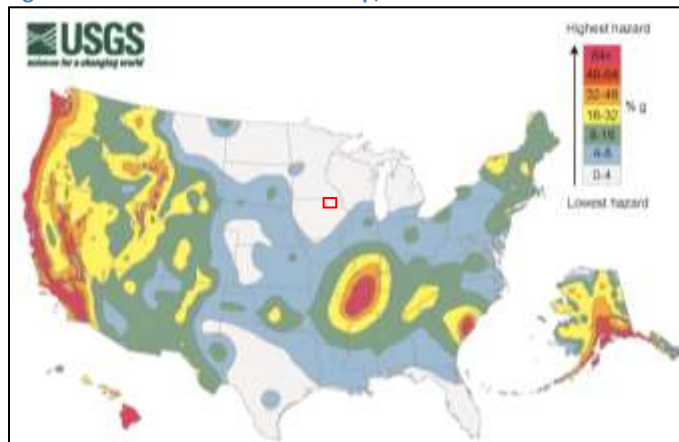
Description

An earthquake is sudden motion of trembling of the ground caused by shifting tectonic plates. Earthquakes are potentially catastrophic, capable of causing multiple fatalities and major structural and infrastructure damage including disruption of utilities, communications, and transportation systems. Secondary affects can include landslides, seiches, liquefaction, fires, and dam failure. Earthquakes occur very abruptly with little or no warning. However, seismic monitoring in certain cases can detect increases in the geologic and seismic activity that precedes an earthquake event. Duration typically ranges from a few seconds to a minute or two, but aftershocks can occur during the hours and weeks after the quake, usually with diminishing frequency and intensity.

Geographic Location

Overall, the County is in an area of relatively low seismic activity. The following U.S. Geological Survey (USGS) National Seismic Hazard Map displays earthquake ground motions for various probability levels across the United States and is used to develop building codes, insurance rate structures, risk assessments, and other public policy. Winneshiek County lies in an area with the lowest hazard. The closest fault zone is the New Madrid Seismic Zone which follows the Mississippi River valley from southeastern Missouri to northwestern Mississippi, noted in red on the map, roughly 550 miles south of the County.

Figure 39: USGS Seismic Hazard Map, 2008



Source: (USGS, 2008)

Previous Occurrences

Iowa has experienced 13 earthquakes with epicenters located in the state over its history. Geologically, the epicenter of an earthquake is the point of the earth's surface directly above the focus of an earthquake. The first known earthquake occurred in Southwest Iowa in 1876, near Sidney. The latest earthquake to shake the state also happened in Southwest Iowa in 2004, near Shenandoah. The largest earthquake, of a Mercalli magnitude VI, occurred in Southeast Iowa in 1934, near Davenport. Only the most recent of these events was instrumentally recorded. Figure 40 illustrates where earthquakes have occurred in Iowa.

Figure 40: History of Earthquakes in Iowa



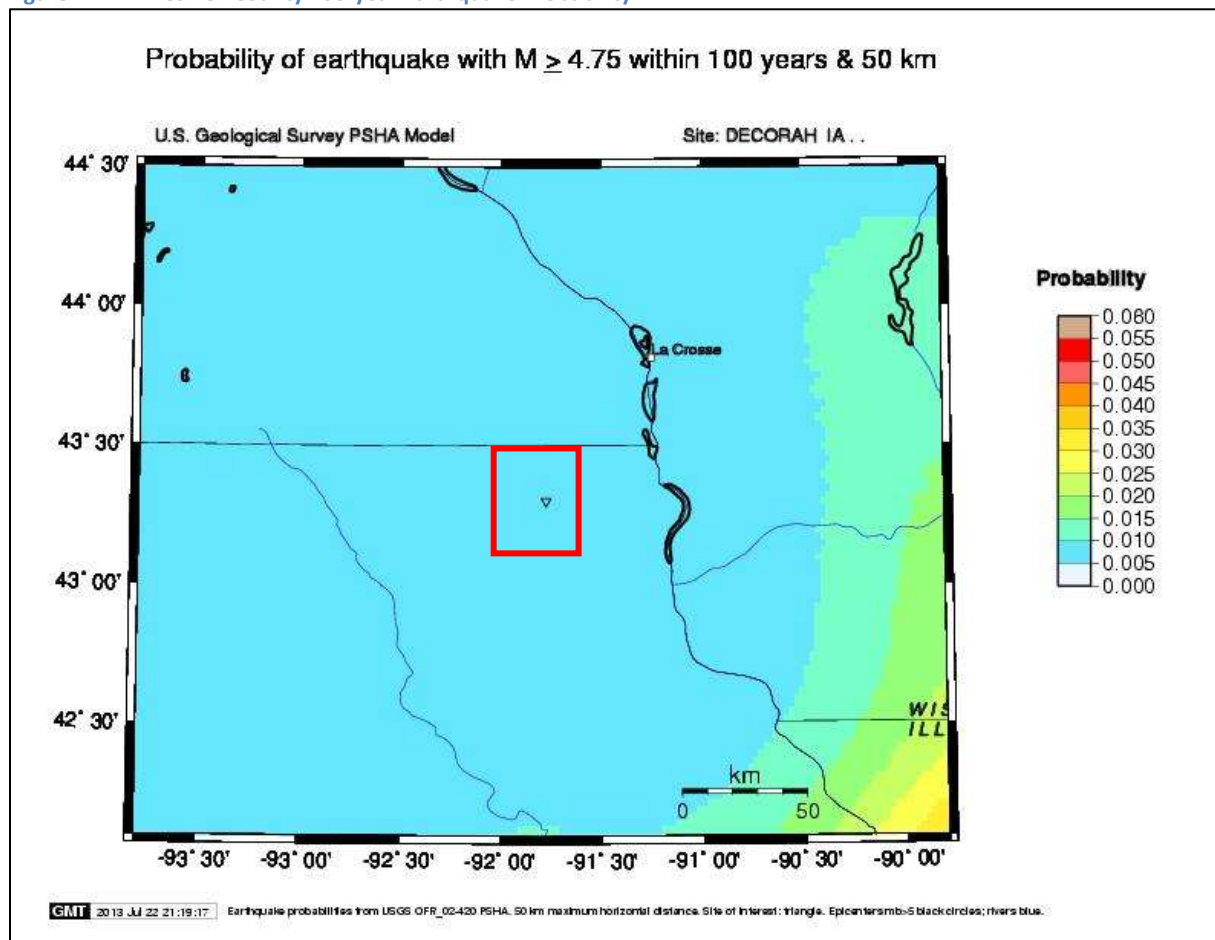
Source: (Iowa Department of Natural Resources, n.d.)

Probability of Future Occurrences

Previous occurrences would indicate a probability of a 0% chance of an earthquake occurring in any given year. Winneshiek County's probability of a magnitude 4.75+ earthquake over a 100 year time period is estimated to be 0.5 to 1.0 percent (see Figure 41). Similar probabilities equate this to roughly a 10,000 year recurrence interval. Based on these estimates the probability of a significant earthquake in any given year is unlikely.

Unlikely: Event is probable within the next 10 years; event has up to 1 in 10 year chance of occurring (1/10=10%); history of events is less than or equal to 10% likely per year.

Figure 41: Winneshiek County 100-year Earthquake Probability



Source: (USGS, 2008)

Magnitude

Winneshiek County is located in Seismic Zone 0, the lowest risk zone in the United States. Most structures are not built to earthquake standards, but because of the relatively low magnitude of the possible quake, property damage would likely be minor foundational damage. The amount of energy released during an earthquake is most commonly expressed on the moment magnitude scale and is measured directly from energy released from the fault or epicenter as recorded on seismographs. Another measure of earthquake magnitude is intensity. Intensity is an expression of the amount of shaking at any given location on the surface as felt by humans and defined by the Modified Mercalli Intensity Scale. It is typically the greatest cause of losses to structures during earthquakes and is determined by many factors including distance from epicenter and soil types. Table 32 features abbreviated descriptions of the 12 levels of earthquake intensity.

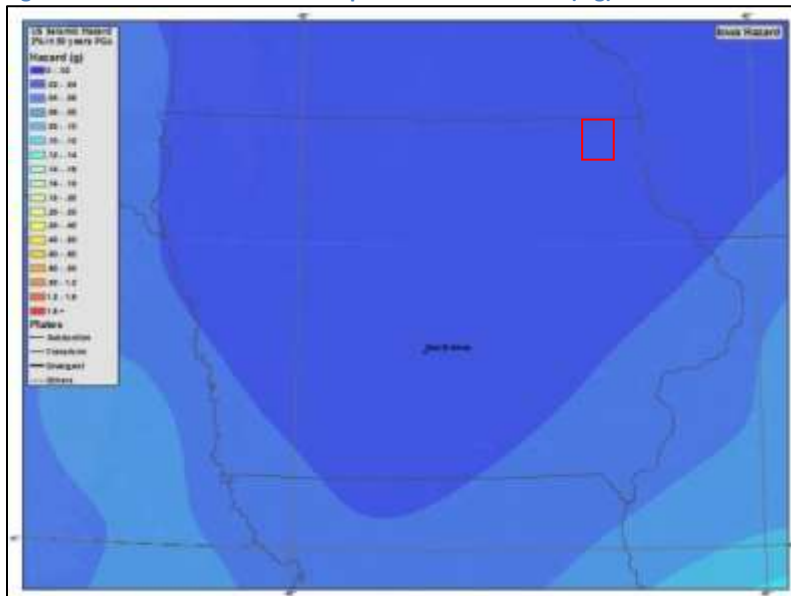
Table 32: Modified Mercalli Intensity (MMI) Scale

MMI	Felt Intensity
I	Not felt except by very few people under special condition. Detected mostly by instruments.
II	Felt by a few people, especially those on upper floors of building. Suspended objects may swing.
III	Felt noticeably indoors, by a few outdoors. Standing automobiles may rock slightly.
IV	Felt by many people indoors, by a few outdoors. At night, some people are awakened. Dishes, windows, and doors rattle.
V	Felt by nearly everyone. Many people are awakened. Some dishes and windows are broken. Unstable objects are overturned.
VI	Felt by everyone. Many people become frightened and run outdoors. Some heavy furniture is moved. Some plaster falls.
VII	Most people are alarmed and run outside. Damage is negligible in buildings of good construction, considerable damage in buildings of poor construction
VIII	Damage is slight in specially designed structures, considerable in ordinary buildings, great in poorly built structures. Heavy furniture is overturned.
IX	Damage is considerable in specially designed buildings. Buildings shift from their foundations and partly collapse. Underground pipes are broken.
X	Some well-built wooden structures are destroyed. Most masonry structures are destroyed. The ground is badly cracked. Considerable landslides occur on steep slopes.
XI	Few, if any masonry structures remain standing. Rails are bent. Broad fissures appear in the ground.
XII	Virtually total destruction. Waves are seen on the ground surface. Objects are thrown in the air.

Source: (USGS, 2008)

Typically, significant earthquake damage occurs when accelerations are greater than 30 percent gravity. Figure 42 indicates that there is a 2 percent chance of a peak acceleration of 4.0 gravity (light perceived shaking, low potential damage) within the next 50 years for Winneshiek County.

Figure 42: Iowa Seismic Hazard Map – Peak Acceleration (%g) with 2.0% Probability of Occurrence in 50 Years



Source: (USGS, 2008)

Based on recurrence intervals for small earthquakes, scientists estimate a 90% chance of a Richter magnitude 6.0 earthquake in the New Madrid Fault Zone by 2040. A magnitude 6.5 in New Madrid would create magnitude 4 effects in Iowa resulting in little or no damage. (Iowa Department of Natural Resources, n.d.)

Negligible: Injuries and/or illnesses are treatable with first aid; minor quality of life lost; Shutdown of critical facilities and services for 24 hours or less; less than 10% of property is severely damaged

Warning Time

Less Than 6 Hours

Duration

Less Than 6 Hours

Spatial Extent

Negligible: Less than 10% of the jurisdiction would be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
1.45	Low

Extreme Heat

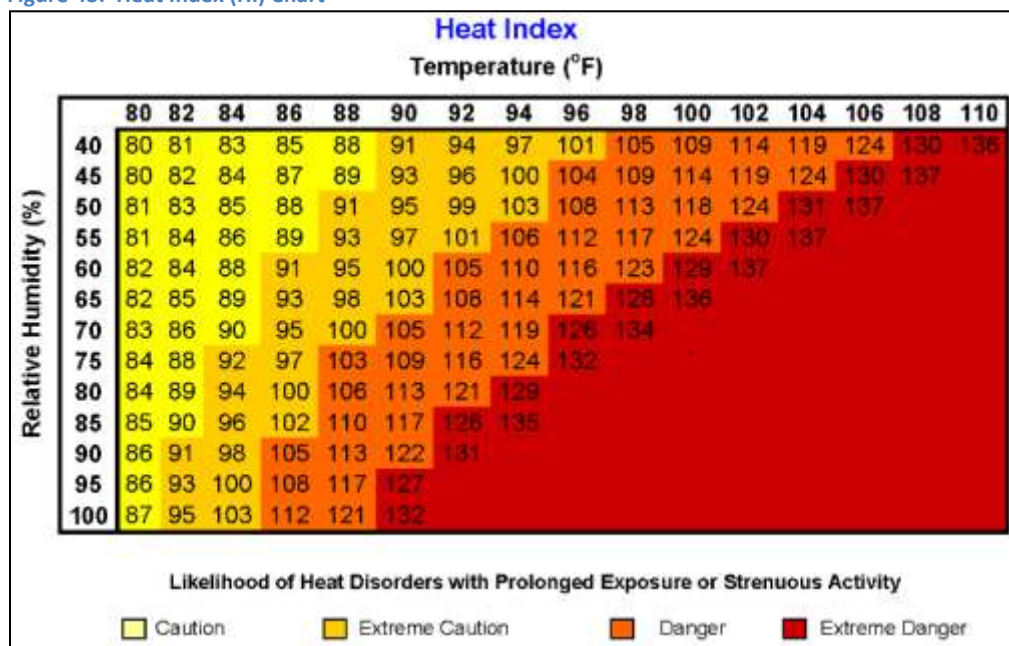
Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Extreme Heat	3	2	1	3	4

Description

Extreme temperature events, both hot and cold, can have severe impacts on human health and mortality, natural ecosystems, agriculture, and other economic sectors. Conditions for extreme heat are defined by summertime weather that is substantially hotter and/or more humid than average for a location at that time of year. This includes temperatures (including heat index) in excess of 100 degrees Fahrenheit (°F) or at least three (3) successive days of 90+ °F. Ambient air temperature is one component of heat conditions, with relative humidity being the other. The relationship of these factors creates what is known as the apparent temperature, often referred to as the heat index.

Figure 43 reflects the National Weather Service Heat Index chart, producing a guide for the apparent temperature or relative intensity of heat conditions.

Figure 43: Heat Index (HI) Chart



Source: (National Weather Service, 2013)

Note: Since heat index values were devised for shady, light wind conditions, exposure to full sunshine can increase heat index values by up to 15°F. Also, strong winds, particularly with very hot, dry air, can be extremely hazardous.

Heat is one of the leading weather-related causes of death in the United States, resulting in more deaths each year than hurricanes, lightning, tornadoes, floods and earthquakes combined. From 1999 to 2010, a total of 7,415 people died of heat-related deaths, an average of about 618 fatalities each year. Those at greatest risk for heat-related illness include infants and children up to four years of age, people 65 years of age and older, people who are overweight, and people who are ill or on certain medications (CDC, 2012). However, even young and healthy individuals are susceptible if they participate in strenuous physical activities during hot weather. In agricultural areas, the exposure of farm workers, as well as livestock, to extreme temperatures is a major concern. Table 33 lists typical symptoms and health impacts of exposure to extreme heat.

Table 33: Typical Health Impacts of Extreme Heat

Heat Index (HI)	Disorder
80-90°F (HI)	Fatigue possible with prolonged exposure and/or physical activity
90-105°F (HI)	Sunstroke, heat cramps and heat exhaustion possible with prolonged exposure and/or physical activity
105-130°F (HI)	Sunstroke, heat cramps or heat exhaustion likely, and heatstroke possible with prolonged exposure and/or physical activity
130°F (HI) or higher	Heatstroke/sunstroke highly likely with continued exposure

Source: (National Weather Service, 2005)

The National Weather Service has a system in place to initiate alert procedures (advisories or warnings) when the Heat Index is expected to have a significant impact on public safety. The expected severity of

the heat determines whether advisories or warnings are issued. A common guideline for issuing excessive heat alerts is when the maximum daytime Heat Index is expected to equal or exceed 105°F for two or more consecutive days.

Geographic Location

The entire planning area is subject to extreme heat.

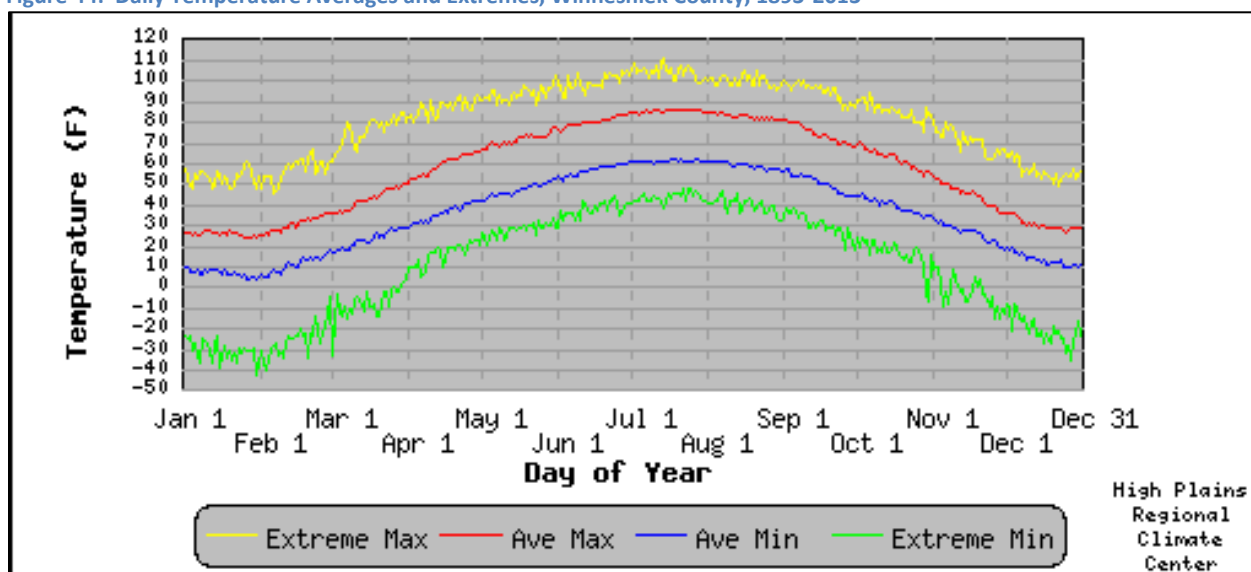
Previous Occurrences

During the period from 1998-2013, the NCDC database lists five incidents of extreme heat that include Winneshiek County. Details were provided for the following events:

- **July 2, 2012.** An upper level ridge of high pressure dominated Northeast Iowa and brought an extreme long duration heat wave from July 2nd through July 7th. The maximum apparent temperatures recorded at automated weather observing systems across Northeast Iowa ranged from 100 to 110 each day during this period. Other impacts from the heat included stimulating algae growth on area waterways which depleted oxygen levels leading to fish kills. The Decorah automated weather observing system recorded maximum apparent temperatures of 95 to 105 each day during the afternoon hours.
- **July 17, 2011.** For an extended period between the 17th and 20th, afternoon heat indices routinely topped out between 110 and 115 with overnight low temperatures remaining above 75 degrees. The highest recorded heat index at Decorah was 114 on the 19th.
- **August 1, 2001.** The excessive heat that began in July continued through the first part of August, with afternoon temperatures reaching into the middle to upper 90s. The heat combined with high humidity produced dangerous heat indices of 110 to 120.
- **July 30, 1999.** Yet another period of excessive heat and humidity affected northeast Iowa. Afternoon highs reached the middle 90s to 100, while heat indices of 110 to 120 were common. No deaths directly related to the oppressive heat and humidity were reported.
- **July 5, 1999.** High humidity combined with afternoon temperatures of 95 to 100 produced heat indices of 105 to 115. There were no deaths directly related to the excessive heat and humidity.

Figure 44 graphs the record temperatures by month from 1893 to 2013.

Figure 44: Daily Temperature Averages and Extremes, Winneshiek County, 1893-2013



- “Extreme Max” is the maximum of all daily maximum temperatures recorded for the day of the year
 - “Ave Max” is the average of all daily maximum temperatures recorded for the day of the year
 - “Ave Min” is the average of all daily minimum temperatures recorded for the day of the year
 - “Extreme Min” is the minimum of all daily minimum temperatures recorded for the day of the year
- Source: (High Plains Regional Climate Center, 2013)

During the period from 1893 to 2012, the National Weather Service Station in Winneshiek County recorded an annual average of 17.3 days over 90 degrees Fahrenheit and an average of 26.8 days below zero degrees Fahrenheit. Table 34 reflects the daily temperatures extremes from 1893 to 2012 in Winneshiek County.

Table 34: Daily Temperature Maximum and Minimum, Winneshiek County, 1893-2012

Month	# Days ≥ 90°F	# Days ≤ 32°F	# Days ≤ 32°F	# Days ≤ 0°F
Daily High Temperature		Daily Low Temperature		
January	0.0	21.1	30.5	10.8
February	0.0	15.1	27.2	7.4
March	0.0	5.9	25.2	1.5
April	0.1	0.2	11.9	0.0
May	0.7	0.0	2.0	0.0
June	3.3	0.0	0.0	0.0
July	6.9	0.0	0.0	0.0
August	4.6	0.0	0.0	0.0
September	1.6	0.0	1.1	0.0
October	0.0	0.1	8.9	0.0
November	0.0	4.5	22.2	0.7
December	0.0	16.9	29.6	6.4
Annual	17.3	63.9	158.7	26.8

Source: (High Plains Regional Climate Center, 2013)

Table 35 reflects Winneshiek County crop loss insurance claims as a result of extreme heat from 2007 to 2012.

Table 35: Winneshiek County Claims Paid for Crop Loss as Result of Extreme Heat, 2007-2012

Year	Crop	Claims Paid (\$)
2008	Corn	6,864
2011	All Other Crops	13,619
2012	Green Peas	5,697
2012	All Other Crops	855,866
Total		882,046

Source: (USDA Risk Management Agency, 2012)

Probability of Future Occurrences

Previous occurrences would indicate probability at about 30% chance of extreme heat occurring in any given year. Although periods of high heat generally occur on an annual basis, events that cause significant health impacts occur less frequently. Based on past occurrences, the probability of future extreme heat is likely.

Likely: Event is probable within the next three years, event has up to 1 in 3 year chance of occurring (1/3=33%), history of events is greater than 20% but less than or equal to 33% likely per year

Magnitude

Due to the potential for fatalities and the possibility for the loss of electric power, periods of extreme heat can severely affect the planning area. In addition, accompanying drought may compound the problem exacerbating agricultural and economic losses.

Limited: Injuries and/or illnesses do not result in permanent disability; complete shutdown of critical facilities for more than one week; 10-25% of property is severely damaged

Warning Time

Over 24 hours

Duration

Less than 1 week

Spatial Extent

Catastrophic: More than 50% of the jurisdiction would be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
2.50	Moderate

Flash Flood

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Flash Flood	3	3	4	3	2

Description

A flash flood is an event that occurs with little or no warning where water levels rise at an extremely fast rate. Flash flooding results from intense rainfall over a brief period, sometimes combined with rapid snowmelt, ice jam release, frozen ground, saturated soil, or impermeable surfaces. Most flash flooding is caused by slow-moving thunderstorms or thunderstorms repeatedly moving over the same area. Flash flooding is an extremely dangerous form of flooding which can reach full peak in only a few minutes and allows little or no time for protective measures to be taken by those in its path. Flash flood waters move at very fast speeds and can move boulders, tear out trees, scour channels, destroy buildings, and obliterate bridges. Flash flooding often results in higher loss of life, both human and animal, than slower developing river and stream flooding.

Except fire, floods are the most common and widespread of all-natural disasters. In Iowa, as much as 21 inches of rain has fallen in a 24 hour period. The latest significant event to affect Iowa occurred in June/July of 2008. This event resulted in a Presidential Disaster Declaration due to widespread personal and physical property losses. Since then, many flash flood events have occurred across Iowa though

mostly localized events. Between 1993 and 2009 there have been seven (7) deaths and thirteen (13) injuries related to flash flooding in the State of Iowa.

The onset of flooding varies depending on the cause and type. Flash flooding typically occurs with little or no warning. The duration of flash flood conditions is generally less than one day, but in exceptional cases can extend for much longer periods.

Geographic Location

The Participating Jurisdictions of Calmar, Castalia, Jackson Junction, Ossian, and Ridgeway are not near a major river or creek and are relatively flat communities so the threat of flash flooding is minimal, yet can occur. However, the Participating Jurisdictions of Decorah, Fort Atkinson and Spillville as well as the Unincorporated Areas have many low-lying areas; the Turkey River, Upper Iowa River, and small creeks and streams weave throughout the planning area. Lower elevations and property near the rivers, creeks and streams are most at risk to flash flooding.

All flood hazard boundary maps effective in Winneshiek County are found in the Planning Area Profile and Capabilities section.

Previous Occurrences

The NCDRC reports 16 flash flooding events in Winneshiek County between 1998 and 2013. The flash floods caused a reported \$2,444,000 in property damages and \$1,288,000 in crop damages.

Details available from NCDRC of the flash flood events that affected the County include:

- **June 23-24, 2013.** Heavy rain caused flash flooding to occur across Winneshiek County, especially the northern sections. Rapidly rising waters along the Upper Iowa River caused a campground in Bluffton to be evacuated and covered numerous roads in Burr Oak Township stranding residences. More thunderstorms with heavy rain moved across northeast Iowa during the evening of June 24th into the early morning hours of June 25th. The heavy rain produced yet more flash flooding with a railroad bridge washed out west of Fort Atkinson.
- **July 24, 2009.** Numerous small streams and drainage areas were flooded. A few roads south of Calmar had water over them. Thunderstorms with heavy rainfall hit some of the same areas repeatedly during the afternoon of July 24, which caused flash flooding. Streams and creeks overflowed their banks and sent water over some roads.
- **August 21, 2007.** County Road W14, County Road W20, and Scenic River Road were damaged due to heavy rainfall and flash flooding. A low pressure system moved over northeast Iowa during the late evening hours of August 21. Thunderstorms developed along and ahead of this system, producing rainfall rates of an inch per hour. This caused flooding of roadways across parts of northeast Iowa.
- **May 21, 2004.** Rainfall amounts of 3 to 6 inches caused widespread flash flooding. Numerous road washouts were reported by law enforcement officials across northeast Iowa. Due to extensive damage caused by flooding, all counties in northeast Iowa were declared disaster areas.
- **May 8, 2002.** Thunderstorms produced 4 inches of rain in about an hour, causing flash flooding. Law enforcement officials reported numerous roads washed out, while 1 to 2 feet of water covered roads. Some farmers reported substantial losses to cattle in flooded river bottoms.

- **July 10, 2000.** 3 to 4 inches of rain within a couple of hours caused flash flooding, which washed out several county roads and damaged crops. In Decorah, city streets were covered by as much as a foot of water.
- **June 28, 1998.** Many smaller and medium size rivers were to their banks or flooding after torrential rains fell for much of the evening. Flooding mainly impacted low agricultural land although some county roads were closed.

From 2005 to 2012, Winneshiek County received three USDA declarations that involved excessive moisture. Table 36 reflects insurance claims paid in Winneshiek County for Crop Loss as a Result of Flood (flash floods or river floods) and Excessive Moisture from 2007 to 2012.

Table 36: Claims Paid in Winneshiek County for Crop Loss as a Result of Flood and Excessive Moisture, 2007-2012

Year	Crop	Hazard	Claims Paid (\$)
2007	Forage Production	Excess Moisture/Precip/Rain	9,271
2007	Corn	Excess Moisture/Precip/Rain	5,176
2007	Soybeans	Excess Moisture/Precip/Rain	30,612
2008	Oats	Excess Moisture/Precip/Rain	99
2008	Forage Production	Excess Moisture/Precip/Rain	3,296
2008	Corn	Excess Moisture/Precip/Rain	1,769,311
2008	Soybeans	Excess Moisture/Precip/Rain	1,076,667
2008	Corn	Flood	339,668
2008	Soybeans	Flood	208,724
2009	Forage Production	Excess Moisture/Precip/Rain	692
2009	All Other Crops	Excess Moisture/Precip/Rain	110,955
2010	All Other Crops	Excess Moisture/Precip/Rain	62,422
2011	Soybeans	Excess Moisture/Precip/Rain	886
2011	Wheat	Excess Moisture/Precip/Rain	529
2011	All Other Crops	Excess Moisture/Precip/Rain	9,588
2012	All Other Crops	Excess Moisture/Precip/Rain	20,559
Total			3,648,455

Source: (USDA Risk Management Agency, 2012)

Probability of Future Occurrences

Previous occurrences would indicate a probability of at least 100% chance of a flash flood occurring in any given year. Flash flooding occurs on close to an annual basis over the span of Winneshiek County in its low-lying areas and locations close to rivers, creeks and streams. Based on this level of frequency, probability of future flash flooding with significant impacts in the Participating Jurisdictions is considered highly likely. As land is converted from fields or woodlands to roads and parking lots, it loses its ability to absorb rainfall. Urbanization increases runoff 2 to 6 times over what would occur on natural terrain. As more development occurs in watersheds, the amount of runoff produced also increases.

Highly Likely: Event is probable within the calendar year; event has up to 1 in 1 year chance of occurring (1/1=100%); history of events is greater than 33% likely per year

Magnitude

Factors that directly affect the amount of flood runoff include precipitation, intensity and distribution, the amount of soil surface areas due to urbanization. The term “flash flood” describes localized floods of great volume and short duration.

There have been 3 deaths and 5 injuries in the State of Iowa related to flash flooding between 1998 and 2012; no deaths or injuries have occurred related to flash flooding in Winneshiek County since 1998.

Flash floods can quickly inundate areas thought to be out of flood-prone areas. Loss of life; property damage and destruction; damage and disruption of communications, transportation, electric service, and community services; crop and livestock damage and loss and interruption of business are common impacts from flash flooding.

Critical: Injuries and/or illnesses result in permanent disability; Complete shutdown of critical facilities for at least two weeks; 25-50% of property is severely damaged

Warning Time

Less than 6 hours

Duration

Less than 1 week

Spatial Extent

Limited: 10-25% of the jurisdiction would be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
3.55	High

Grass and Wild Land Fire

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Grass or Wild Land Fire	1	1	4	2	1

Description

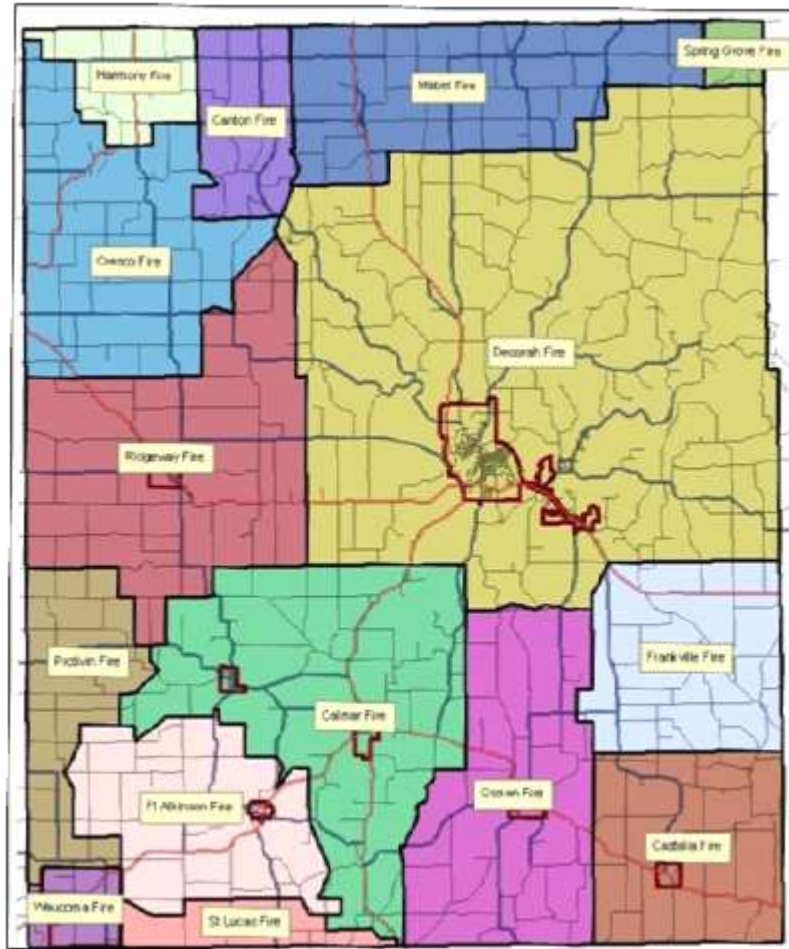
Since protecting people and structures takes priority, a wildfire's cost to natural resources, crops, and pastured livestock can be ecologically and economically devastating. In addition to the health and safety impacts to those directly affected by fires, the state is also concerned about the health effects of smoke emissions to surrounding areas.

Grass and wild land fires in Iowa are frequently associated with lightning and drought conditions, as dry conditions make vegetation more flammable. As new development encroaches into the wild land-urban interface (areas where development occurs within or immediately adjacent to wild lands, near fire-prone trees, brush, and/or other vegetation), more and more structures and people are at risk. On occasion, farmers intentionally ignite vegetation to restore soil nutrients or alter the existing vegetation growth. These fires have the potential to erupt into wild land fires.

There are seven fire stations that cover Winneshiek County. A fire station is located within the jurisdictional boundaries of Calmar, Castalia, Decorah, Fort Atkinson, Ossian, Ridgeway and the

unincorporated community of Frankville. Fire districts reach beyond the jurisdictional boundaries into other incorporated jurisdictions and Unincorporated Areas of Winneshiek County. Other fire stations with fire districts in Winneshiek County are located in Harmony (Fillmore County, MN), Canton (Fillmore County, MN), Mabel (Fillmore County, MN), Spring Grove (Houston County, MN), Decorah (Winneshiek County), St. Lucas (Fayette County), Waucoma (Fayette County), Fort Atkinson (Winneshiek County), Protivin (Howard County), and Cresco (Howard County). Figure 45 reflects areas included for fire districts within Winneshiek County.

Figure 45: Winneshiek County Fire District Areas



Geographic Location

The Participating Jurisdictions consist of and/or are surrounded by rural area which is vulnerable to grass and wild land fire given the supporting conditions.

Previous Occurrence

The State of Iowa's Hazard Mitigation Plan reports Iowa experienced 1,244 wildfires spanning 30,370 acres from 2002 – May, 2010. No previous occurrences specific to Winneshiek County were identified. According to the National Interagency Fire Center, no historically significant wildfires have occurred in the State of Iowa.

Probability of Future Occurrence

Previous occurrences would indicate a probability of little chance of a grass and wild land fire occurring in any given year. The county's ability to respond and the control provided for prescribed fires led the HMPC to rate the probability of grass or wildfire hazards to be unlikely.

Unlikely: Event is probable within the next 10 years; event has up to 1 in 10 year chance of occurring (1/10=10%); history of events is less than or equal to 10% likely per year

Magnitude

High winds can turn a small flame into a multi-acre grassfire within a matter of minutes. The extent is dependent upon conditions such as land use/land cover, moisture, and wind. Property damage is usually limited to grass, small trees, agricultural fields, etc. Wildfires occur on an annual basis in every county in Iowa; however, most do not result in significant threat to life or property.

Negligible: Injuries and/or illnesses are treatable with first aid; minor quality of life lost; shutdown of critical facilities and services for 24 hours or less; less than 10% of property is severely damaged

Warning Time

Less than 6 hours

Duration

Less than 1 day

Spatial Extent

Negligible: Less than 10% of the jurisdiction would be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
1.55	Low

Hailstorm

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Hailstorm	4	1	4	1	1

Description

Hailstorms in Iowa cause damage to property, crops, and the environment, and harm livestock. Because of the large agricultural industry in Iowa, crop damage and livestock losses due to hail are of great concern to the state. Even relatively small hail can cause serious damage to crops and trees. Vehicles, roofs of buildings and homes, and landscaping are the other things most commonly damaged by hail. Hail has been known to cause injury and the occasional fatality to humans, often associated with traffic accidents.

Hail is associated with thunderstorms that can also bring powerful winds and tornadoes. A hailstorm forms when updrafts carry raindrops into extremely cold areas of the atmosphere where they condense and freeze. Hail falls when it becomes heavy enough to overcome the strength of the updraft and is

pulled by gravity towards the earth. The onset of hailstorms is generally rapid. Duration is less than 6 hours and warning time is generally less than 6 hours. Table 37 describes typical damage impacts due to various sizes of hail.

Table 37: Tornado and Storm Research Organization Hailstorm Intensity Scale

Intensity Category	Diameter (mm)	Diameter (inches)	Size Description	Typical Damage Impacts
Hard Hail	5-9	0.2-0.4	Pea	No damage
Potentially Damaging	10-15	0.4-.06	Mothball	Slight general damage to plants, crops
Significant	16-20	0.6-0.8	Marble, grape	Significant damage to fruit, crops, vegetation
Severe	21-30	0.8-1.2	Walnut	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
Severe	31-40	1.2-1.6	Pigeon's egg > squash ball	Widespread glass damage, vehicle bodywork damage
Destructive	41-50	1.6-2.0	Golf ball > Pullet's egg	Wholesale destruction of glass, damage tiled roofs, significant risk of injuries
Destructive	51-60	2.0-2.4	Hen's egg	Bodywork of grounded aircraft dented, brick walls pitted
Destructive	61-75	2.4-3.0	Tennis ball > cricket ball	Severe roof damage, risk of serious injuries
Destructive	76-90	3.0-3.5	Large orange > Softball	Severe damage to aircraft bodywork
Super Hailstorms	91-100	3.6-3.9	Grapefruit	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
Super Hailstorms	>100	4.0+	Melon	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

Source: (TORRO, 2013)

Note: In addition to hail diameter, factors including number and density of hailstones, hail fall speed and surface wind speeds affect severity.

Geographic Location

The entire planning area is at risk to hailstorms.

Previous Occurrences

The NCDC reports 45 hail events in Winneshiek County from 1996-2013. Table 38 shows, by the size of hail, the number of hail reports in Winneshiek County from 1996 to 2013.

Table 38: Reports of Winneshiek County Hail, 1996-2013

Hail Size (inches)	Number of Reports, 1996-2012
0.75	40
0.88	9
1.00	35
1.25	5
1.50	3
1.75	21
2.00	2
2.25	0
2.50	0
2.75	2
3.00	0
4.25	1

Source: (National Climatic Data Center, 2013) *Note: There can be multiple reports of hail within the same storm*

Notable hailstorm event details affecting Winneshiek County provided by the NCDL are summarized below:

- **August 9, 2012.** A line of thunderstorms along a cold front moved across Northeast Iowa during the late afternoon hours on August 9th. The thunderstorms produced hail up to egg size near Decorah and wind gusts of 70 miles per hour near Calmar.
- **July 24, 2009.** This was the second round of large hail to fall in five hours, damaging many of the same fields and properties. Clusters of severe thunderstorms generated by an approaching cold front affected part of northeast Iowa during the afternoon and early evening of July 24. Reports of hail up to 2 inches in diameter were common from storm spotters, law enforcement officials and the public, with a report of close to softball size hail near Ossian (Winneshiek County). In addition, wind gusts between 55 and 65 mph occurred. Crop damage due to the large hail was estimated in the millions of dollars. Two sets of storms about five hours apart hit Fayette and Winneshiek Counties exceptionally hard with hail damage to buildings and many corn and bean fields stripped clean. In Winneshiek County, loss was estimated at 30,000 acres. Total damage costs combined with Fayette and Winneshiek Counties could have reached \$169 million. The Farm Service Agency director said both counties were decimated by the storm damage.
- **June 28, 2008.** An upper level disturbance moved across portions of northeast Iowa during the early afternoon hours on June 28th. Scattered severe thunderstorms developed across parts of northeast Iowa and produced nickel to one inch size hail. A trained spotter reported penny to nickel size hail covering the ground. They also reported small branches down and extensive crop damage.
- **July 31, 2003.** Numerous reports of large hail were received from storm spotters, amateur radio operators, law enforcement officials and the general public. Hail ranged in size from dimes to golf balls and ping-pong balls. Several farmers reported severe hail damage to corn and soybean fields. There were also several vehicles damaged by the large hail.
- **April 18, 2002.** Numerous reports of large hail were received from law enforcement officials, storm spotters and the public. The hail ranged in size from dimes to as large as golf balls. There were also a few reports of 60 mph wind gusts.
- **June 15, 2000.** Spotters and law enforcement officials estimated wind gusts as high as 70 mph, which blew down trees and power lines. Hail the size of dimes and nickels was also reported.

Table 39 reflects the Winneshiek County known insured crop losses as a result of hail from 2007 to 2012.

Table 39: Claims Paid in Winneshiek County for Crop Loss as a Result of Hail, 2007-2012

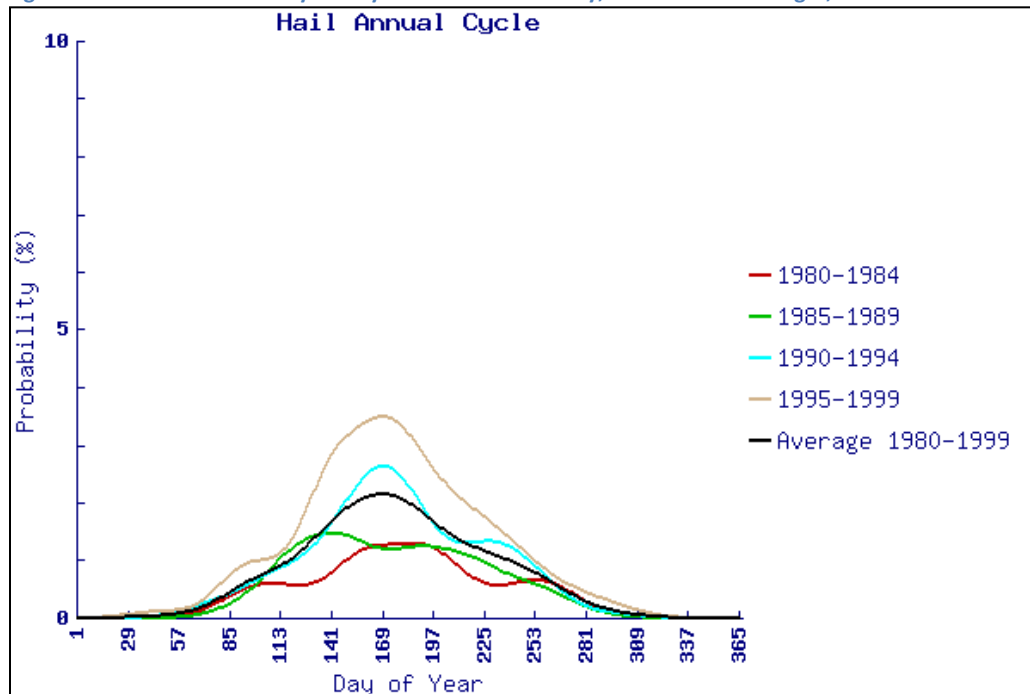
Year	Crop	Hazard	Claims Paid (\$)
2007	Corn	Hail	63,321
2007	Soybeans	Hail	5,178
2008	Corn	Hail	5,141
2008	Soybeans	Hail	56,578
2009	Forage Production	Hail	298
2009	All Other Crops	Hail	4,146,603
2011	All Other Crops	Hail	7,132
2012	All Other Crops	Hail	148,783
Total			4,433,034

Source: (USDA Risk Management Agency, 2012)

Probability of Future Occurrences

Based on NCDC data, there were 45 hail reports in Winneshiek County between 1996 and 2013, an average of 2.6 each year. However, it is important to note that there can be multiple reports of hail within the same storm. Hail reports indicating hail 1.75 inches and larger occurred 25 times over the same 17 year period. There were five reports during this period of hail two inches or larger. Figure 46 reflects the daily probability for the county of a hailstorm, 2" diameter or larger, from 1980 to 1999.

Figure 46: Winneshiek County's Daily Hailstorm Probability, 2" Diameter or Larger, 1980-1999

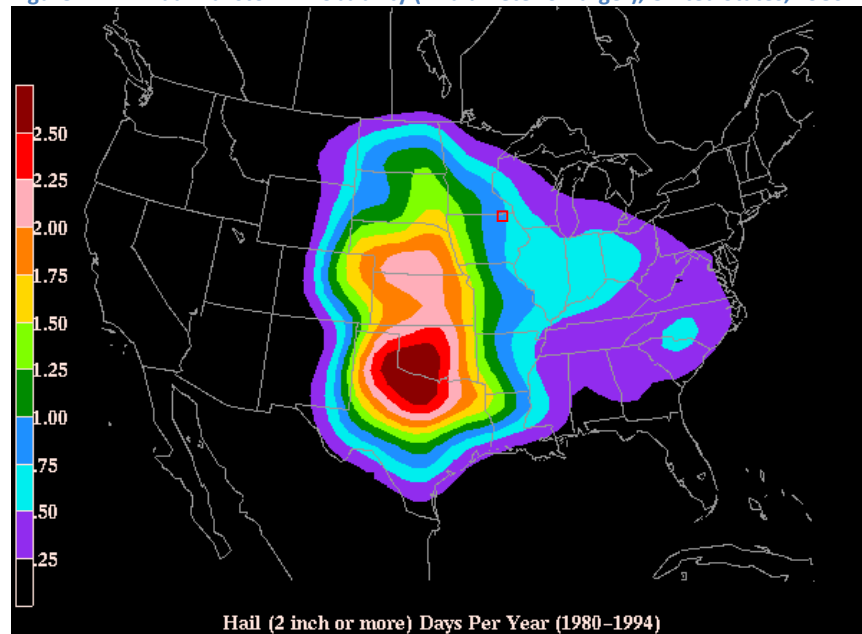


Source: (National Severe Storms Laboratory, 2011)

According to this report, on any given day, the probability of a hailstorm with hail measuring 2" or more in diameter on any given day is less than 4%.

Figure 47 reflects the United States' probability of hailstorm occurrence, 2" diameter or larger, based on number of days per year within a 12.5 mile radius of a given point on the map, from 1980 to 1994.

Figure 47: Annual Hailstorm Probability (2" diameter or larger), United States, 1980-1994



Source: (National Severe Storms Laboratory, 2011)

Winneshiek County is located where the probability of a hailstorm with hail two inches or more is between .75 and 1 days per year. Data is unclear as to the number of storms that produced “reports” of hail. There has been one USDA disaster declaration from hail in the past 10 years. Given the information at hand, the probability of a hailstorm is highly likely.

Highly Likely: Event is probable within the calendar year, event has up to 1 in 1 year chance of occurring (1/1=100%), history of events is greater than 33% likely per year

Magnitude

In addition to concerns for public safety, assets that are vulnerable to hail damage include crops and built structures. Of these, crop damage from hailstorms is the most common and the most costly. Large hail can devastate crops that are at vulnerable stages in the plant/harvest cycle, and it is possible for a great percentage of crop yields to be lost as a result of even a single hail event. Structure damage due to hail is usually covered under private insurance. Information on specific structural damage costs in the planning area as a result of hail damage was not available.

Negligible: Injuries and/or illnesses are treatable with first aid, minor quality of life lost, shutdown of critical facilities and services for 24 hours or less, less than 10% of property is severely damaged

Warning Time

Less than 6 hours

Duration

Less than 6 hours

Spatial Extent

Negligible: Less than 10% of the jurisdiction to be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
2.80	Moderate

Hazardous Materials

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Hazardous Materials	2	1	4	2	1

Description

With the 2010 State of Iowa Hazard Mitigation Plan, this hazard now incorporates the following hazards from the 2007 state plan: Fixed Hazardous Materials Incident, Pipeline Transportation Incident, and Hazardous Materials Transportation Incident. This includes the accidental release of flammable or combustible, explosive, toxic, noxious, corrosive, oxidizable, an irritant or radioactive substances or mixtures that can pose a risk to life, health or property possibly requiring evacuation.

A Fixed Hazardous Materials (HAZMAT) Incident is the accidental release of chemical substances or mixtures, which presents a danger to the public health or safety, during production or handling at a fixed facility. A hazardous substance is one that may cause damage to persons, property, or the environment when released to soil, water, or air. Chemicals are manufactured and used in ever-increasing types and quantities, each year, over 1,000 new synthetic chemicals are introduced, and as many as 500,000 products pose physical or health hazards and can be defined as “hazardous chemicals.” Hazardous substances are categorized as toxic, corrosive, flammable, irritant, or explosive. Hazardous material incidents generally affect a localized area and the use of planning and zoning can minimize the area of impact.

A HAZMAT Transportation Incident is the accidental release of chemical substances or mixtures, which presents a danger to the public health or safety, during transport via air, roadway, railway, or waterway.

Geographic Location

A HAZMAT accident can occur almost anywhere, so any area is considered vulnerable to an accident. People, pets, livestock, and vegetation in close proximity to facilities producing, storing, or transporting hazardous substances are at higher risk. There are 35 miles of transmission pipelines for gas and 14 miles of transmission pipelines for hazardous liquids in Winneshiek County (Pipeline and Hazardous Materials Safety Administration, 2013).

In the event of a HAZMAT incident, most are localized and are quickly contained or stabilized by the highly trained fire departments and HAZMAT teams. Depending on the characteristic of the HAZMAT or the volume of product involved, the affected area can be as small as a room in a building or as large as 5 square miles or more. Many times, additional regions outside the immediately affected area are evacuated for precautionary reasons. More widespread effects occur when the product contaminates the municipal water supply or water system such as a river, lake, or aquifer.

Previous Occurrences

Since 2000, the Iowa Department Natural Resources (DNR) reports 73 hazardous spills in Winneshiek County. Transportation-related modes accounted for 42.5% of the total incidents. There are 4,441 sites in Iowa that because of the volume or toxicity of the materials on site are designated as Tier Two facilities under the Superfund Amendments and Reauthorization Act. 36 of those sites are within Winneshiek County. Private and public facilities are required by federal law to provide an inventory of potentially dangerous chemicals stored on their properties. Tier II reports are filed with the Iowa Department of Natural Resources, county emergency managers and local fire departments. Knowing where large stores of chemicals are located can help first responders be more prepared for fires, spills and other situations.

According to the U.S. DOT Pipeline and Hazardous Materials Safety Administration, there have been 1,979 transportation incident reports in Iowa since 2000. This includes five reported hazmat transportation incidents in Winneshiek County:

- **December 17, 2009.** A hazmat incident involving a vehicle unloading in the City of Decorah. A package was discovered on delivery vehicle with possible leaking. A cap or other closure had cracked and a corrosive cleaning solution of potassium hydroxide solution was leaking. No damages or injuries were involved. It was not considered a Hazardous Materials Information System (HMIS) serious incident.
- **April 4, 2005.** A hazmat incident involving a vehicle unloading in the City of Decorah. Driver did not close discharge valve and when the driver removed the discharge pipe cap, the product was free to leave the container. No injuries or deaths were reported. No costs for damages were reported. It was not considered a HMIS serious incident.
- **December 18, 2001.** A hazmat incident involving a vehicle in transit in the City of Ossian. An employee of a cooperative failed to stop at a railroad crossing and was struck by a train locomotive rolling the fuel truck onto its side. Fire & Rescue assisted until the tank was emptied and put back upright. The area was evacuated, natural gas lines were shut off and the truck was foamed as an added precaution. Damages totaled \$55,000. This was considered a HMIS Serious Incident.
- **March 15, 2001.** A hazmat incident involving a vehicle in transit carrying corrosive material (Nitric acid) in the City of Decorah. A cap, top or plug ruptured on a drum scheduled for delivery. Some spillage resulted. Damages totaled \$125 for cleanup and material losses. It was not considered a HMIS Serious Incident.
- **November 5, 2000.** A hazmat incident involving rail transportation in the City of Ossian. No injuries or deaths were reported. Damages were totaled at \$182,463. It was not considered a HMIS serious incident.

HMPC members noted several additional incidents where local response was warranted.

Probability of Future Occurrences

Previous occurrences would indicate a probability of an 8% chance of a HMIS Serious incident occurring in any given year. Despite increasing safeguards, more and more potentially hazardous materials are being used in commercial, agricultural, and domestic uses and are being transported on Iowa roads and

railways. Given the history of previous occurrences in Winneshiek County and the increase in hazardous material moving through the county, the HMPC set the probability of future occurrences as “occasional.”

Occasional: Event is probable within the next five years; event has up to 1 in 5 year chance of occurring (1/5=20%); history of events is greater than 10% but less than or equal to 20% likely per year

Magnitude

Most hazmat incidents are localized and are quickly contained or stabilized by the highly trained hazmat teams. Depending on the characteristics of the hazmat or the volume of the product involved, the affected area can be as small as a room in a building or as large as 5 square miles or more. The occurrence of a hazmat incident many times shuts down transportation corridors for hours at a time while the scene is stabilized, the product is off-loaded, and reloaded on a replacement container.

Immediate dangers from hazardous materials include fires and explosions. The release of some toxic gases may cause immediate death, disablement, or sickness if absorbed through the skin, injected, or inhaled. Some chemicals cause painful and damaging burns if they come in direct contact with skin. Contamination of air, ground, or water may result in harm to fish, wildlife, livestock, and crops. The release of hazardous materials into the environment may cause debilitation, disease, or birth defects over a long period of time.

Negligible: Injuries and/or illnesses are treatable with first aid; minor quality of life lost; shutdown of critical facilities and services for 24 hours or less; less than 10% of property is severely damaged

Warning Time

Less than 6 hours

Duration

Less than 1 Day

Spatial Extent

Negligible: Less than 10% of the jurisdiction would be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
2.00	Moderate

Human Disease

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Human Disease	2	1	2	4	2

Description

This hazard covers a human disease incident and pandemic human disease. This includes a medical, health, or sanitation threat to the general public (such as contamination, epidemics, plagues, insect infestations, and pandemics).

An incident related to human disease is defined as a medical, health or sanitation threat to the general public (such as contamination, epidemics, plagues and insect infestation). There are over 60 infectious diseases that are designated as notifiable at the national level. A notifiable disease is one for which regular, frequent, and timely information regarding individual cases is considered necessary for the prevention and control of the disease (Centers for Disease Control and Prevention, 2011). Table 40 lists the more numerous cases of infectious diseases found in Iowa.

Table 40: Top Infectious Diseases Reported in Iowa, 2011

Infectious Disease:	Reported Cases:	Infectious Disease:	Reported Cases:
Chlamydia	10,705	Pertussis	232
Gonorrhea	1920	E-Coli	189
Salmonellosis	448	HIV	116
Cryptosporidiosis	364	Lyme Disease	100
Giardiasis	271		

Source: (Centers for Disease Control and Prevention, 2011)

A pandemic human disease is defined as a disease that has spread around the world to many people, causing illness in a person on nearly every continent. Examples include HIV/AIDS/Influenza.

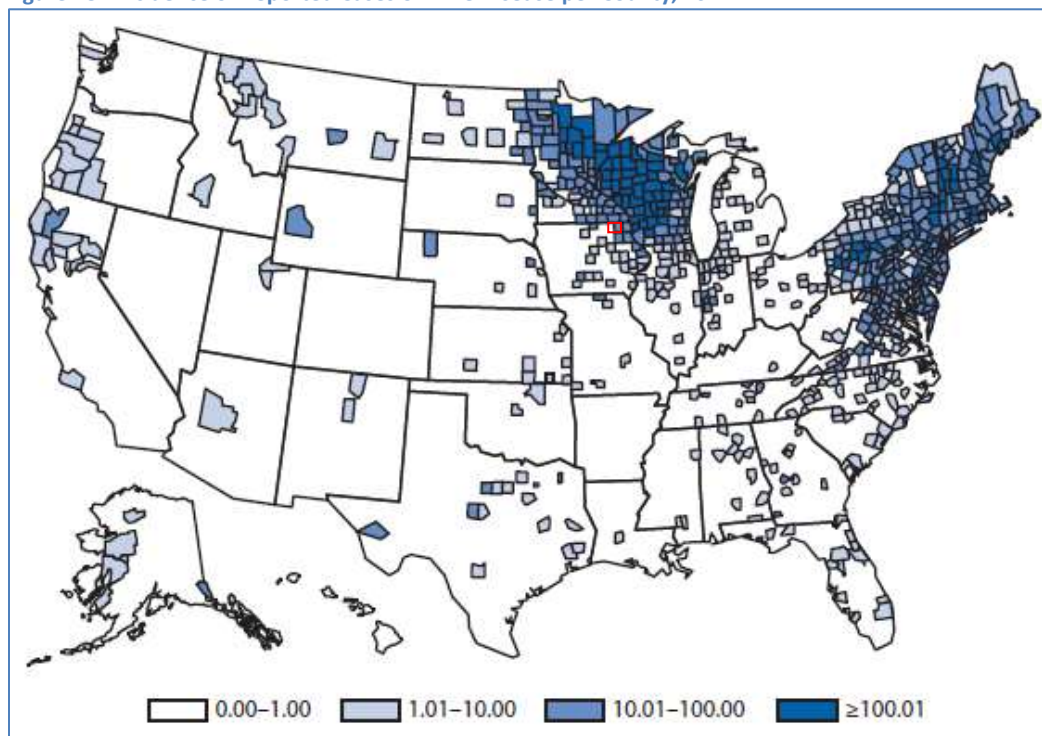
Geographic Location

Human disease can occur anywhere within the planning area.

Previous Occurrences

Figure 48 notes the counties where Lime Disease has been reported in 2011. Winneshiek County is one of the counties in which the incident range is between 10 and 100. This tick-borne disease is more prevalent in Northeast Iowa than elsewhere in the state.

Figure 48: Incidence of Reported Cases of Lyme Disease per County, 2011



Source: (Centers for Disease Control and Prevention, 2011)

From 1900-2000, there were three (3) influenza pandemics, all about 30 years apart. This seems to follow the same trend with the next occurrence to affect Iowa beginning in 2009 with the H1N1 influenza virus causing 659 hospitalizations with lab confirmed H1N1 since 9/1/09 and resulting in 41 fatalities. Typically people who become ill are the elderly, the very young and people with chronic medical conditions and high risk behaviors. Approximately 22% of Iowa's population is considered high risk.

Probability of Future Occurrences

The Iowa Department of Public Health tracks epidemiological statistics in Iowa. Public health agencies work to protect Iowans from infectious diseases and preserve the health and safety of Iowans through disease surveillance, investigation of suspect outbreaks, education and consultation to county, local and health agencies. Historically pandemics occur every 30 years. The HMPC determined the probability of human disease to be "occasional."

Occasional: Event is probable within the next five years; event has up to 1 in 5 year chance of occurring (1/5=20%); history of events is greater than 10% but less than or equal to 20% likely per year

Magnitude

Public health agencies also work to reduce the impact of communicable diseases in Iowa and to eliminate the morbidity associated with these diseases. Programs guide community-based prevention planning, monitor current infectious disease trends, prevent transmission of infectious diseases and provide early detection and treatment for infected persons. While vaccines are available for many diseases, Iowans remain vulnerable to other diseases known and unknown.

Negligible: Injuries and/or illnesses are treatable with first aid; minor quality of life lost; shutdown of critical facilities and services for 24 hours or less; less than 10% of property is severely damaged

Warning Time

12 to 24 hours

Duration

More than 1 week

Spatial Extent

Limited: 10 – 25% of the jurisdiction would be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
1.95	Low

Infrastructure Failure

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Infrastructure Failure	3	2	4	3	3

Description

This hazard incorporates the following hazards: Communication Failure, Energy Failure, Structural Failure, and Structural Fire. This includes an extended interruption, widespread breakdown, or collapse (part or all) of any public or private infrastructure that threatens life and property.

Communication failure is the widespread breakdown or disruption of normal communication capabilities. Mechanical failure, traffic accidents, power failure, line severance, and weather can affect communication systems and disrupt service. Disruptions and failures can range from localized and temporary to widespread and long-term. If switching stations are affected, the outage could be more widespread.

Energy failure is an extended interruption of service of either electric, petroleum or natural gas, which by an actual or impending acute shortage of usable energy. Disruptions and failures could create a potential health problem for the population and possibly mass panic. International events could potentially affect supplies of energy producing products while local conditions could affect distribution of electricity, petroleum or natural gas.

The collapse (part or all) of any public or private structure including roads, bridges, towers, and buildings is considered a structural failure. A road, bridge, or building may collapse due to the failure of the structural components or because the structure was overloaded. Natural events such as heavy snow may cause the roof of a building to collapse (under the weight of snow). Heavy rains and flooding can undercut and washout a road or bridge. The age of the structure is sometimes independent of the cause of the failure.

An uncontrolled structural fire in populated areas that threatens life and property may be beyond normal day-to-day response capability. Structural fires present a far greater threat to life and property and the potential for much larger economic losses.

Geographic Location

The entire planning area is susceptible to infrastructure failure

Previous Occurrence

No widespread communication failures have occurred in Iowa. Local incidents; due to weather conditions, equipment failure, excavation incidents, or traffic accidents have been reported, the outages were usually resolved in a timely manner. In 2007, according to planning committee members, ice storms and a blizzard caused power outages throughout the western part of the county as power lines were damaged. Local communication failures are likely to affect small areas of a county. Some areas in Winneshiek County, especially those located in valleys, experience communication disruptions frequently.

There have been several sporadic structural failures in Winneshiek County, especially roads and bridges, many due to flooding. Structural deficiencies have caused the closure of 16 bridge structures in the past 10 years. Of those 16, six remain closed. Four structures have collapsed during the past decade, three because they were struck by a vehicle and one due to deterioration. Fortunately, this bridge was closed just days before it collapsed (Winneshiek County Engineer's Office, 2014). Structural fires are a regular occurrence in Winneshiek County, as with all counties. Nearly all are quickly extinguished by on-site personnel or local fire departments.

Probability of Future Occurrence

Previous occurrences would indicate no probability of a major communications failure occurring in any given year, but a high probability of road or bridge failure. Localized incidents of communication failure due to weather, etc. are likely to occur on a yearly basis, but it is unlikely that these incidents would last long-term. Widespread communication losses are unlikely due to backup systems and redundant system designs.

The State of Iowa and the federal government have strategies to limit the likelihood of an energy shortage or failure and keep energy supply and demand in check. Natural events, human destruction, price escalation, and national security energy emergencies can cause unavoidable energy shortages. Because the distribution systems are very developed, local shortages can quickly be covered.

The cause of failure is often found in deficiencies of design, material, or inspection. With the aging structures in Winneshiek County along with problems with new materials discussed above, structural failures will continue to occur. Efforts to inspect and maintain these structures will lessen the probability of a failure.

Much of the fire prevention efforts have gone into nonresidential fires and the results have been highly effective. Even with an increase in the prevention efforts in residential fires, both residential and nonresidential fires will continue to occur. Structural fires with the potential to exceed local fire department response resources and their mutual aid partners are unlikely in any given year.

Likely: Event is probable within the next three years; event has up to 1 in 3 year chance of occurring (1/3=33%); history of events is greater than 20% but less than or equal to 33% likely per year

Magnitude

Communication failure could include major telephone outages, loss of local government radio facilities, long-term interruption of electronic broadcast services, emergency 911, law enforcement, fire, emergency medical services, public works, and emergency warning systems are just a few of the vital services which rely on communication systems to effectively protect citizens.

Because Iowa is almost entirely dependent on out-of-state resources for energy, world and regional fuel disruptions are felt in Iowa. It is likely that increasing prices will occur as market mechanisms are used to manage supply disruptions. This will disproportionately affect the low-income population. Agricultural, industrial, and transportation sectors are also vulnerable to supply, consumption, and price fluctuations. Individual consumers such as commuters are also vulnerable.

The impacts of the failed structure would be contained to the immediate area and adjacent properties. This could be as small as a house with a fallen chimney, or the area could be relatively extensive if the structure that failed was a multi-story building or bridge. Dam and levee failures would affect a much larger area and are discussed as separate hazards.

Limited: Injuries and/or illnesses do not result in permanent disability; Complete shutdown of critical facilities for more than one week; 10-25% of property is severely damaged

Warning Time

Less than 6 hours

Duration

Less than one week

Spatial Extent

Critical: 25 – 50% of the jurisdiction would be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
2.90	High

Landslide

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Landslide	1	1	4	1	1

Description

Landslides occur when susceptible rock, earth, or debris moves down a slope under the force of gravity and water. Landslides may be very small or very large, and can move at slow to very high speeds. A natural phenomenon, small scale landslides have been occurring in slide-prone areas of Iowa long

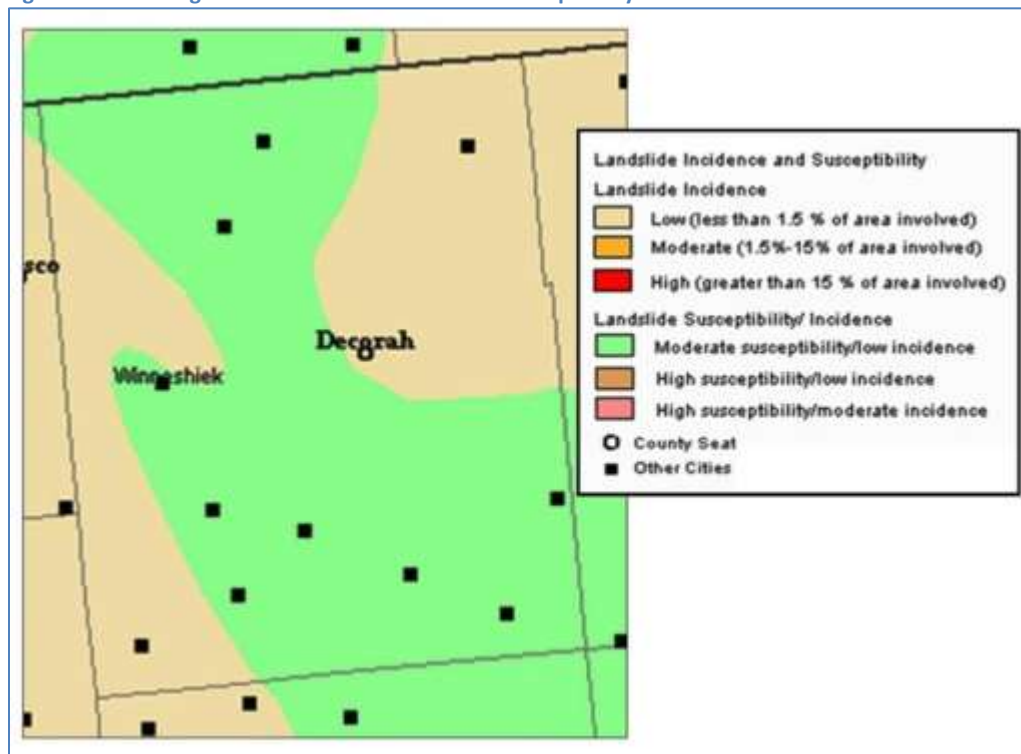
before human occupation. New landslides can occur because of rainstorms, fires, earthquakes, and various human activities that modify slope and drainage.

There have been numerous small-scale landslide events in Iowa, none resulting in injury or death. The geographic extent of the historic events has been limited to less than a city block in size and has “run out” over the stretch of less than 100 yards. A portion of the state is moderately susceptible to landslides; in northeastern Iowa, along the Silurian Escarpment you can find blocks of dolomite slumped onto the underlying Maquoketa Shale which creates situations vulnerable to landslides.

Geographic Location

The participating Cities of: Calmar, Castalia, Decorah, Fort Atkinson, Ossian, Ridgeway and Spillville are located in an area considered ‘moderate susceptibility.’ These cities have locations where landslides are a risk with the characteristics of underlain rock and hilly terrain and bluff. The area shaded green in Figure 49 shows where landslides would be most likely to occur in Winneshiek County, particularly where structures overlook valleys and steep ravines. The City of Jackson Junction and the village of Highlandville are located in an area that has a low landslide incidence (less than 1.5% of area involved), according to the United State Geological Survey (USGS).

Figure 49: Planning Area Landslide Incidence and Susceptibility



Source: (U.S. Geological Survey, n.d.)

Previous Occurrences

No known agency documents historical data on landslides. The best available data was personal knowledge of the HMPC, particularly the Winneshiek County Emergency Coordinator and Winneshiek

County Engineer. It was noted that numerous landslides have occurred in the past, but not on a regular basis.

Probability of Future Occurrences

Given the insignificance of past landslides and landslide incidence and susceptibility information from the U.S.G.S., it was determined that there is a probability of 0-1% chance of a landslide occurring in any given year. The HMPC evaluated the probability of a significant landslide event in the County and determined that probability of such an occurrence was “unlikely.”

Unlikely: Event is probable within the next 10 years; event has up to 1 in 10 year chance of occurring (1/10=10%); history of events is less than or equal to 10% likely per year

Magnitude

In Iowa, landslides occur on a localized scale. Injuries and deaths are very unlikely except in the case of undetected slope failure warning signs in structures overlooking steep slopes. Property damage would be limited to a very small percentage of structures. Infrastructure damages would be more significant. Utilities such as pipelines, cables, power poles, etc. are often vulnerable to downward movements of the soil. Transportation routes can be disrupted.

Negligible: Injuries and/or illnesses are treatable with first aid; minor quality of life lost; shutdown of critical facilities and services for 24 hours or less; less than 10% of property is severely damaged

Warning Time

Less than 6 hours

Duration

Less than 6 hours

Spatial Extent

Negligible: Less than 10% of the jurisdiction would be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
1.45	Low

Levee Failure

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Levee Failure	1	2	3	4	2

Description

The failure of a levee can be attributed to the loss of structural integrity of a wall, dike, berms, or elevated soil by erosion, piping, saturation, or under seepage causing water to inundate normally dry areas.

The City of Decorah has the Dry Run Flood Control Project (Army Corps of Engineers Levee System) known as the Dry Run Project; the Dry Run Project includes earthen levees to protect Decorah from flooding of the Upper Iowa River and an intermittent tributary stream – Dry Run.

The City of Fort Atkinson also has an earthen levee built by a railroad company in the 1940's to protect the rail stockyard from Rodgers Creek flooding events. The rail stockyard was located where the center of town is currently.

Geographic Location

Approximately three miles of the Dry Run Project levees are located along the Upper Iowa River in Decorah. The left levee begins at the west end of Mound Street and extends approximately 5,400 feet downstream along the left bank of the Upper Iowa River to high ground at Ice Cave Road about 1,100 feet north of the U.S. Highway 52 bridge. The right levee begins on Dugway Road about 1,000 feet upstream from the U.S. Highway 52 bridge, follows the general route of the improved Upper Iowa River channel downstream to a point immediately south of the racetrack at the fairgrounds, then turns away from the river and ties into high ground at Iowa State Highway 9 (Dry Run Project, Operation and Maintenance Manual).

The earthen dike in Fort Atkinson is approximately ½ mile long located along Rodgers Creek. The dike is located on the southwest side of town. It begins near the intersection of Rodgers Creek Road and County Highway W14 and was built along Rodgers Creek to the southeast until the bridge on Highway 24 crosses Rodgers Creek.

Previous Occurrences

There has been no previous occurrence of levee failure of the Dry Run Project Levees in Decorah. While the water was believed to be close to overtopping the levee in 2008, the levee did serve its purpose of holding back water from inundating the city.

The lowest point of the dike in Fort Atkinson is near the junction of Rodgers Creek Road, accordingly that is where the City prioritizes sandbags when flooding is a risk. With those sandbags in place, the water overtopping the levee is less likely, but still occurs with extreme flooding; there have been two occurrences since 1960.

Probability of Future Occurrences

Previous occurrences would indicate no probable chance of a levee failure occurring in any given year. The rate of failure of a levee or floodwall is difficult to predict, and sudden failure is a possibility. Proper design and construction can limit the probability of a levee failure. Given that the Dry Run Project Levees in Decorah withstood the historic river crests in 1993 and 2008 and the dike in Fort Atkinson has only been overtopped twice in 50 years, the HMPC determined the probability of future occurrence to be “unlikely.”

Unlikely: Event is probable within the next 10 years; event has up to 1 in 10 year chance of occurring (1/10=10%); history of events is less than or equal to 10% likely per year

Magnitude

Residents behind levees often have a false sense of security. If the actual risk is not communicated to the residents, the impacts of a failure could be devastating. In an urban setting the severity and duration may be important for life safety and health reasons, but in an agricultural area for economic reasons.

In Decorah, the police department, fire department, and a water treatment facility, and many other vital structures could be affected by levee failure.

Water bursting through a narrow levee breach is moving much faster than the floodwaters in the main channel. The breaking out of this front water and its fast flow can cause more destruction to structures behind the levee than floodwaters in the main channel would have caused. A failed levee continues to cause damage long after it breaks. The breach allows large volumes of water to enter formerly dry areas, forming temporary lakes. Such lakes do not go away immediately, because the lake is blocked from returning to the main channel by levee segments that were not destroyed. Consequently, the water level drops along the main river days before it drops behind breached levees. Often, pumps behind the levees are needed to remove floodwaters that breach the levees. This alleviates some of the impacts associated with levee failures.

Limited: 25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability

Warning Time

Less than 6 hours

Duration

More than 1 week

Spatial Extent

Negligible: Less than 10% of the jurisdiction to be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
1.90	Low

Radiological

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Radiological	1	1	4	3	1

Description

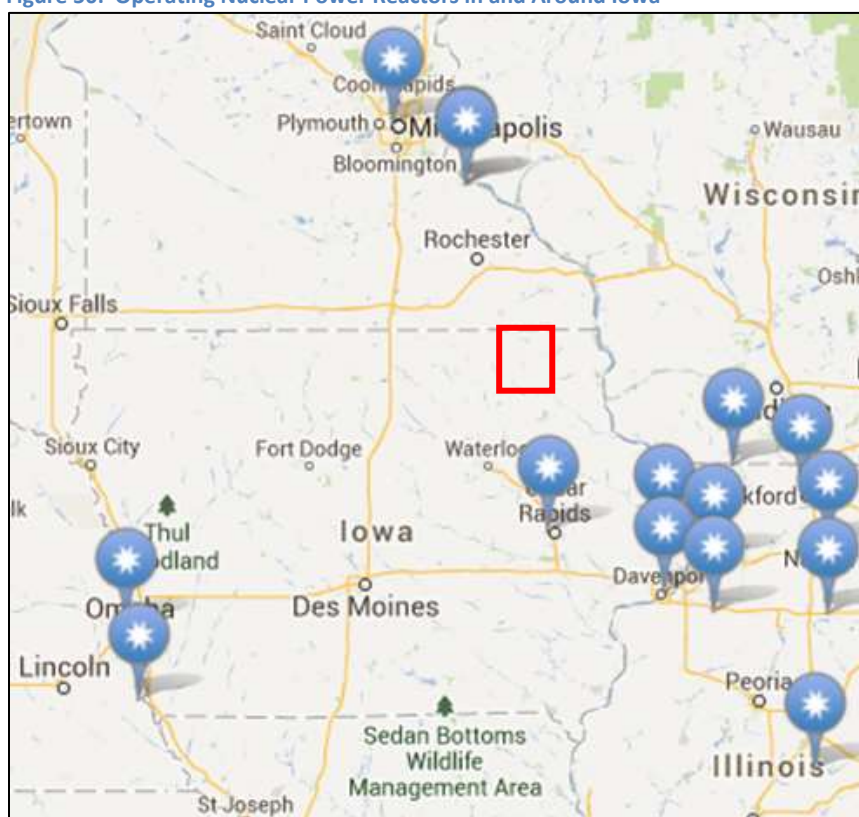
This hazard covers events of fixed radiological incidents and transportation radiological incidents. This includes an incident resulting in a release of radiological material in route or at a fixed facility such as a power plant or hospital. Sources of radioactive materials include medical products, industrial products,

nuclear power plant fuel, nuclear weapons, and radioactive waste from hospitals, laboratories, nuclear reactors and military facilities.

The term "nuclear accident" has no strict technical definition, but generally refers to events involving the release of significant levels of radiation. Most commercial nuclear facilities in the United States were developed in the mid-1960s and are designed to withstand aircraft attack and should withstand most natural hazards even though they may not have been specifically designed to do so.

The nuclear facilities nearest Winneshiek County include the Prairie Island Nuclear Facility in southeastern MN in Welch, and the Duane Arnold Energy Center in Palo IA. Figure 50 illustrates the locations of plants in and around Iowa.

Figure 50: Operating Nuclear Power Reactors in and Around Iowa



Source: (U.S. NRC, 2013)

Transportation incidents are described as an incident resulting in a release of radioactive material during transport. Transporting radioactive materials through Iowa over the interstate highway system is considered a radiological hazard and is licensed and regulated by the federal government.

When these materials are moved across Iowa highways, Iowa officials are notified and appropriate escorts are provided. Two types of radioactive materials are shipped over the interstate highways, low level and high level waste. Low level waste consists of materials that have been contaminated by low level radioactive substances, but generally pose no serious threat except through long term exposure.

High-level waste, usually in the form of spent fuel from nuclear plants, is transported in specially constructed casks that are built to withstand a direct hit from a locomotive.

Geographic Location

An occurrence of this nature would occur within a certain perimeter of the location of an incident, either a fixed or transportation-based.

Previous Occurrences

No incidents related to a release of radioactive materials beyond plant walls have been noted in the plants nearest the county. In over 50 years of nuclear power production in the U.S., no deaths or injuries from radiation have been recorded among the general public. Each of the nuclear facilities in the country identifies a 10-mile radius Emergency Planning Zone and a 50-mile radius Ingestion Pathway Zone.

Since 1990, hundreds of radioactive shipments have been made through Iowa. There have been no occurrences of a radiological transportation incident in Iowa. Transportation accidents are the most common type of incident involving radioactive materials because of the sheer number of radioactive shipments. The rail and highway routes used in Iowa largely follow the interstate highway system; however state highways are also used in the transportation of this material. No routes for the shipment of radioactive waste go through the county.

Probability of Future Occurrences

Previous occurrences would indicate no probability that a radiological incident will occur in any given year. Operators of facilities that use radioactive materials and transporters of radioactive waste are closely regulated by a variety of federal, state and local organizations, making the likelihood of an incident remote. The HMPC determined that the probability of a radiological incident occurring in the county is “unlikely” in any given year.

Unlikely: Event is probable within the next 10 years; event has up to 1 in 10 year chance of occurring (1/10=10%); history of events is less than or equal to 10% likely per year

Magnitude

Depending on the level of exposure, radiation can cause loss of life and long and short term health effects. Time, distance, and shielding minimize radiation exposure to the body. Nuclear radiation above normal levels could be a health and safety consideration because of its ability to damage human cells biologically.

Specialized training is needed to respond to these types of incidents. If inadequately trained personnel attempt to respond, the impacts could be the same as those for the general public exposed to the toxic materials. Proper training and equipment greatly reduce the risk to response personnel. The danger to the public is less than a wide array of other hazardous materials. Those working with or near sources of radiation are at a greater risk than the general citizens of the state.

If the land and facilities cannot be used for weeks, months, or even years, the loss of production would be devastating. Economic impacts would be multi-sector and long-lasting, especially in and around the

affected region. Given the location of transportation routes and existing facilities, the HMPC determined the magnitude to be “negligible.”

Negligible: Injuries and/or illnesses are treatable with first aid; minor quality of life lost; shutdown of critical facilities and services for 24 hours or less; less than 10% of property is severely damaged

Warning Time

Less than 6 hours

Duration

Less than 1 week

Spatial Extent

Other than a transportation incident involving large amounts of high-level radioactive materials, radiation exposure will be limited to very localized areas. Time, distance and shielding minimize radiation exposure to the body. Nuclear radiation above normal levels could be a health and safety consideration because of its ability to damage human cells biologically as well as its long-lasting effect on the environment.

Negligible: Less than 10% of the jurisdiction to be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
1.65	Low

River Flood

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
River Flood	4	1	3	3	1

Description

River flooding is defined as when a watercourse exceeds its “bank-full” capacity and is the most common type of flood event. River flooding generally occurs as a result of prolonged rainfall, or rainfall that is combined with solids already saturated from previous rain events. The area adjacent to a river channel is its floodplain. In its common usage, “floodplain” most often refers to that area that is inundated by the 100-year flood, the flood that has a 1 percent chance in any given year of being equaled or exceeded. The 1 percent annual flood is the national standard to which communities regulate their floodplains through the National Flood Insurance Program (NFIP).

Floods are the most common and widespread of all-natural disasters except fire. Floodwaters can be extremely dangerous. The force of six inches of swiftly moving water can knock people off their feet and two feet of water can float a car. Floods can be slow-, or fast-rising. River flooding is a natural and expected phenomenon that occurs annually, usually restricted to specific streams, rivers or watershed areas.

Geographic Location

The Upper Iowa River flows through the City of Decorah, the Turkey River flows through the cities of Fort Atkinson and Spillville, and near the city limits of Jackson Junction. The low-lying areas along these water sources are most vulnerable to damage from river flooding. Many structures, homes, main roadways, and agricultural areas are threatened by river flooding.

Previous Occurrences

In Winneshiek County, there have been seven federal disaster declarations involved with flooding since 1990, and five USDA declared disasters involved with flooding since 2005. Historical crests of the rivers in Winneshiek County occurred in June, 2008; May, 2007; June, 2002; June 1993; and September 1990.

The NCDC reports six river flooding events in Winneshiek County between 1996 and 2013. Selected details available from the NCDC of river flood events that affected Winneshiek County are:

- June 23, 2010. A slow moving warm front over Central Iowa allowed thunderstorms to develop over Northern Iowa during the evening of the 22nd into the early morning of the 23rd. These storms then moved east across Northeast Iowa into Southwest Wisconsin producing damaging winds and heavy rain. Storm surveys completed by staff members from the Des Moines National Weather Service estimated straight-line thunderstorm winds of 70 to 90 mph caused the damage. Heavy rain produced some street flooding in the city of Decorah.
- June 8, 2008. River levels on the Upper Iowa River at Decorah and Bluffton crested at record levels. Decorah crested at about 9 a.m. CDT on June 9 at 17.9 feet. The previous record crest was 15.2 feet on May 29, 1941. Flood stage at Decorah is 12.0 feet. Sand bagging was needed along the north end of town as water approached the Law Enforcement Center. Several homes and roads were flooded on the east end of Decorah as well. Bluffton crested at 15.49 feet about 2 a.m. on June 9. Flood stage at Bluffton is 14.0 feet. Thunderstorms extended across the Upper Mississippi Valley on June 7 exhibited very high rainfall rates, which led to 1 to 2 inch rainfall amounts in an hour. As the storms congealed into a larger scale line of thunderstorms, they continued to move over the same areas, which led to significant flash flooding through the evening and overnight. Conditions only worsened, leading to more road closures, sandbagging, and some evacuations. Some rivers responded with a foot per hour rises, while others eventually exceeded their river gauges ability to record the river levels. These gauges were under water themselves. As a result, Mitchell, Floyd, Howard, Chickasaw, Winneshiek, Fayette, Allamakee and Clayton Counties were all declared federal disaster areas. Several civil emergency messages were issued for evacuations in the county. Nursing homes and residences in the lower areas on the west side of the city of Decorah were evacuated. Ponding of water in Decorah could not be stopped even with pumps running. Many roads were closed in the county due to high water. The Turkey River flooded in Spillville and Fort Atkinson and damaged railroad bridges. The Highway 24 bridge over the Turkey River was heavily damaged and had to be closed for repairs following the flood.
- May, 22, 2004. Rainfall totals of 8 to 10 inches caused flooding of mainly agricultural land along the Upper Iowa River.

- June 1, 2000. The Upper Iowa River rose quickly after flooding rains fell across northeast Iowa. The river crested at 17.53 feet, more than 3 feet above flood stage, at Dorchester (Allamakee County). Residents in Kendallville, Bluffton and Decorah (Winneshiek County) sandbagged for several hours to protect homes and businesses from the rising water. Several acres of farmland along the river were covered by flood waters, which resulted in a total loss of crops.
- June 28, 1998. Many smaller and medium size rivers had their banks full or flooded after torrential rains fell for much of the evening. Flooding mainly impacted low agricultural land although some county roads were closed.

From 2005 to 2012, Winneshiek County received five USDA disaster declarations that involved excessive moisture. According to the USDA Risk Management Agency, insured crop losses in Winneshiek County as a result of flood conditions and excessive moisture from 2007 to 2012 totaled \$3,389,277. Data reflecting crop loss as a result of flood and excessive moisture was shown in Table 36, page 96.

Probability of Future Occurrences

Previous occurrences would indicate a 35% chance of river flooding occurring in any given year. This places the probability of an occurrence as highly likely.

Highly Likely: Event is probable within the calendar year, event has up to 1 in 1 year chance of occurring (1/1=100%), history of events is greater than 33% likely per year

Magnitude

River flooding impacts include property damage and destruction; damage and disruption of communications, transportation, energy service, community services, water treatment and wastewaters treatment facilities, crop and livestock damage. Facilities and infrastructure can be scoured around and degrading its structural integrity. Past flood events in Winneshiek County have caused fairly significant damage to property and agriculture, endangered lives and critical facilities. Additional information on the potential impact of flooding on properties can be found in Table 51. Some communities participate in the National Flood Insurance Program as noted in Table 55.

Negligible: Injuries and/or illnesses are treatable with first aid, minor quality of life lost, shutdown of critical facilities and services for 24 hours or less, less than 10% of property is severely damaged

Warning Time

6 to 12 hours

Duration

Less than 1 Week

Spatial Extent

Negligible: Less than 10% of the jurisdiction to be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
2.85	Moderate

Severe Winter Storm

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Severe Winter Storm	4	1	1	3	4

Description

Winter storms in Iowa typically involve snow, extreme cold, and/or freezing rain (ice storms). These conditions pose a serious threat to public safety, disrupt commerce and transportation, and can damage utilities and communications infrastructure. Winter storms can also disrupt emergency and medical services, hamper the flow of supplies, and isolate homes and farms.

Heavy snow can collapse roofs and down trees onto power lines. Extreme cold conditions can stress or kill unprotected livestock and freeze water sources. Direct and indirect economic impacts of winter storms include cost of snow removal, damage repair, increased heating bills, business and crop losses, power failures and frozen or burst water lines.

For humans, extreme cold can cause hypothermia (an extreme lowering of the body's temperature) and permanent loss of limbs due to frostbite. Infants and the elderly are particularly at risk, but anyone can be affected. According to the National Center for Health Statistics, approximately 600 adults die from hypothermia each year, with the isolated elderly being most at risk. Also at risk are those without shelter or live in a home that is poorly insulated or without heat. Other potential health and safety threats include toxic fumes from emergency heaters, household fires caused by fireplaces or emergency heaters, and driving in treacherous conditions.

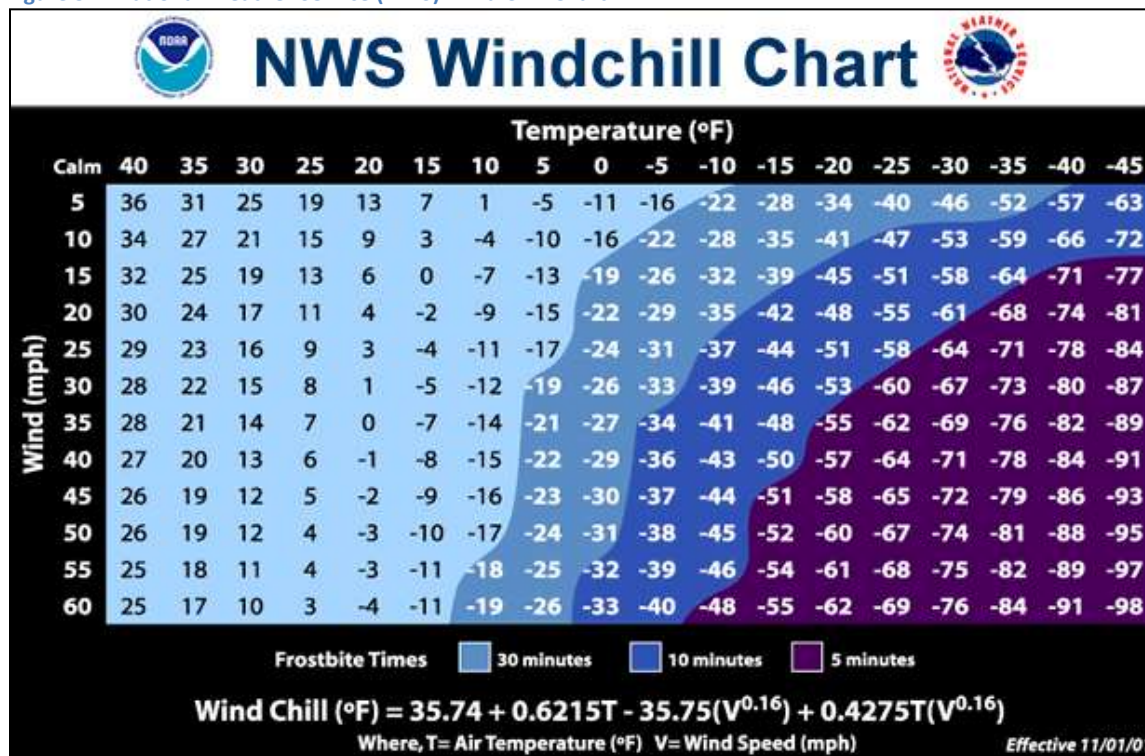
The National Weather Service describes different types of winter storm conditions as follows:

- **Blizzard** – Winds of 35 mph or more with snow and blowing snow reducing visibility to less than 1/4 mile for at least three hours.
- **Blowing Snow** – Wind-driven snow that reduces visibility. Blowing snow may be falling snow and/or snow on the ground picked up by the wind.
- **Snow Squalls** – Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant.
- **Snow Showers** – Snow falling at varying intensities for brief periods of time. Some accumulation is possible.
- **Freezing Rain** – Measurable rain that falls onto a surface whose temperature is below freezing. This causes the rain to freeze on surfaces, such as trees, cars, and roads, forming a coating or glaze of ice. Most freezing rain events are short lived and occur near sunrise between the months of December and March.
- **Sleet** – Rain drops that freeze into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and does not stick to objects.

Wind can greatly amplify the impact of cold ambient air temperatures and accordingly, the severity of winter storms.

Figure 51 reflects the relationship of wind speed to apparent temperature and typical time periods for the onset of frostbite.

Figure 51: National Weather Service (NWS) Wind Chill Chart



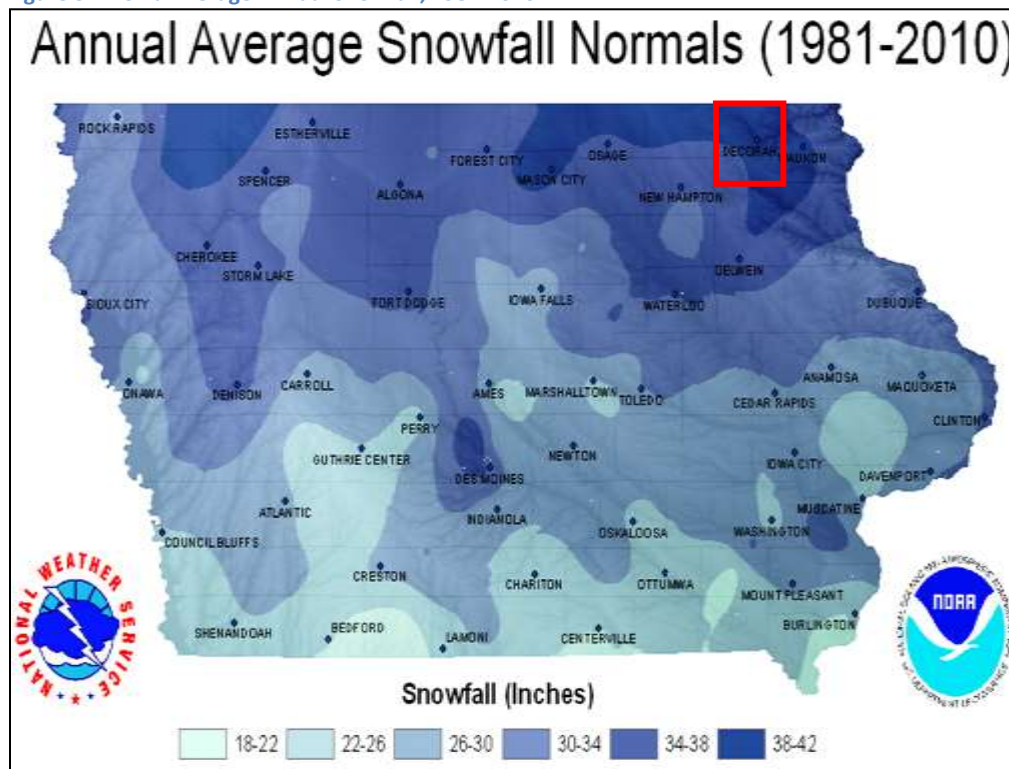
Source: (National Weather Service, 2009)

Duration of the most severe impacts of winter storms is generally less than one week, though dangerous cold, snow, and ice conditions can remain present for longer periods in certain cases. Weather forecasts commonly predict the most severe winter storms at least 24 hours in advance, leaving adequate time to warn the public.

Geographic Location

The entire State of Iowa is vulnerable to heavy snow and freezing rain. The far northern portion of Iowa, near the Minnesota border, receives the greatest average annual snowfall in Iowa with upwards of 38 inches per year. The extreme northern portion of Winneshiek County is among the region that receives the greatest average annual snowfall, but majority of Winneshiek County receives an average annual snowfall of 34 to 42 inches per year. Figure 52 reflects the State of Iowa average annual snowfall from 1981 to 2010.

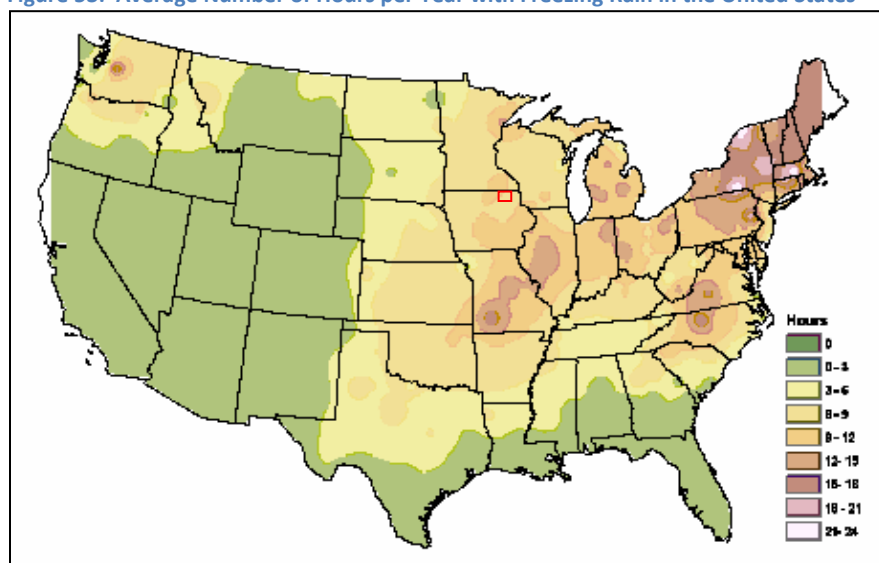
Figure 52: Iowa Average Annual Snowfall, 1981-2010



Source: (National Weather Service, 2012)

The segment of Northeastern Iowa that includes the Participating Jurisdictions receives 8-9 hours of freezing rain on average per year. Surrounding areas not far from the Participating Jurisdictions receive the most (9-12) hours of freezing rain on an annual average in Iowa. Figure 53 reflects United States zones for annual average hours of freezing rain.

Figure 53: Average Number of Hours per Year with Freezing Rain in the United States



Source: (Houston & Cnangnon, 2003)

Previous Occurrences

The NCDC Storm Events Database states that 29 events were reported between September of 2000 and September of 2014, only one of which resulted in damage. None resulted in injury or death. Summaries of selected winter storm events available from the NCDC are listed below:

- **January 30, 2012.** Snow and blowing snow created hazardous conditions across the county, especially during the morning commute time. The visibility at times dropped as low as a quarter of a mile in the snow and blowing snow. The highest reported snowfall total was 5.8 inches in Calmar.
- **February 20, 2011.** Freezing rain developed across the county during the early morning hours of the 20th with ice accumulations up to a quarter of an inch on exposed surfaces. The freezing rain then changed over to snow with storm total accumulations of 1 to 3 inches through the 21st. The ice accumulations were responsible for downed power and telephone lines, vehicle accidents and school cancellations. Power outages were reported throughout the county affecting over 1000 customers.
- **February 7, 2010.** A low pressure system moved across the Upper Midwest on February 8th producing a prolonged snowstorm across portions of northeast Iowa from February 7th through the 9th. Snowfall amounts from cooperative observers ranged from 6 to 9 inches across northeast Iowa, with 7.1 inches of snowfall recorded near Calmar.
- **December 20, 2008.** After being hit by heavy snow (approx. 8 inches) December 18 and 19, northeast Iowa was impacted by another winter storm December 20 through 21. Highest snowfall amounts were roughly 4 to 6 inches. Northwest winds gusting to 30 to 40 mph in the wake of an arctic cold front produced near white-out conditions, along with 2 to 4 foot drifts. In addition to the wind and snow, sharply falling temperatures resulted in bitterly cold wind chills of 20 below to 40 below, which lingered into December 22.
- **February 23, 2007.** A combination of freezing rain, sleet and heavy snow, virtually paralyzed northeast Iowa. Widespread power outages and tree damage were caused by ice accumulations of 1 to 2 inches. Several roads had downed power lines across them and in fact, thousands of power poles were downed due to ice. Heavy snow also accompanied the storm. Accumulations ranged from 6 to 18 inches, with highest totals near the Minnesota-Iowa border. Some of the highest totals included 18.8 inches near Decorah. Thousands of people were without power for several days and emergency shelters were provided to accommodate those needing assistance. Travel was dangerous or impossible throughout northeast Iowa.
- **January 4, 2005.** Only days after having been hit by an ice storm, a winter storm produced heavy snow across northeast Iowa. Reports of accumulation included 10.3 inches at Decorah.
- **January 21-22, 2005.** Heavy snowfall amounts of 6 to 10 inches were common across northeast Iowa, as a winter storm affected the area.

There has been one USDA declared disaster issued because of a winter storm in Winneshiek County, including the Participating Jurisdictions; the declared disaster was in effect from February 23 – March 2, 2007. Table 41 reflects Winneshiek County's crop losses as a result of winter conditions from 2007 to 2012.

Table 41: Claims Paid in Winneshiek County for Crop Loss as a Result of Winter Conditions, 2007-2012

Year	Crop	Hazard	Claims Paid (\$)
2007	Corn	Cold Wet Weather	7,229
2007	Soybeans	Frost	737
2008	Oats	Cold Wet Weather	97
2008	Corn	Cold Wet Weather	23,854
2008	Soybeans	Cold Wet Weather	20,765
2008	Corn	Frost	1,012
2009	All Other Crops	Cold Wet Weather	447,996
2009	Forage	Cold Wet Weather	41,202
2011	All Other Crops	Cold Wet Weather	1,336
2011	All Other Crops	Frost	2,555
2012	All Other Crops	Cold Wet Weather	59,271
Total			608,008

Source: (USDA Risk Management Agency, 2012)

Probability of Future Occurrence

Previous occurrences would indicate a probability of 100% chance of a winter storm occurring in any given year. During the 16-year period from 1996-2012, there were 42 recorded winter storm or blizzard events affecting Winneshiek County. Only one storm was severe enough to warrant a USDA Disaster Declaration. Heavy snow and winter weather occurs annually and the ramifications of such weather are considered a normal part of life in Winneshiek County. The probability of a severe winter storm is highly likely.

Highly Likely: Event is probable within the calendar year, event has up to 1 in 1 year chance of occurring (1/1=100%), history of events is greater than 33% likely per year

Magnitude

Injury or even death is possible when proper shelter is not available to protect against severely cold temperatures. Severe winter storms increase the probability of automobile accidents which can also result in serious injury or death. Response personnel are exposed to cold temperatures and traffic accidents when responding to the victims' needs. Operations can be limited or halted when critical services are not available. Workers may not be able to make it to their place of work, limiting the continuity of operations.

Fire during winter storms presents a great danger as water supplies can freeze and firefighting equipment may not function effectively, or personnel and equipment may be unable to get to the fire. If power is out, interiors of homes become very cold and lead to pipes freezing and possibly bursting. Rivers and lakes freeze and subsequent ice jams can create flooding problems as temperatures begin to rise. Ice coating at least one-fourth inch in thickness is heavy enough to damage trees, overhead wires, and similar objects and to produce widespread power outages.

Negligible: Injuries and/or illnesses are treatable with first aid; minor quality of life lost; shutdown of critical facilities and services for 24 hours or less; less than 10% of property is severely damaged

Warning Time

Over 24 hours

Duration

Less than 1 week

Spatial Extent

Catastrophic: More than 50% of the jurisdiction would be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
2.70	Moderate

Sinkholes

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Sinkhole	1	1	4	2	1

Description

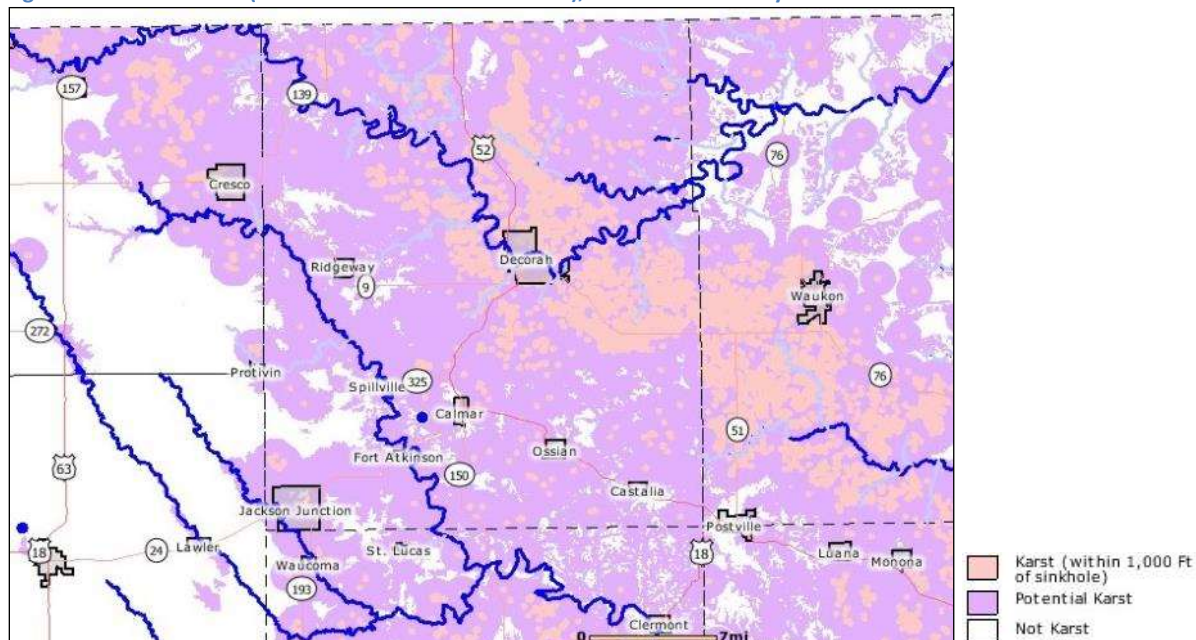
Sinkholes are common where the rock below the land surface is limestone, carbonate, salt beds, or rocks that can naturally be dissolved by ground water circulating through them. As the rock dissolves, spaces and caverns develop underground. Sinkholes are dramatic because the land usually stays intact for a while until the underground spaces get too big. If there is not enough support for the land above the spaces then a sudden collapse of the land surface can occur. Sinkholes range from broad, regional lowering of the land surface to localized collapse. The primary causes of most sinkholes are human activities: Underground mining of coal, groundwater or petroleum withdraw, and drainage of organic soils. In addition, this is due to the erosion of limestone of the subsurface. Sinkholes can aggravate flooding potential, collapses such as the sudden formation of sinkholes or the collapse of an abandoned mine may destroy buildings, roads, and utilities.

Karst is a landscape formed from the dissolution of soluble rocks including limestone, dolomite and gypsum. Sinkholes are a common indication of karst; caves and underground drainage systems are other indicators. With limestone commonly found in northeast Iowa, sinkholes have the potential to occur.

Geographic Location

Historic inventories estimate 2,596 sinkholes in the Upper Iowa River Watershed, in which a majority of Winneshiek County is located in. However, there is no central collection point for this information. Sinkhole records or estimates for the area specific to the Participating Jurisdictions are not available at this time. Figure 54 reflects areas of karst (within 1,000 feet of known sinkhole) and potential karst in Winneshiek County, which includes the Participating Jurisdictions.

Figure 54: Karst Terrain (Sinkhole Location and Potential), Winneshiek County



Source: (Iowa DNR, n.d.)

The Unincorporated Areas and the City of Decorah are the only Participating Jurisdictions to have known sinkholes; the Cities of Calmar, Castalia, Fort Atkinson, Jackson Junctions, Ridgeway and Spillville have the potential for sinkholes given their terrain.

Previous Occurrences

The HMPC noted there have been occurrences of sinkholes in the County. Official records of sinkholes in Winneshiek County were not available.

Probability of Future Occurrence

Previous occurrences would indicate a low probability of a major sinkhole occurring in any given year. The HMPC determined the probability of future occurrence as “unlikely.”

Unlikely: Event is probable within the next 10 years; event has up to 1 in 10 year chance of occurring (1/10=10%); history of events is less than or equal to 10% likely per year

Magnitude

Damage consists primarily of direct structural damage and property loss and depreciation of land values, and also includes business and personal losses that accrue during periods of repair. Damage to property, facilities, and infrastructure would only occur if the event undermined foundations.



Photo 1: Sinkhole located on an Iowa National Heritage Foundation conservation easement near Decorah, by Steve Carlson

Negligible: Injuries and/or illnesses are treatable with first aid; minor quality of life lost; shutdown of critical facilities and services for 24 hours or less; less than 10% of property is severely damaged

Warning Time

Less than 6 hours

Duration

Less than 1 day

Spatial Extent

Negligible: Less than 10% of the jurisdiction would be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
1.55	Low

Terrorism

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Terrorism	2	1	4	2	1

Description

This hazard includes the following: agro-terrorism, domestic terrorism, and public disorder. Additional terrorism hazards can affect Iowa on a larger scale and are included in the State Hazard Mitigation Plan.

Demonstrations, or direct conflict by large groups of citizens, as in marches, protest rallies, riots, and non-peaceful strikes are examples of public disorder. These are not considered as a hazard unless they escalate into a threat to the community. Vandalism is usually initiated by a small number of individuals and limited to a small target group or institution. An active shooting incident can occur. Most events are within the capacity of local law enforcement.

Agro-terrorism is causing intentional harm to an agricultural product or vandalism of an agricultural/animal related facility. This category covers a large variety of incidents from potential to intentional introduction of disease; vandalism of facilities; theft of agricultural products, machinery, or chemicals; release of animals; and contamination of agricultural products. Depending upon the type of action taken, the implications will vary greatly.

Incidents such as this have occurred in the state of Iowa. Iowa has experienced incidents in which animal rights activists have vandalized or released animals from agricultural facilities and there has been vandalism to agricultural facilities or incidents of disgruntled employees causing damage to animals and animal products. There are frequent cases of theft of agricultural machinery, products, and chemicals.

The use of weapons and explosives against persons or property in violation of criminal laws is a form of domestic terrorism. Iowa has not been immune to this. The state has experienced many bomb threats in the distant and recent past. During the spring of 2002, 18 pipe bombs were found in mailboxes in five

states stretching from Illinois to Texas, including Iowa. Six people were injured in the bombings in Iowa and Illinois. In 2005 and 2006, pipe bombs were used in attempted murder cases in two Iowa cities.

Geographic Location

An act of terrorism can occur anywhere within the planning area.

Previous Occurrences

The following incidents were reported by the Winneshiek County Sheriff's Office:

- **October 30, 2012**, Turkey Valley School lockdown due to shots being fired during the pursuit of two bank robbery suspects
- **October 16, 2012**, De Sales Catholic School and South Winneshiek School lockdown as a result of shots being fired in the community of Calmar, and later in Ossian
- **October 4, 2011**, person on campus (unnamed) with a long gun – no weapon was found or used in the incident.
- **April, 2008**, Turkey Valley School received three bomb threats, extra security was provided to the school
- **April, 2008**, South Winneshiek High School received a bomb threat, extra security was provided to the school

Probability of Future Occurrences

Previous occurrences would indicate a high probability that some form of an act of terrorism occurs in any given year. The HMPC determined the probability of future occurrences of terrorism-related incidents to be "occasional."

Occasional: Event is probable within the next five years; event has up to 1 in 5 year chance of occurring (1/5=20%); history of events is greater than 10% but less than or equal to 20% likely per year

Magnitude

Innocent people are often victims of this type of activity, even when the target may be certain people, organizations or activities. Based on the method of delivery, the general public is vulnerable to terrorism. Because of the characteristics of the weapons or methods terrorists use, the area can be limited to a room, building or the entire community. In Winneshiek County, the HMPC believes the magnitude of any plausible event to be "negligible."

Negligible: Injuries and/or illnesses are treatable with first aid; minor quality of life lost; shutdown of critical facilities and services for 24 hours or less; less than 10% of property is severely damaged

Warning Time

Less than 6 hours

Duration

Less than 1 day

Spatial Extent

Negligible: Less than 10% of the jurisdiction would be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
2.00	Moderate

Thunderstorms and Lightning

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Thunderstorms and Lightning	4	1	4	1	3

Description

Atmospheric imbalance and turbulence may result in thunder, heavy rains (which may cause flooding), strong winds, microbursts, high straight-line winds (often mistaken for tornadoes), tornadoes, surface hail or lightning. Most thunderstorms produce only thunder, lightning and rain; thunderstorms can occur alone, in clusters or in lines. The National Weather Service considers a thunderstorm severe if it produces hail at least one inch in diameter, wind 58 mph or higher, or tornadoes.

Lightning is an electrical discharge between positive and negative regions of a thunderstorm. It is sudden, extremely destructive and potentially deadly. The National Weather Service reports that lightning caused 28 fatalities and 212 injuries nationwide in 2012. The 10-year average is 35 fatalities per year.

The National Fire Protection Association reports that between 2007 and 2011, local fire departments across the nation responded to an estimated average of 22,600 fires per year that were started by lightning. These fires caused an average of nine deaths, 53 injuries, and \$451 million in direct property damage per year. (Ahrens, 2012)

Due to its nature as a powerful electrical phenomenon, lightning causes extensive damage to electronic systems that it contacts. A particular concern in Iowa is the protection of facilities and communications systems that are critical for maintaining emergency response systems, protecting public health, and maintaining the state's economy.

Average duration of each lightning stroke is 30 microseconds and duration of thunderstorm events is usually less than six hours. Thunderstorm forecasting and warning time for lightning occurrence is generally less than six hours.

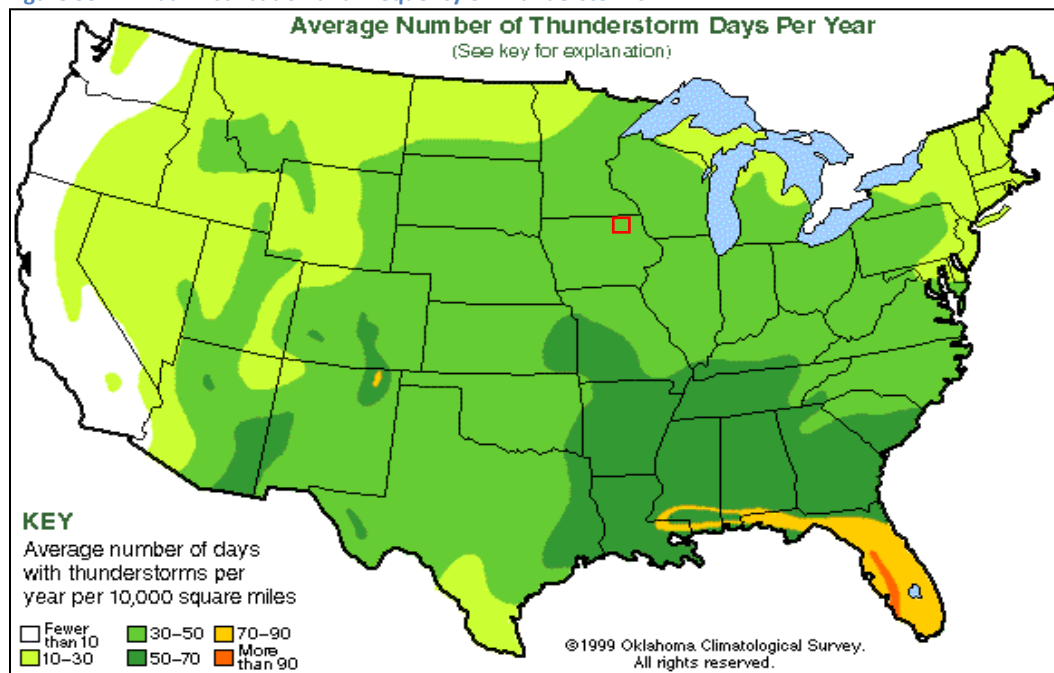
Geographic Location

Lightning affects broad regions. The county is similar to the surrounding area and the entire state of Iowa with the frequency of thunderstorms and lightning flashes. The region that includes Winneshiek County averages:

- 30-50 days with thunderstorms per year per 10,000 square miles and
- 9 - 12 lightning strikes per square mile per year

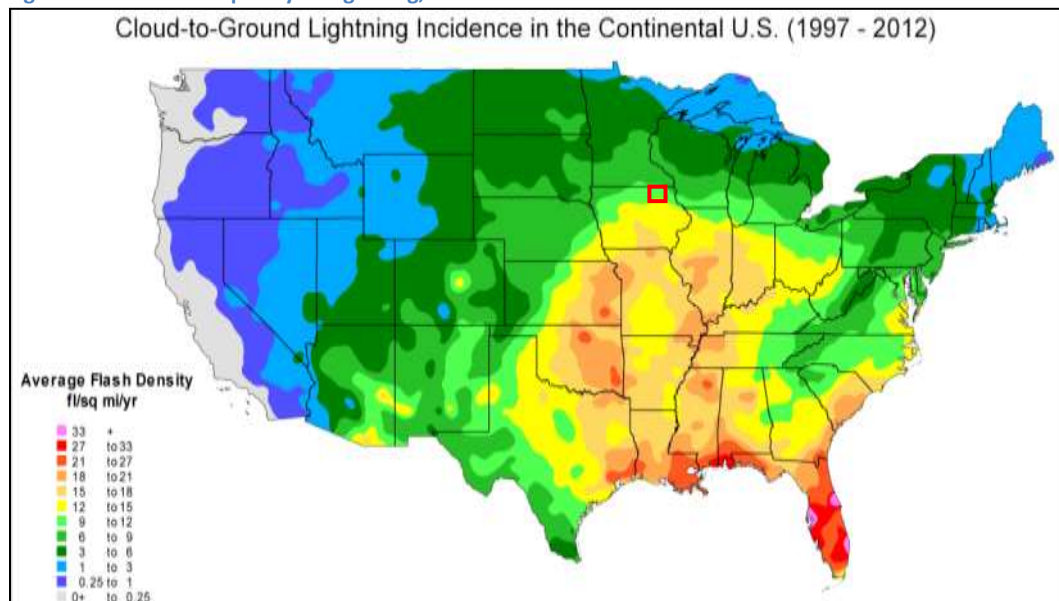
Figure 55 reflects United States annual distribution and frequency of thunderstorm events and Figure 56 reflects the United States annual frequency of lightning from 1997-2012.

Figure 55: Annual Distribution and Frequency of Thunderstorms



Source: (Oklahoma Climatological Survey, 1999)

Figure 56: Annual Frequency of Lightning, 1997-2012



Source: (National Weather Service, 2013)

Previous Occurrences

Thunderstorms are common in Iowa, with 45 to 65 experienced annually in the state. Of these, about 85% occur between April and September with the peak month being June. Because thunderstorms may occur singularly, in clusters, or in lines, it is possible that several thunderstorms may affect the area in the course of a few hours. One system may spawn multiple events. There have been six presidential declarations in Winneshiek County since 1990 related to severe storms. The NCDC Storm Events

Database reports that there were 45 days with thunderstorm wind events, all but two of which resulted in property and/or crop damage and one report of damaging lightning over the 20 year span from September of 1994 to September of 2014.

Probability of Future Occurrences

Previous occurrences would indicate a probability of 100% that a severe thunderstorm might occur in any given year. With Iowa's location in the interior of the U.S., the ingredients of a severe storm are often present (moisture, warm and unstable air, and a lifting mechanism). As climate patterns change, there is a very high likelihood that a few of these summer storms will become severe and cause damage. According to National Weather Service data, the County receives 9 to 12 lightning strikes per square mile per year. The HMPC rated the probability of future occurrence of damage due to thunderstorms and lightning as "highly likely" in any given year.

Highly Likely: Event is probable within the calendar year; event has up to 1 in 1 year chance of occurring (1/1=100%); history of events is greater than 33% likely per year

Magnitude

Like tornadoes, thunderstorms and lightning can cause death, serious injury, and substantial property damage. The power of lightning's electrical charge and intense heat can electrocute people and livestock on contact, split trees, ignite fires, and cause electrical failures. Thunderstorms can also bring large hail that can damage homes and businesses, break glass, destroy vehicles, and cause bodily injury to people, pets, and livestock. Although the frequency of lightning events is high, the magnitude is negligible. Generally damages are limited to single buildings and in most cases, personal hazard insurance covers any losses.

Negligible: Injuries and/or illnesses are treatable with first aid; Minor quality of life lost; shutdown of critical facilities and services for 24 hours or less; less than 10% of property is severely damaged

Warning Time

Less than 6 hours

Duration

Less than 6 hours

Spatial Extent

Critical: 25 – 50% of the jurisdiction would be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
2.90	Moderate

Tornado

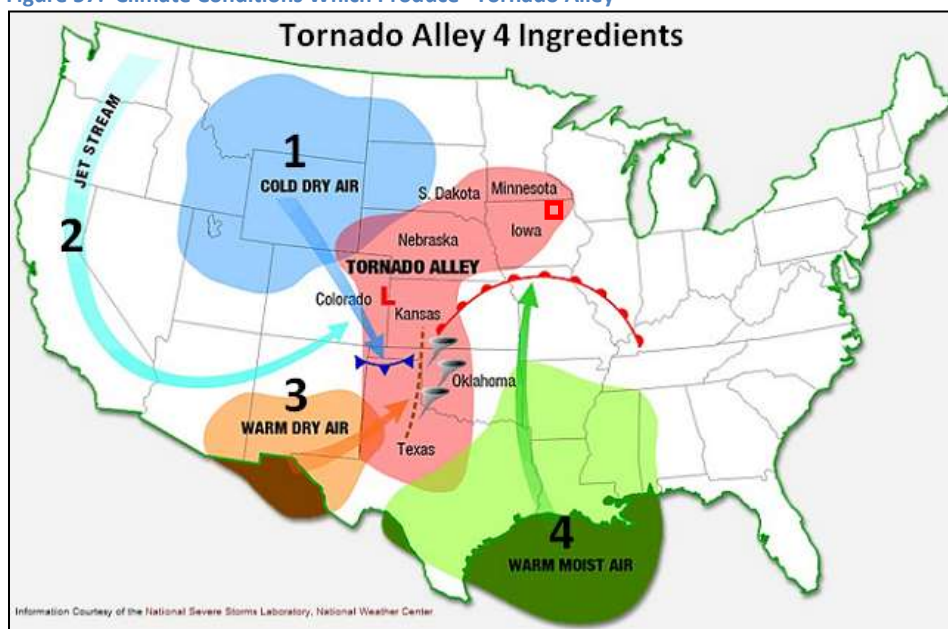
Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Tornado	3	2	4	1	1

Description

The National Weather Service defines a tornado as a “violently rotating column of air extending from a thunderstorm to the ground.” Tornadoes are the most violent of all atmospheric storms and are capable of tremendous destruction. Wind speeds can exceed 250 mph, and damage paths can be more than one mile wide and 50 miles long. Based on a 10-year average, more than 1300 tornadoes are reported in the United States, resulting in approximately 56 deaths and many injuries. High winds not associated with tornadoes are profiled separately in this document.

Although tornadoes have been documented on every continent, they most frequently occur in the United States east of the Rocky Mountains. According to National Severe Storms Laboratory, Northeast Iowa is located just on the edge of an area that is generally known as “Tornado Alley.” Climatological conditions are such that warm and cold air masses meet in the center of the country to create conditions of great instability and fast moving air at high pressure that can ultimately result in formation of tornado funnels. Figure 57 reflects the geographic location and the climatological conditions that create “Tornado Alley.”

Figure 57: Climate Conditions Which Produce “Tornado Alley”



Source: (Kirk, 2011)

In Iowa, most tornadoes occur during the months of April, May, and June. However, tornadoes can strike in any of the 12 months. Similarly, while most tornadoes occur between 4:00 and 9:00 p.m., a tornado can strike at any time.

Prior to February 1, 2007, tornado intensity was measured by the Fujita (F) scale. This scale was revised and is now referred to as the Enhanced Fujita Scale (EF). Both scales are sets of wind estimates (not measurements) based on damage. The new scale uses more damage indicators and associated degrees of damage, allowing for more detailed and accurate analysis. The tornado intensity scale update was the result of advanced research by meteorologists and wind engineers. For additional information on

the EF-scale, see <http://www.spc.noaa.gov/efscale/>. Table 42 compares the tornado intensity F-scale to the EF-scale.

Table 42: F- and EF-Scale for Tornado Damage

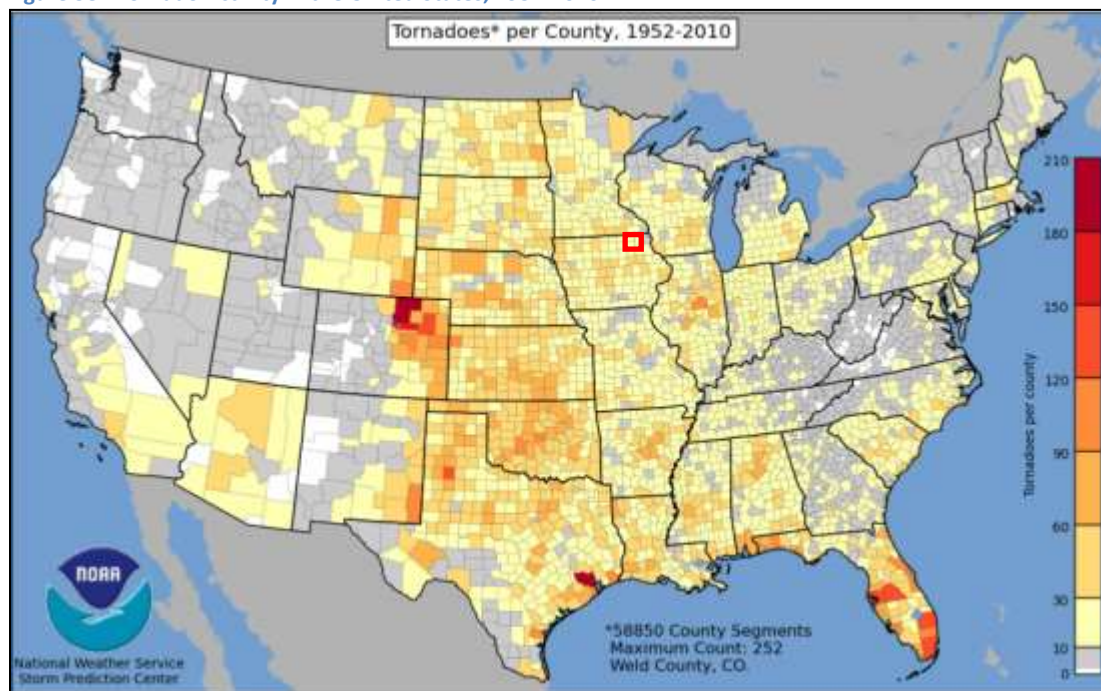
Fujita (F) Scale (Previous)		Enhanced Fujita (EF) Scale (Current)	
F Number	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	45-78	0	65-85
1	79-117	1	86-109
2	118-161	2	110-137
3	162-209	3	138-167
4	210-261	4	168-199
5	262-317	5	200-234

Source: (National Weather Service, 2013)

Geographic Location

Based on a 10-year average, Iowa experiences 57 tornadoes annually, resulting in an average of 2 deaths per year. While tornadoes can occur in all areas of the State of Iowa, historically, some areas of the state have been more susceptible to this type of damaging storm. Figure 58 illustrates the tornado activity per county in the U.S. from 1952 to 2010. Winneshiek County has had between 10 and 30 tornadoes within that time period.

Figure 58: Tornado Activity in the United States, 1952-2010



Source: (National Weather Service, 2013)

Previous Occurrences

According to the NCDC database, there have been 14 tornadoes in Winneshiek County since 1964. There were two injuries and zero deaths reported. Of these 14 tornadoes, four were rated F2 and one was rated F4. Table 43 reflects details of recorded Winneshiek County tornadoes from 1964 to 2014.

Table 43: Recorded Tornadoes in Winneshiek County, 1964-2014

Date	Time	Magnitude	Injuries	Estimated Damages (\$)
May 5, 1965	9:24 PM	F4	0	25,000
August 25, 1965	7:00 PM	F2	1	250,000
June 4, 1973	3:30 PM	F2	0	250,000
June 19, 1979	9:30 PM	F0	0	25,000
August 4, 1979	6:19 AM	F1	1	53,000
July 10, 1984	2:16 PM	F1	0	250,000
July 29, 1987	6:10 PM	F2	0	2,500,000
March 24, 1988	5:21 PM	F2	0	2,500,000
May 24, 1989	7:56 PM	F1	0	25,000
June 12, 1990	8:50 PM	F0	0	3,000
June 12, 1990	9:48 PM	F1	0	250,000
July 19, 1994	9:00 PM	F0	0	1,000
June 26, 2002	1:22 PM	F0	0	23,000
August 18, 2009	3:00 PM	F0	0	40,000
Total:				6,195,000

Source: (National Climatic Data Center, 2013)

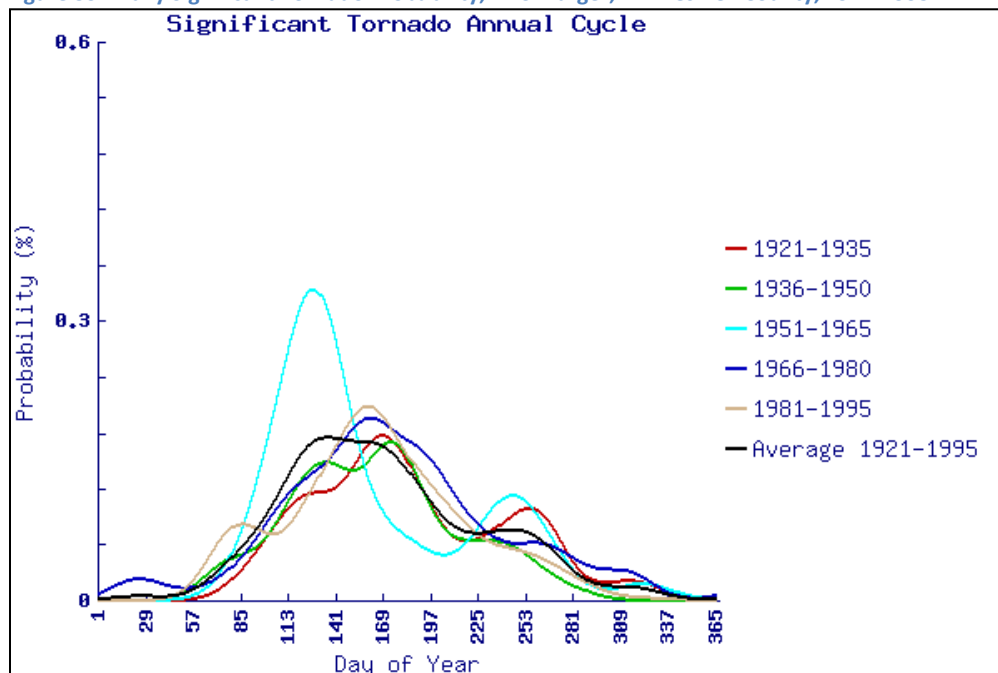
The NCDC provided the following details on the two tornadoes that occurred in the past 20 year period:

- **August 19, 2009.** Thunderstorms developed along the warm front and spawned four EF0 tornadoes as it shifted north during the afternoon hours. A tornado touched down one mile northeast of Calmar with sporadic tree and corn field damage.
- **June 26, 2002.** A tornado touched down on a farm just west of Fort Atkinson (Winneshiek County), completely destroying an old barn. Other nearby outbuildings sustained minor damage, as did a nearby farm house. There were no injuries reported.

Probability of Future Occurrence

Previous occurrences would indicate a probability of about 28% that an F1 or larger tornado would occur in any given year. The National Severe Storms Laboratory calculated probability of violent tornadoes based on time of year for the period 1921-1995. Figure 59 shows the probability of an F2 or larger tornado occurring on any given day at a location within a 25 mile radius Winneshiek County, which includes the Participating Jurisdictions. For example, a y-axis value of 2.0 would indicate a two percent chance of receiving the chosen type of severe weather on the date indicated by the x-axis. For both significant (F2 or larger) and violent (F4 or larger) tornadoes the 1951-1965 period was the peak in probability based on the data from previous occurrences, with the most recent reporting period (1981-1995) showing a probability right on track with the overall average. Significant tornadoes show a common peak in probability in late spring while violent tornadoes have an overall less probability, they do not have a distinct time of probability for them to occur from early spring through mid-autumn.

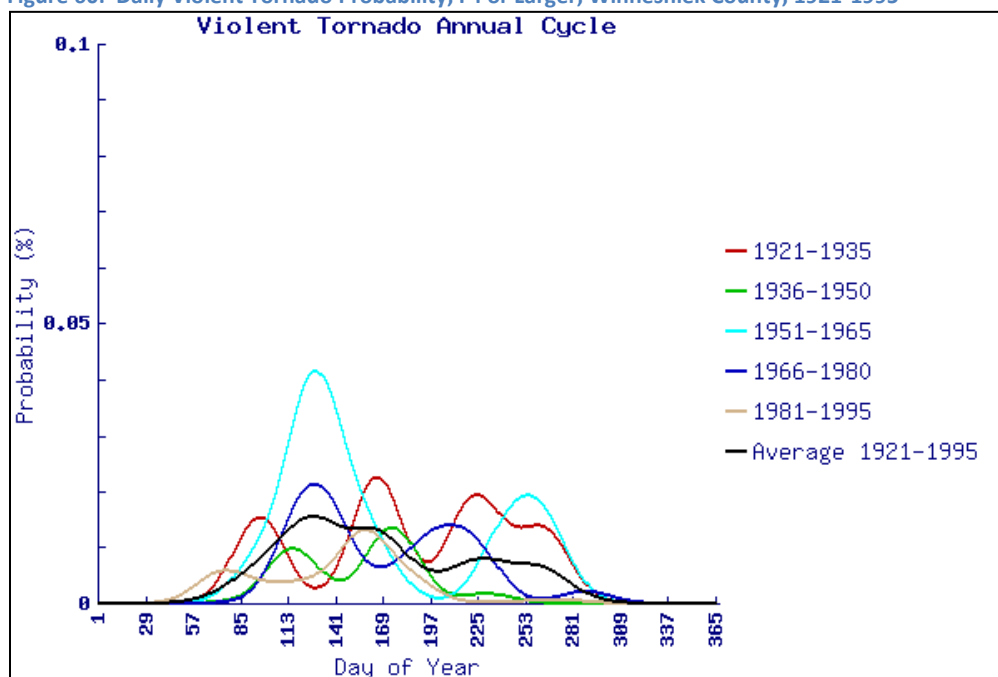
Figure 59: Daily Significant Tornado Probability, F2 or Larger, Winneshiek County, 1921-1995



Source: (National Severe Storms Laboratory, 2011)

Figure 60 reflects the daily probability for a violent tornado, rated F4 or larger, within a 25 mile radius of Winneshiek County.

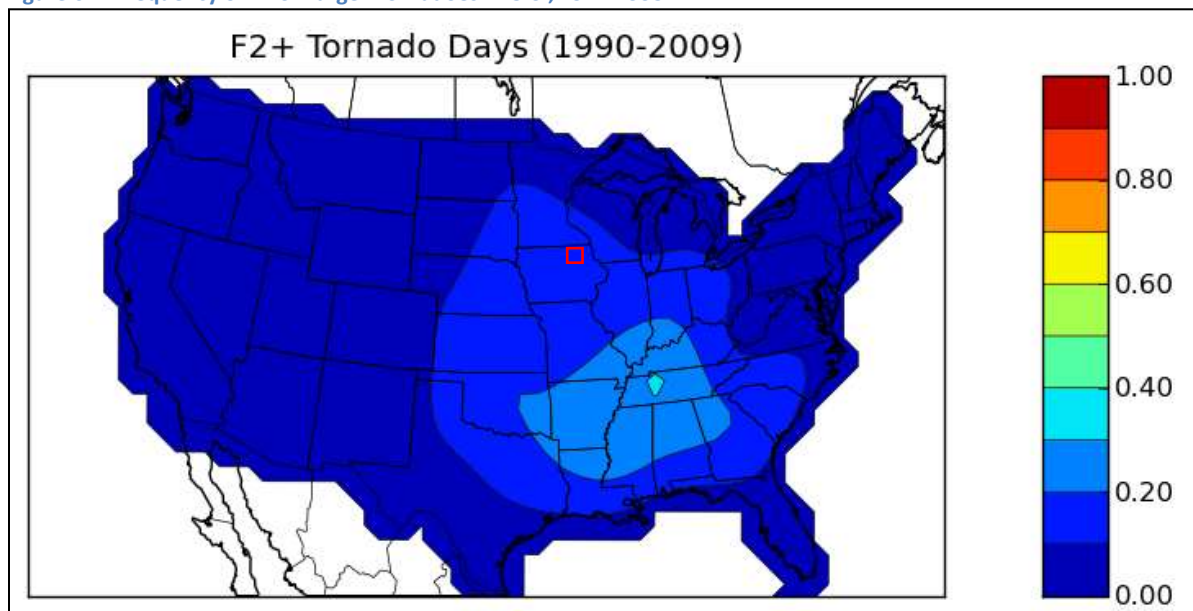
Figure 60: Daily Violent Tornado Probability, F4 or Larger, Winneshiek County, 1921-1995



Source: (National Severe Storms Laboratory, 2011)

Figure 61 reflects the United States' frequency of a tornado rated F2 or larger, based on number of days per century within a 25 miles of any point on the map, from 1990 to 2009.

Figure 61: Frequency of F2 or Larger Tornadoes in U.S., 1921-1995



Source: (Oklahoma Climatological Survey, 2010)

Likely: Event is probable within the next three years, event has up to 1 in 3 year chance of occurring (1/3=33%), history of events is greater than 20% but less than or equal to 33% likely per year

Magnitude

Impacts can range from broken tree branches, shingle damage to roofs, and some broken windows; to complete destruction and disintegration of well-constructed structures, infrastructure and trees. Generally the destructive path of a tornado is only a couple hundred feet in width, but stronger tornadoes can leave a path of devastation up to a mile wide. Injury or death related to tornadoes most often occur when buildings collapse, people are hit by flying objects, or are caught trying to escape the tornado in a vehicle.

Limited: Injuries and/or illnesses do not result in permanent disability; complete shutdown of critical facilities for more than one week; 10-25% of property is severely damaged

Warning Time

Less than 6 hours

Duration

Less than 6 hours

Spatial Extent

Negligible: Less than 10% of the jurisdiction would be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
2.6	Moderate

Transportation Incident

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Transportation Incident	3	1	4	2	1

Description

This hazard includes incidents in air, roadway and rail transportation, any transportation accident involving any mode that directly threatens life and which results in property damage, death, injury and/or adversely impacts a community's capabilities to provide emergency services.

An air transportation incident may involve a military, commercial, or private aircraft. Air transportation is playing a more prominent role in transportation as a whole; airplanes, helicopters, and other modes of air transportation are used to transport passengers for business, health and recreation as well as freight. Mechanical failure, pilot error, weather conditions are among a variety of circumstances that can result in an air transportation incident.

A roadway transportation incident can be single or multi-vehicle requiring responses exceeding normal day-to-day capabilities. There are approximately 1,175 total miles of roadway in the county; local residents, travelers, business, and industry rely on this network on a daily basis. Weather conditions play a major factor in the ability of traffic to flow safely in and through the state as does the time of day and day of week. Numerous traffic accidents occur in the county and can result in property damage and injury; major accidents involving multiple vehicles and serious injury are not uncommon.

A rail transportation incident is a train accident that directly threatens life and/or property, or adversely impacts a community's capabilities ability to provide emergency services. Railway incidents may include derailments, collisions, and highway/rail crossing accidents. Train incidents can result from a variety of causes; human error, mechanical failure, faulty signals, and/or problems with the track. Results of an incident can range from minor "track hops" to catastrophic hazardous material incidents and even human/animal casualties.

Geographic Location

Winneshiek County has one airport, but airspace usage is not limited to traffic from that facility. A transportation incident can occur anywhere within the planning area. The Canadian Pacific Railroad, owner of Dakota, Minnesota & Eastern Railroad Corp. (DME) operates the line through Winneshiek County. It runs through the communities of Jackson Junction, Fort Atkinson, Calmar, Ossian and Castalia. The main products handled by the rail include coal, farm products, food products, chemicals, waste products, primary metal products, nonmetallic metals and stone (Iowa Department of Transportation, 2012). Calmar experiences five trains a day, Jackson Junction and Fort Atkinson, four trains a day and Ossian and Castalia, three trains a day (Federal Railroad Administration, 2013).

Previous Occurrences

There have been 218 air transportation incidents in Iowa since 2000, two in Winneshiek County. An accident in 2004 caused two fatalities and the other in 2012, involving a helicopter, caused minor injuries (National Transportation Safety Board, 2013). According to the Iowa DOT, there have been over

4,320 crashes in the county since 2003, resulting in 39 fatalities and nearly 1,500 injuries. There have been four railway accidents or incidents in the county since 2003, none fatal. Three of the accidents occurred at highway crossings (Federal Railroad Administration, 2013).

Probability of Future Occurrences

Previous occurrences would indicate a probability of a 15% chance of an air transportation incident, a 100% chance of a road transportation incident and a 30% chance of a rail transportation incident occurring in any given year. The HMPC determined the probability of a transportation incident of some type occurring within the county to be highly likely.

Highly Likely: Event is probable within the calendar year, event has up to 1 in 1 year chance of occurring (1/1=100%), history of events is greater than 33% likely per year

Magnitude

The magnitude of a transportation incident is dependent upon the transportation mode. The HMPC determined that the magnitude would generally be negligible in scope.

Negligible: Injuries and/or illnesses are treatable with first aid, minor quality of life lost, shutdown of critical facilities and services for 24 hours or less, less than 10% of property is severely damaged

Warning Time

Less than 6 hours

Duration

Less than 1 day

Spatial Extent

Negligible: Less than 10% of the jurisdiction to be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
2.90	Moderate

Windstorm

Hazard Type	Probability	Magnitude	Warning Time	Duration	Spatial Extent
Windstorm	3	1	4	1	2

Description

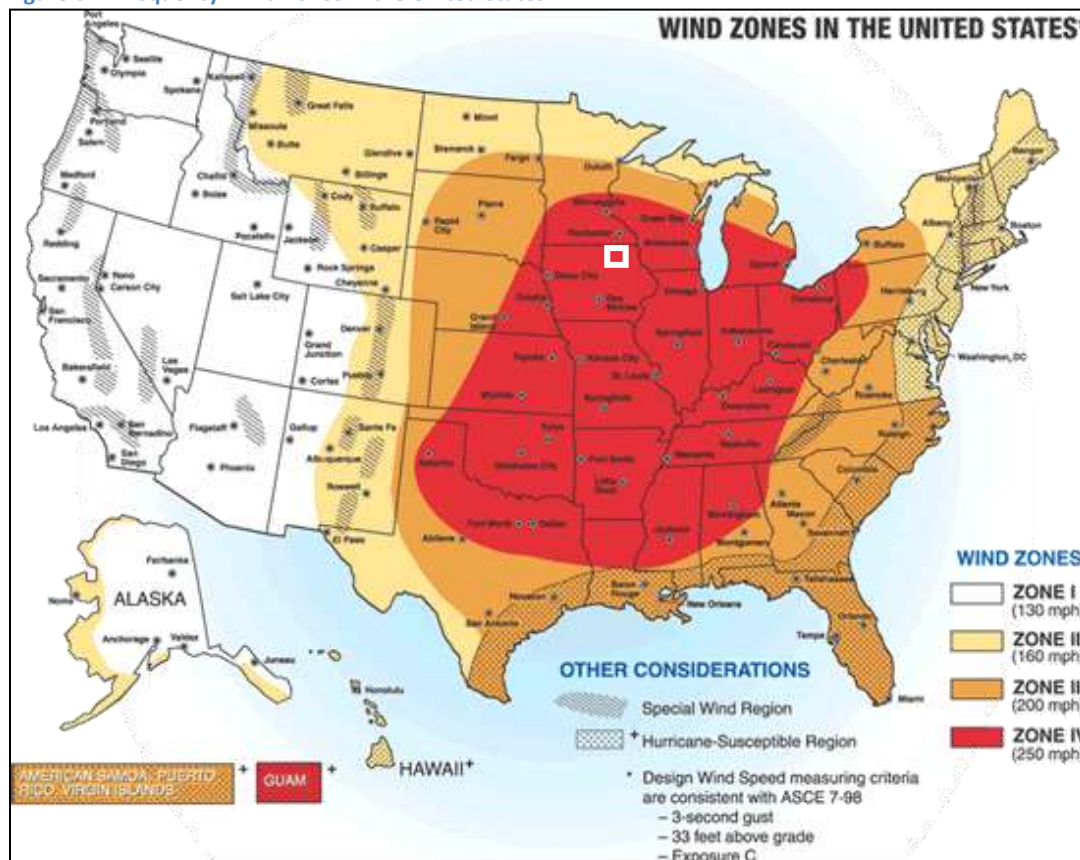
Windstorms are extreme straight-line winds associated with severe winter storms, severe thunderstorms, downbursts, and very strong pressure gradients. Straight-line winds are generally any thunderstorm wind that is not associated with rotation (i.e., not a tornado). These winds, which can exceed 100 mph, represent the most common type of severe weather and are the most common cause of thunderstorm damage. Since windstorms do not have a narrow track like a tornado, associated damage can be extensive and affect broad regions including multiple counties. Objects like trees, barns, outbuildings, high-profile vehicles, and power lines/poles can be toppled or destroyed, and roofs,

windows, and homes can be damaged as wind speeds increase. One type of straight-line wind is the downburst, which can cause damage equivalent to a strong tornado and can be extremely dangerous to aviation. Windstorms in Iowa typically happen between late April and early September, but given the right conditions, can develop as early as March. They are usually produced by super cell thunderstorms or a line of thunderstorms that typically develop on hot and humid days.

Geographic Location

The county is susceptible to high wind events. Winneshiek County is located in Wind Zone IV, which is susceptible to winds up to 250 mph. The State of Iowa is located in Wind Zone IV, the highest inland category. Figure 62 reflects the United States Wind Zones based on maximum wind speeds.

Figure 62: Frequency Wind Zones in the United States



Source: (FEMA, 2012)

Previous Occurrences

According to the NCDC database, there have been 11 high wind events in Winneshiek County from 1996-2014. During this time period there were no reported deaths or injuries as a result of windstorm events, and only four resulted in property damage.

Summaries of selected known windstorm events are listed below:

- **November 26, 2010.** A low pressure system deepened over northern Minnesota and was responsible for high winds across Northeast Iowa in the morning hours of October 26th into the daytime hours of the 27th.
- **April 18, 2004.** High winds, which were not associated with thunderstorms, gusted to 60 mph across portions of Northeast Iowa.
- **November 10, 1998.** One of the most powerful low pressure systems in 25 years caused hurricane force winds with gusts up to 90 mph. Widespread damage occurred to vehicles, signs, buildings and trees, while thousands were left without power for hours. A barn collapsed near Waukon, trapping a man inside, but only minor injuries were sustained.
- **April 25, 1996.** A very intense low pressure system moved to the north of Iowa. As it passed through Iowa, strong subsidence combined with the tight pressure gradient produced strong winds. Winds were sustained 30 to 35 mph with frequent gusts to near 60 mph. By late afternoon the winds produced widespread blowing dust. Visibility was reduced statewide to between 1 and 3 miles at times. Occasionally visibility was reported down to 100 feet in blowing dust in open areas. The reduced visibility resulted in several automobile accidents. Fortunately, the leaves were not yet on the trees or damage would have been extensive. As it was, scattered reports of trees being downed by the high winds were received. Falling trees and branches also caused scattered power outages. There was also damage to many homes as shingles were blown off. A few roofs were also partially removed by the extended period of high winds.

Table 44 reflects Winneshiek County's insurance claims paid due to excessive wind from 2007 to 2012.

Table 44: Claims Paid in Winneshiek County for Crop Loss as a Result of Wind, 2007-2012

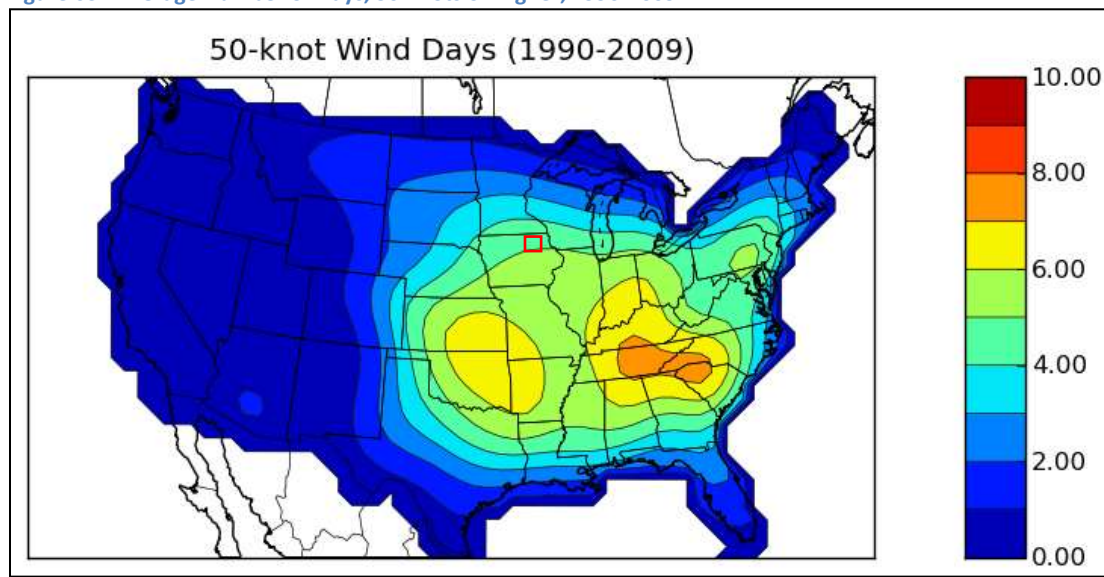
Year	Crop	Hazard	Claims Paid (\$)
2007	Corn	Wind/Excess Wind	17,292
2007	Corn	Wind/Excess Wind	18,422
2007	Corn	Wind/Excess Wind	7,161
2009	All Other Crops	Wind/Excess Wind	31,221
2011	All Other Crops	Wind/Excess Wind	172,894
2012	All Other Crops	Wind/Excess Wind	19,267
Total			266,257

Source: (USDA Risk Management Agency, 2012)

Probability of Future Occurrences

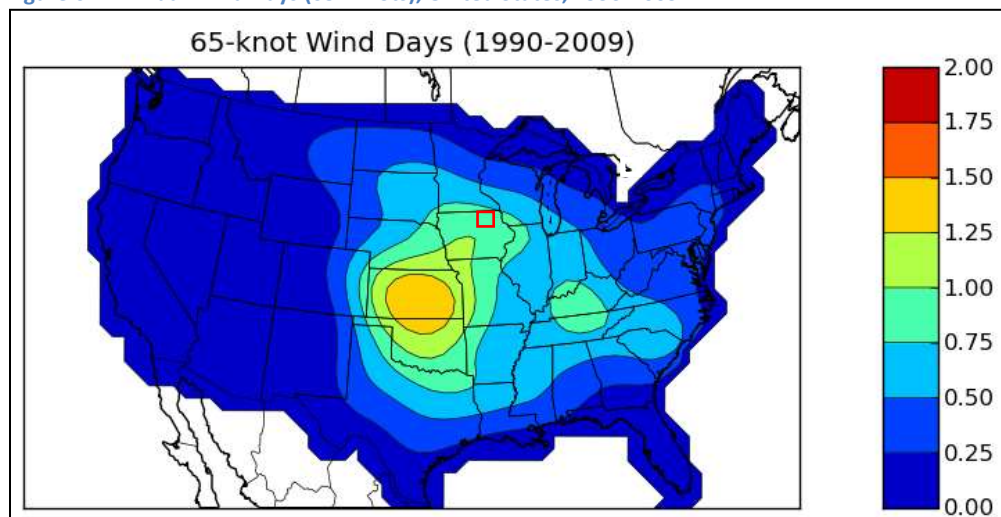
Previous occurrences would indicate a probability of a 55% chance of a windstorm occurring in any given year and a 20% of a damaging windstorm occurring. Figure 63 is a map of the average number of 50-knot wind days per year within 25 miles of any point from 1990-2009. Figure 64 reflects the average number of wind days of 65 knots or greater occurring per year within 25 miles of any point from 1990 to 2009.

Figure 63: Average Number of Days, 50 Knots or Higher, 1990-2009



Source: (Oklahoma Climatological Survey, 2010)

Figure 64: Annual Wind Days (65+ knots), United States, 1990-2009



Source: (Oklahoma Climatological Survey, 2010)

Based on the frequency of previous occurrences, the HMPC determined the probability of future damaging windstorm occurrences to be “likely.”

Likely: Event is probable within the next three years; event has up to 1 in 3 year chance of occurring (1/3=33%); history of events is greater than 20% but less than or equal to 33% likely per year

Magnitude

Injury or death related to windstorms is possible; and most often occur from building failure or people struck by airborne debris. Windstorms can effects electrical power with system components above ground.

Negligible: Injuries and/or illnesses are treatable with first aid; minor quality of life lost; shutdown of critical facilities and services for 24 hours or less; less than 10% of property is severely damaged

Warning Time

Less than 6 hours

Duration

Less than 6 hours

Spatial Extent

Limited: 10 – 25% of the jurisdiction to be impacted

Hazard Summary

Calculated Priority Risk Index (CPRI)	Planning Significance
2.40	Moderate

Vulnerability Assessment

Methodology

Requirement §201.6(c)(2)(ii):

[The risk assessment shall include a] description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction; and address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods.

The vulnerability assessment further defines the County's risk to high and moderate significance⁵ hazards as addressed in the Hazard Profiles.

The vulnerability assessment was conducted based on the best available data and the significance of the hazard. Data to support the vulnerability assessment was collected from the following sources:

- County Auditor
- County Assessor
- County GIS data (base layers and assessor's data)
- Written descriptions of assets and risks provided by the Participating Jurisdictions
- Existing plans and reports
- Personal interviews with HMPC members and other stakeholders

The Vulnerability Assessment is presented in three parts:

- Community Assets – Describes the assets at risk in the Participating Jurisdictions
- Vulnerability by Hazard – Describes the vulnerability to each hazard identified and profiled previously in this plan. The vulnerability analysis includes a vulnerability overview for each hazard of high and moderate significance, and where available, the vulnerability analysis includes evaluation of vulnerable buildings, infrastructure and critical facilities in hazard-prone areas.
- Summary of Key Issues – Summarizes the key issues and conclusions identified in the risk assessment process.

Community Assets

This section describes overall hazard vulnerability and buildings, infrastructure, and critical facilities located in identified hazard areas. A critical facility is defined as one that provides essential public safety or mitigation functions during response or recovery operations. Table 45 provides the building count and value of structures in the Participating Jurisdictions.

⁵ High planning significance indicates a CPRI score of 3.00 – 4.00. Moderate planning significance indicates a CPRI score of 2.00 – 2.99. CPRI scores were used to help determine priority levels for hazards that have a higher occurrence probability and have a higher potential for adverse impact.

Table 45: Jurisdictional Total Structure Counts and Valuations, FY 2013/2014

Structure Type	Structure Count	Building Valuations	Structure Type	Structure Count	Building Valuations
City of Calmar – Population 978			City of Ossian – Population 845		
Residential	516	36,128,470	Residential	404	29,720,640
Commercial	135	4,707,650	Commercial	119	3,597,740
Industrial	19	787,150	Industrial	8	100,210
Agricultural	10	17,340	Agricultural	31	442,790
Religious/Nonprofit	4	225,280	Religious/Nonprofit	5	NA
Government	6	163,200	Government	3	44,930
City of Castalia – Population 173			City of Ridgeway – Population 315		
Residential	114	4,132,230	Residential	48	3,219,330
Commercial	9	154,040	Commercial	42	3,975,870
Industrial	0	0	Industrial	3	163,470
Agricultural	2	113,290	Agricultural	25	359,810
Religious/Nonprofit	2	97,720	Religious/Nonprofit	1	502,480
Government	10	302,040	Government	8	2,015,570
City of Decorah – Population 8,127			City of Spillville – Population 367		
Residential	2617	283,884,430	Residential	231	8,664,310
Commercial	484	37,232,520	Commercial	49	1,358,840
Industrial	16	5,647,400	Industrial	0	0
Agricultural	44	633,220	Agricultural	1	39,170
Religious/Nonprofit	17	433,680	Religious/Nonprofit	1	NA
Government	13	2,079,530	Government	6	195,680
City of Fort Atkinson – Population 349			Unincorporated Areas – 9,844		
Residential	163	11,432,930	Residential	4,362	258,023,800
Commercial	77	1,746,280	Commercial	905	66,816,900
Industrial	0	0	Industrial	61	13,525,610
Agricultural	8	85,680	Agricultural	19,204	264,709,540
Religious/Nonprofit	2	NA	Religious/Nonprofit	NA	NA
Government	5	24,470	Government	NA	NA
City of Jackson Junction – Population 58			Totals – Population 21,056		
Residential	19	1,010,510	Residential	8,474	636,216,650
Commercial	10	333,430	Commercial	1,830	119,923,270
Industrial	16	966,260	Industrial	123	21,190,100
Agricultural	163	3,711,490	Agricultural	19,448	270,112,330
Religious/Nonprofit	0	0	Religious/Nonprofit	NA	NA
Government	0	0	Government	NA	NA

Source: (Winnebago County, GIS Coordinator, 2013)

The counts and values for religious/non-profit and government structures are identified, as available, for jurisdictions with a Special Flood Hazard Area. Some data discrepancies between assessor structure counts, the GIS counts and Census data are likely due to the way the county classifies properties. For example, in Ridgeway there may be some parcels classified as agricultural which include dwellings, so were not counted as residential structures. Also, some apartments are classed as commercial rather than residential. The County's GIS data is not parsed to that level creating difficulties in determining individual structure classifications (Winnebago County, GIS Coordinator, 2013). These data limitations

prevent closer analysis at this time. Table 46 provides the participating jurisdictions' railroad and utility infrastructure valuations.

Table 46: Railroad and Utility Valuations, FY 2014/2015

Jurisdiction:	Railroad Valuations	Utilities without Gas & Electric	Gas & Electric Utility Valuation
City of Calmar	101,796	244,356	1,934,176
City of Castalia	120,418	13,617	142,428
City of Decorah	0	1,474,630	13,540,185
City of Fort Atkinson	80,692	27,049	357,851
City of Jackson Junction	369,943	87,917	386,095
City of Ossian	140,280	60,160	797,664
City of Ridgeway	0	118,947	314,387
City of Spillville	0	64,151	455,163
Unincorporated Areas	2,886,298	18,478,531	26,621,281

Source: (Iowa Department of Management, 2014)

As previously noted, a critical facility is defined, for the purposes of this plan, as a facility that provides essential public safety or mitigation functions during response or recovery operations. Table 47 offers examples of critical facilities separated by categories of essential, high loss potential and infrastructure.

Table 47: Critical Facility Examples by Type

Essential Facilities	High Potential Loss Facilities	Transportation and Lifelines
Police Stations	Dams and levees	Highways, bridges and tunnels
Fire Stations	Military installations	Railroads and facilities
Emergency Operations Centers	Hazardous material sites	Airports
Hospitals and other medical facilities	Elder Care Facilities/Long Term Care Facilities	Natural gas pipelines and distribution stations
	Schools	Water and wastewater treatment facilities
	Storm Shelters	Petroleum pipelines and distribution stations
	Child care centers	Communications facilities
	Main government buildings	Power plants, transmission lines and distribution stations

Critical facilities by participating geographic jurisdiction are inventoried in Table 48. Table 49 provides information on school district buildings throughout the county and highlights the location of each building and other information pertinent to assessing vulnerability.

Table 48: Critical Facilities by Jurisdiction

Facility	Calmar	Castalia	Decorah	Fort Atkinson	Jackson Junction	Ossian	Ridge-way	Spill-ville	Uninc. Areas
Police Stations	1	0	1	0	0	0	0	0	0
Fire Stations	1	1	1	1	0	1	1	0	1
Emergency Operations Centers	0	0	1	0	0	0	0	0	0
Hospitals and other medical facilities	1	0	5	0	0	1	0	0	0
Dams and levees	0	0	2	1	0	0	0	1	17
Military installations	0	0	1	0	0	0	0	0	0
Tier II Chemical Storage - Hazardous material sites	1	0	5	1	1	4	1	1	22
Elder Care Facilities/Long Term Care Facilities	0	0	7	0	0	1	0	0	0
Schools	4	0	8	0	1	2	0	1	1
Storm Shelters	0	0	1	0	0	0	0	0	0
Child care centers	1	0	5	0	0	2	0	0	0
Main government buildings	1	1	2	1	1	1	1	1	0
Railroad/loading facilities	1/0	1/0	0/0	1/1	1/1	1/1	0/0	0/0	1/0
Airports/Heliports	0/0	0/0	1/1 ⁶	1 ⁷ /0	0/0	0/0	0/0	0/0	0/0
Natural gas pipelines and distribution stations	1/1	0	1	0	0	1	1	0	1
Water Systems/wastewater treatment facilities	1/1	1/1	1/1	1/1	0/0	1/1	1/1	1/1	2 ⁸ /2 ⁹
Petroleum pipelines and distribution stations	0	0	1	0	0	0	0	0	1
Communications facilities ¹⁰	2	0	17	1	0	1	2	0	11
Power plants and distribution stations	1	0	1	0	0	1	0	0	0

⁶ Winneshiek Medical Center operates a heliport in Decorah

⁷ Privately owned airport

⁸ Frankville and Freeport

⁹ Burr Oak and Festina

¹⁰ Includes radio stations, newspapers and cell phone towers

Table 49: School Enrollment by Building and Community, 2012-2013

Location	School District/ Building	Enroll- ment	Staff on Site	In Flood Plain?	Mitigation Measures in Place
Calmar	CFS Catholic School/ Calmar Center	74	12	N	Weather radio, emergency warning systems/sirens, fire suppression system (in kitchen), emergency binders and response kits in each classroom, regular evacuation and tornado drills, staff training on school safety
Calmar	South Winneshiek CSD/ High School	239	111	N	Weather radios, fire suppression system in kitchen, regular lock-down, evacuation and tornado drills, emergency information binders and response kits in each classroom, staff safety trainings
Decorah	St. Benedict School	173	25	N	FEMA Compliant storm shelter, weather radio, emergency warning systems, fire suppression system in kitchen, regular lock-down, evacuation and tornado drills, emergency information binders and response kits in each classroom, regular staff safety training
Decorah	Decorah CSD/ High School	617	65	Y	Protected by levee, FEMA compliant storm shelter (structurally), weather radio, emergency buckets in each room, fire suppression and warning systems, multiple safety trainings and full evacuation drills
Decorah	Decorah CSD/ Middle School	449	71	N	Planning & Drills, Building Fire suppression system, regular lockdown, evacuation and tornado drills, emergency information binders and emergency response kits in each classroom, staff training on school safety
Decorah	Decorah CSD/ Carrie Lee Elementary	232	27	N	Planning & Drills, Building Fire suppression system, regular lockdown, evacuation and tornado drills, emergency information binders and response kits in each classroom, staff training on school safety
Decorah	Decorah CSD/ John Cline Elementary	324	42	Y	Protected by levee. Planning & Drills, regular lockdown, evacuation and tornado drills, emergency information binders and response kits in each classroom, staff training on school safety
Decorah	Decorah CSD/ West Side Elementary	70	13	N	Planning & Drills, regular lockdown, evacuation and tornado drills, emergency information binders and response kits in each classroom, staff training on school safety

Location	School District/ Building	Enroll- ment	Staff on Site	In Flood Plain?	Mitigation Measures in Place
Jackson Junction	Turkey Valley CSD/ Jr/Sr. High School	225	75	N	Emergency warning systems for fire/tornado, fire extinguishers throughout the building, regular lock-down, evacuation and tornado drills, staff has completed ALICE training, emergency information binders in all rooms, offices and the bus barn, emergency kits in all classrooms
Jackson Junction	Turkey Valley CSD/ Elementary School	186			
Ossian	De Sales Grade School	120	17	N	Storm Shelter, fire alarm/on-call system, fire suppression kits (in kitchen), regular tornado, fire, lock-down, evacuation drills, ALICE training for school staff
Ossian	South Winneshiek CSD/ Middle School	93	50	N	Tornado and fire drills, emergency contact info in classrooms and office, emergency response kits in classrooms, ALICE staff training on lockdowns / intruders, locked outside doors / security cameras and security system to enter building
Ossian	South Winneshiek CSD/ Elementary School	233			
Rural	North Winneshiek CSD/ Middle School	45	42	N	Fire alarms, extinguishers, suppression kits (in kitchen and science room); emergency plans (all rooms); weather radio; regular lockdown, evacuation, tornado and fire drills
Rural	North Winneshiek CSD/ Elementary School	117			
Spillville	CFS Catholic School/ Spillville Center	56	12	N	Weather radio, emergency warning systems/sirens, fire suppression system (in kitchen), emergency binders and response kits in each classroom, regular evacuation and tornado drills, staff training on school safety
	TOTAL:	3,253	562		
Calmar	Northeast Iowa Community College	2,245	200	N	Emergency binders, kits, shelter kits, weather radios, radio communication system, internal communication system, regular fire and weather drills and are an ALICE school
Decorah	Luther College	2,466	NA	N	Not Available
	TOTAL ALL STUDENTS:	7,964	762		

Source: (Iowa Department of Education, 2013); (Luther College, 2013); (Northeast Iowa Community College, 2013)

Vulnerability by Hazard

This vulnerability assessment is limited to the hazards that received high or moderate planning significance scores with HMPC and jurisdictional input. Planning significance scores are based on the results of the CPRI Index (Table 28). Detailed vulnerability assessments are not provided for hazards

with low planning significance scores. Hazard vulnerabilities are presented in alphabetical order by hazard.

In 2010, the updated State of Iowa Hazard Mitigation plan utilized a series of equations to develop a consistent loss estimation model. Whenever available data allowed, the resulting loss estimates were developed and broken into categories or types of damage. At the state level, the specific loss numbers as reported by the NCDC have been separated and/or averaged by each county when specific events were reported across county jurisdictions. These equations and subsequent county loss estimates are included as available for the hazards assessed in this section.

Animal/Plant/Crop Disease Vulnerability

Planning Significance: Moderate. As climate change occurs, animal, plant and crop diseases are likely to increase as changes such as earlier springs and warmer winters create conditions that increase the survival rate of pathogens and parasites (Cho, Jinxiu, McCarl, & Yu, 2011). The HMPC includes invasive species, pests and noxious weeds within this hazard element. Crop/plant pest infestations can cause widespread crop/plant loss and severe economic hardship for farmers and related businesses. Once an infestation occurs, the pest may become pervasive leading to repeated losses in subsequent years. A loss of production has a trickle-down effect on related industries and nearby communities. Disease can occur anywhere in the planning area, but would most likely have an economic impact, with no lasting damage to infrastructure or buildings.

While disease is not the only factor in crop losses, this section will note the potential annual crop loss in the county. The State of Iowa's loss estimation equation for crop loss in general considers the following factors:

- 61 Year Crop Loss Record for County (TR)
- Statewide Annual Crop Loss Damage History (DH)

Resulting in the following equation:

$$\text{Annual Crop Loss Damage History (DH) / Number of Years of Recorded Loss (61 Years)} \\ = \text{Annual Countywide Crop Loss Estimate (CLE)}$$

In Winneshiek County, the annual countywide crop loss estimate is \$585,250 (Homeland Security and Emergency Management Division, 2010).

Drought Vulnerability

Planning Significance: Moderate. Drought can impact the planning area in localized sections or be widespread. The duration of a drought can last from weeks to years. A prolonged drought can have serious economic impact on a community. Drought triggers an increased demand for water and electricity which can result in shortages. In extreme cases, food shortages can occur if agricultural production suffers a loss of crops or livestock. Droughts are generally associated with extreme heat, but can occur during cooler months. The economic impact of a drought would depend on the severity and length of the occurrence. Droughts that carry over from year to year can impact the health of the subsoil. A severe drought would have the greatest impact, but any reduction in agricultural income

would affect revenues in the agricultural, retail and service sectors. Droughts rarely result in the loss of life, although high heats that contribute to droughts may also contribute to heat related illnesses and even death. Property damage is not a direct impact of droughts, but drought conditions may increase the likelihood of fires. The state's loss estimation equation for drought considers the following factors:

- 15 Year Drought Record for County (TR)
- Statewide Annual Drought Damage History (DH)

Resulting in the following equation:

$$\text{Annual Drought Damage History (DH) / Number of Years of Recorded Loss (15 Years)} \\ = \text{Annual Countywide Drought Loss Estimate (DLE)}$$

In Winneshiek County, the annual countywide loss estimate from drought is \$432,900 (Homeland Security and Emergency Management Division, 2010).

Extreme Heat Vulnerability

Planning Significance: Moderate. Public health and economic impacts in the agricultural community are the primary concerns with extreme heat. Segments of the public most at risk from extreme heat are the elderly, the very young and individuals living below the poverty line. Table 50 records the estimated number of affected people in Winneshiek County vulnerable to an extreme heat event.

Table 50: Vulnerable Population Data for Winneshiek County

	Number	Percent
Population 65 years and over	3,538	16.8%
Population 5 years and younger	1,072	5.1%
Population whose income is below the poverty level	1,586	8.5%
Population 65 years and over below poverty level	307	9.3%
Residents with a disability	2,370 ¹¹	11.4% ¹²

Source: (U.S. Census Bureau, ACS 2008-2012); (State Data Center of Iowa, 2013)

Extreme heat can result in an economic impact to the agricultural sector as a result of livestock and crop loss. Livestock is particularly vulnerable to the effects of the extreme heat and the county has an approximate inventory of 102,160 head of cattle and 70,540 hogs. Livestock production generates the largest portion of farm sales in the county (Otto & Parkinson, 2009). Roads, bridges and railroad tracks can also be damaged by extreme heat.

The State's Extreme Heat loss estimation equation considers the following factors:

- 16 Year Extreme Heat Record for County (WR)
- Statewide Annual Extreme Heat Damage History (DH)

Resulting in the following equation:

¹¹ Calculated with the assumption that the percentage of the non-institutionalized population in Iowa with some kind of a disability is a valid estimate for calculating the number of residents with a disability for the County

¹² The percent of Iowa's civilian, non-institutionalized population with some kind of disability

$$\text{Annual Extreme Heat Damage History (DH) / Number of Years of Recorded Loss (16 Years)} \\ = \text{Annual Countywide Extreme Heat Loss Estimate (EHLE)}$$

In Winneshiek County, the annual countywide extreme heat loss estimate is \$3,000 (Homeland Security and Emergency Management Division, 2010).

Flash Flood Vulnerability

*Planning Significance: High (**all city jurisdictions also rated flash flood as moderate to high).* Flash flooding has the potential to impact much of the planning area for a variety of reasons. The impact of flash flooding can range from loss of life to closed roads or bridges. HMPC members recalled the June, 2013 rescue of an individual from a vehicle caught in flash flooding just before the vehicle was swept away. In addition, quick work on the part of emergency responders prevented trail derailments in Fort Atkinson in 2008 and 2013, as a bridge (2008) and a culvert (2013) were damaged due to flash flooding. Beyond the immediate effects of flash flooding, the resulting damage can lead to limited access to homes and businesses, including critical services, as well as the unexpected costs incurred by the county and communities. When incidents do occur, structures, infrastructure and roadways located in low-lying areas are most at risk. Table 51 reflects the building exposure for flooding events based on an estimate of the Special Flood Hazard Areas of each jurisdiction. There are 289 bridges/culverts in the flood plain – 80% of all the bridge/culvert structures within the county that are currently in the National Bridge Inventory (NBI).

The State's Flood loss estimation equation considers the following factors:

- Mapped Floodplain Areas (FP)
- Repetitive Loss Structures (RL)
- 16 Year Statewide Annual Flood Damage History (DH)

Resulting in the following equation:

$$\text{Annual Flood Damage History (DH) / Number of Years of Recorded Loss (16 Years)} \\ = \text{Annual Countywide Flood Loss Estimate (FLE)}$$

In Winneshiek County, the annual countywide loss estimate due to flood events in total is \$9,535,765 (Homeland Security and Emergency Management Division, 2010). It is not known how that total is distributed by flash or river flooding.

Table 51: Flood Vulnerability by Jurisdiction, FY 2013/2014

City of Calmar						
Structure Type:	Number of Structures			Value of Structures		
	In Community	In Hazard Area	% In Hazard Area	\$ Value in Community	\$ Value in Hazard Area	% In Hazard Area
Residential	516	0	0	36,128,470	0	0
Commercial	135	0	0	4,707,650	0	0
Industrial	19	0	0	787,150	0	0
Agricultural	10	0	0	17,340	0	0
Religious/ Non-Profit	4	0	0	225,280	0	0
Government	6	0	0	163,200	0	0
TOTAL	690	0	0	42,029,090	0	0
City of Castalia						
Structure Type:	Number of Structures			Value of Structures		
	In Community	In Hazard Area	% In Hazard Area	\$ Value in Community	\$ Value in Hazard Area	% In Hazard Area
Residential	114	0	0	4,132,230	0	0
Commercial	9	0	0	154,040	0	0
Industrial	0	0	0	0	0	0
Agricultural	2	0	0	113,290	0	0
Religious/ Non-Profit	2	0	0	97,720	0	0
Government	10	0	0	302,040	0	0
TOTAL	137	0	0	4,799,320	0	0
City of Decorah						
Structure Type:	Number of Structures			Value of Structures		
	In Community	In Hazard Area	% In Hazard Area	\$ Value in Community	\$ Value in Hazard Area	% In Hazard Area
Residential	2617	5	.2%	283,884,430	489,350	.2%
Commercial	484	39	8.1%	37,232,520	3,824,520	10.3%
Industrial	16	0	0	5,647,400	0	0
Agricultural	44	0	0	633,220	0	0
Religious/ Non-Profit	17	0	0	433,680	0	0
Government	13	0	0	2,079,530	0	0
TOTAL	3191	44	1.4%	329,910,780	4,313,870	1.3%
City of Fort Atkinson						
Structure Type:	Number of Structures			Value of Structures		
	In Community	In Hazard Area	% In Hazard Area	\$ Value in Community	\$ Value in Hazard Area	% In Hazard Area
Residential	163	23	14.1%	11,432,930	938,550	8.2%
Commercial	77	9	11.7%	1,746,280	102,960	5.9%
Industrial	0	0	0	0	0	0
Agricultural	8	0	0	85,680	0	0
Religious/ Non-Profit	2	0	0	NA	0	0
Government	5	0	0	24,470	0	0
TOTAL	255	32	12.5%	13,289,360	1,041,510	7.8%

City of Jackson Junction						
Structure Type:	Number of Structures			Value of Structures		
	In Community	In Hazard Area	% In Hazard Area	\$ Value in Community	\$ Value in Hazard Area	% In Hazard Area
Residential	19	0	0	1,010,510	0	0
Commercial	10	0	0	333,430	0	0
Industrial	16	0	0	966,260	0	0
Agricultural	163	0	0	3,711,490	0	0
Religious/ Non-Profit	0	0	0	0	0	0
Government	0	0	0	0	0	0
TOTAL	208	0	0	6,021,690	0	0
City of Ossian						
Structure Type:	Number of Structures			Value of Structures		
	In Community	In Hazard Area	% In Hazard Area	\$ Value in Community	\$ Value in Hazard Area	% In Hazard Area
Residential	404	0	0	29,720,640	0	0
Commercial	119	0	0	3,597,740	0	0
Industrial	8	0	0	100,210	0	0
Agricultural	31	0	0	442,790	0	0
Religious/ Non-Profit	5	0	0	NA	0	0
Government	3	0	0	44,930	0	0
TOTAL	571	0	0	33,906,310	0	0
City of Ridgeway						
Structure Type:	Number of Structures			Value of Structures		
	In Community	In Hazard Area	% In Hazard Area	\$ Value in Community	\$ Value in Hazard Area	% In Hazard Area
Residential	48	0	0	3,219,330	0	0
Commercial	42	0	0	3,975,870	0	0
Industrial	3	0	0	163,470	0	0
Agricultural	25	0	0	359,810	0	0
Religious/ Non-Profit	1	0	0	502,480	0	0
Government	8	0	0	2,015,570	0	0
TOTAL	127	0	0	10,236,530	0	0
City of Spillville						
Structure Type:	Number of Structures			Value of Structures		
	In Community	In Hazard Area	% In Hazard Area	\$ Value in Community	\$ Value in Hazard Area	% In Hazard Area
Residential	231	22	9.5%	8,664,310	470,250	5.4%
Commercial	49	0	0	1,358,840	0	0
Industrial	0	0	0	0	0	0
Agricultural	1	1	100%	39,170	39,170	100%
Religious/ Non-Profit	1	0	0	NA	0	0
Government	6	0	0	195,680	0	0
TOTAL	288	23	8.0%	10,258,000	509,420	5.0%

Unincorporated Areas						
Structure Type:	Number of Structures			Value of Structures		
	In Community	In Hazard Area	% In Hazard Area	\$ Value in Community	\$ Value in Hazard Area	% In Hazard Area
Residential	4,362	142	3.3%	258,023,800	5,731,980	2.2%
Commercial	905	27	3.0%	66,816,900	978,020	1.5%
Industrial	61	1	1.6%	13,525,610	2,960,800	2.2%
Agricultural	19,204	282	1.5%	264,709,540	2,396,310	0.9%
Religious/ Non-Profit	NA	NA	NA	NA	NA	NA
Government	NA	NA	NA	NA	NA	NA
TOTAL	24,532	452	1.8%	603,075,850	12,067,110	2.0%

Source: (Winneshiek County, GIS Coordinator, 2013)¹³

Hailstorm Vulnerability

*Planning Significance: Moderate (**all city jurisdictions also rated hailstorm as moderate to high).* In general, assets in the planning area that are vulnerable to hail damage include crops and built structures. If hail size is large enough in diameter and crops are at a vulnerable stage in the plant/harvest cycle, it is possible for a great percentage of crop yields to be lost as result of even a single hail event. Structural damage to roofs, siding and windows occurs frequently with hail and is usually covered under private insurance. Specific structural damages in the planning area as a result of hail damage are not available. According to HMPC members however, in 2011, hailstorms in Fort Atkinson and Calmar severely damaged about half the roofs in each community. In 2012, a hail event in Ridgeway caused damaged to nearly all of the roofs in the community. Personal injury, although rare, can also occur as a result of very large hail if individuals are outdoors during a hail event.

The State of Iowa's loss estimation calculation for potential hail damage considers the following factors

- 16 Year Hailstorm Record for County (WR)
- Statewide Annual Hailstorm Damage History (DH)

Resulting in the following equation:

$$\text{Annual Hailstorm Damage History (DH) / Number of Years of Recorded Loss (61 Years)} \\ = \text{Annual Countywide Hailstorm Loss Estimate (HLE)}$$

Using this calculation, the state estimates the annual countywide loss due to hail events at \$839,875 (Homeland Security and Emergency Management Division, 2010).

Hazardous Materials Vulnerability

Planning Significance: Moderate. The fixed hazmat cites are filled by highway tankers, so hazardous materials are frequently on Winneshiek County roadways. There are peak periods for certain agricultural chemicals and heating products, but hazardous materials are a risk year round. The Participating Jurisdictions are located along U.S., State, or County Highways and the transportation of hazmat will often stay on these main roads for travel efficiency as much as possible. The impacted area

¹³ Data for Decorah residential structures in the flood plain does not include structures that are protected by the flood wall – GIS capabilities were unable to distinguish properties

could be very small or very large, depending on the magnitude of the incident. Additionally, there are 35 miles of transmission pipelines for gas and 14 miles of transmission pipelines for hazardous liquids in Winneshiek County which do not align with roadways (Pipeline and Hazardous Materials Safety Administration, 2013). All structures and infrastructure within the impacted area are at risk for contamination. Roadways may also shut down while response and proper clean-up is being performed.

The Canadian Pacific Railroad runs through the southern part of the county through five communities and trains can be carrying chemicals and waste products through the county. Derailments and collisions with vehicles can cause spills of these products. There are 35 vehicle crossings in the county, less than a third of which have stop signs, flashing lights or gates. Depending on where accidents might occur, an incident could impact communities anywhere from 58 people in Jackson Junction to 978 people in Calmar. In addition, there are schools within a quarter mile of the rail line in Jackson Junction, Calmar and Ossian. Table 52 indicates the number of children, pre-K through 12th grade potentially at risk in each community.

Table 52: Potential Student Exposure to Railway Incidents

Community:	School District(s):	Enrollment in Community:
Calmar	South Winneshiek HS, CFS Catholic Schools	313
Jackson Junction	Turkey Valley	411
Ossian	South Winneshiek MS & Elem, Ossian DeSales School	446

Source: (Iowa Department of Education, 2013)

Infrastructure Failure Vulnerability

Planning Significance: Moderate. Communications, energy and structural failures, as well as fires can occur in any area of the county for a variety of reasons. Communication failure is the widespread breakdown or disruption of normal communication capabilities. Equipment failure, traffic accidents, power outages, line severance, and weather can affect communication systems and disrupt service. The impacts of communication disruptions could include the loss of local government radio facilities, long-term interruption of electronic broadcast services, the inability to contact emergency services, and inoperable emergency warning systems. Business and industry rely on continuous communications to conduct business.

Energy failures such as an extended interruption of electric, petroleum or natural gas service, could create a potential safety and health problems for county residents. Energy interruptions can be caused by weather, equipment failure and fuel shortages. International events have the potential to disrupt supplies of raw materials while local conditions could impair the distribution of electricity, petroleum or natural gas. The effects of such an energy shortage would be felt throughout the state. Storm-related energy failures may impact a few homes or the entire community and surrounding areas. As recalled by HMPC members, an ice storm and blizzard in 2007 led to widespread power outages in the western half of the county from downed lines and poles. Response to such disruptions depends on the severity of the damage and the availability of staff to repair the system. Structural failure can occur in any area of the county and includes the failure of roads, bridges, buildings and towers. Table 53 summarizes the amount of each type of structure in the county.

Table 53: Structure Inventory

Structure Type:	Amount:
Roads	1,175 miles
Bridges/Box Culverts	515 (includes NBI bridge listings and all others) ¹⁴
Buildings	8,720 (does not include agricultural buildings) ¹⁵
Towers	23 ¹⁶

Nearly 42% of the dwellings in the county were built prior to 1940. Older homes are at increased risk of structural failure. Bridges are a concern as over 40% are ranked as deficient. According to the Winneshiek County Engineer, “In the past 10 years we have had 16 structures that we were forced to close for issues with the bridge. Of that number 6 are still closed today. In addition, I have had 4 structures collapse in my tenure, three due to a vehicle hitting it and one due to deterioration. We were able to close the structure before it collapsed (only days before) not something I want to continue to do.”

Structural fires can and do occur in the county. Rural areas are especially susceptible to total losses given the distance a fire department might need to travel to respond. ISO (Insurance Services Office) maintains information regarding property/casualty risk that includes ratings for municipal fire protection efforts in communities throughout the United States. In these communities, ISO analyzes relevant data such as the community’s alarm system, engine companies and water supply, and assigns a Public Protection Classification (PPC™) — a number from 1 to 10. Class 1 generally represents superior property fire protection, and Class 10 indicates that the area's fire suppression program does not meet ISO's minimum criteria. Fire Insurance Ratings are listed in Table 54. The protection class is for homes in the community, properties out of town or in communities without fire departments will have varying ratings depending on how far away they are from the servicing fire department.

Table 54: ISO Public Protection Classification

Jurisdiction	Fire Suppression Rating/Public Protection Classification
Calmar	7
Castalia	9
Decorah	5
Fort Atkinson	7
Jackson Junction	Higher than 7 (Rating is for homes in Waucoma)
Ossian	7
Ridgeway	7
Spillville	Higher than 7 (Rating is for homes in Calmar)
Winneshiek County	5 – 10 depending on location

Source: (A & J Petersburg Agency, 2007)

River Flood Vulnerability

Planning Significance: Moderate. Major river flooding has the potential to impact the entire planning area at some level, ranging from potential loss of life and long term health concerns to closed roads or

¹⁴ Source: (Winneshiek County Engineer's Office, 2014)

¹⁵ Source: (Winneshiek County, GIS Coordinator, 2013)

¹⁶ Source: (Federal Communications Commission, n.d.)

bridges. People affected by flooding can face immediate safety concerns, post-flood isolation, limited access to food and critical facilities, as well as long-term health consequences. Closed roads and bridges can limit access to homes and businesses and create unexpected costs that directly impact communities. Structures, infrastructure and agricultural land located in low-lying areas along water sources are particularly at risk for damages (See Table 51). As mentioned in the flash flooding section, the State's flood loss estimation equation considers the following factors:

- Mapped Floodplain Areas (FP)
- Repetitive Loss Structures (RL)
- 16 Year Statewide Annual Flood Damage History (DH)

Resulting in the following equation:

$$\text{Annual Flood Damage History (DH) / Number of Years of Recorded Loss (16 Years)} \\ = \text{Annual Countywide Flood Loss Estimate (FLE)}$$

In Winneshiek County, the annual countywide loss estimate due to flood events in total is \$9,535,765 (Homeland Security and Emergency Management Division, 2010). It is not known how that total is distributed by flash or river flooding. Table 55 reflects the National Flood Insurance Program (NFIP) status and Repetitive Loss (RL) Flood Property counts for eligible communities within the Planning Area. The County is currently not participating in the NFIP. Non-participating jurisdictions noted cost, a lack of interest, and the political nature of participating as reasons for not participating in the NFIP.

Table 55: NFIP and RL Information, 2012

Participating Jurisdiction	Community Identification (CID) Number	NFIP Status	Repetitive Loss (RL) Properties
City of Decorah	190532	Participating	0
City of Fort Atkinson	190284	Participating	0
City of Jackson Junction	190533	Not Participating	0
City of Spillville	190285	Participating	0

Source: (FEMA, 2012);

Table 56 reflects the National Flood Insurance Program (NFIP) policy statistics within those eligible communities participating in the NFIP.

Table 56: Winneshiek County NFIP Policy Statistics, July 2013

Participating Jurisdiction	Policies in Force	Insurance In-Force Whole (\$)	Written Premium In-Force (\$) (Annual)
City of Decorah	41	10,750,000	40,289
City of Fort Atkinson	4	119,000	1,423
City of Spillville	6	265,300	2,547

Source: (FEMA, 2013)

Severe Winter Storm Vulnerability

Planning Significance: all city jurisdictions rated severe winter storms as moderate to high. During periods of icing and/or heavy snow fall, transportation can be treacherous. The most significant damage during winter storm events occur when freezing rain and drizzle accumulate on utility poles and power lines causing widespread power outages. Since the power outages associated with winter storms occur during cold weather, the population is at risk to cold temperature exposures. As with extreme heat events, the elderly and poverty populations are considered to be more vulnerable. The State of Iowa's loss estimation calculation for potential damage from snow and ice considers the following factors

- 16 Year Snow & Ice Record for County (WR)
- Statewide Annual Snow & Ice Damage History (DH)

Resulting in the following equation:

$$\text{Annual Snow \& Ice Damage History (DH) / Number of Years of Recorded Loss (16 Years)} \\ = \text{Annual Countywide Snow \& Ice Loss Estimate (SILE)}$$

The State of Iowa Hazard Mitigation Plan estimates Winneshiek County, which includes the planning area, has an annual loss of: \$264,062.50 due to extreme cold events; \$16,820.25 due to snow and ice events; and \$74,779 due to severe winter storms.

Table 57 reflects the percentage of persons over age 65 and the percentage of persons below the federal poverty level in the Participating Jurisdictions compared to the state and national averages.

Table 57: Selected Demographic and Economic Characteristics

Jurisdiction	2010 Population	65 Years and Over (%)	Persons Below Poverty (%)
Calmar	978	13.2%	16.8%
Castalia	173	20.2%	13.6%
Decorah	8,127	18.7%	13.1%
Fort Atkinson	349	25.2%	7.0%
Jackson Junction	58	13.8%	2.3%
Ossian	845	22.2%	8.4%
Ridgeway	315	15.6%	2.1%
Spillville	367	25.1%	15.1%
Winneshiek County	21,056	16.8%	8.5%
Iowa	3,046,355	14.9%	11.9%
United States	308,745,538	13.0%	14.9%

Source: (U.S. Census Bureau, 2010 Decennial); (U.S. Census Bureau, ACS 2008-2012)

Terrorism Vulnerability

Planning Significance: Moderate. While nothing of severe consequence has occurred in the county to date in terms of agro-terrorism, bio-terrorism, domestic terrorism, workplace violence or public disorder, the HMPC members are very aware of the increasing incidence of events like this nationwide. Members also indicated an increase in bogus school bomb threats causing interruptions to the school day and unnecessary use of limited emergency services and personnel. In the event of a real or even

false incident, school children and college students are perceived to be most vulnerable and Table 49 on page 163 illustrates the location and enrollments of schools in the planning area.

Thunderstorms and Lightning Vulnerability

*Planning Significance: Moderate (**all city jurisdictions also rated thunderstorms and lightning as moderate to high).* National Weather Service data indicates that the planning area is located in an area that averages 9 - 12 lightning strikes per square mile per year. Most of these lightning strikes do not result in damages, but electronic equipment located inside buildings is vulnerable. Communications equipment and warning transmitters and receivers could be knocked out by lightning strikes. Secondary hazards resulting from a thunderstorm, such as hail, high straight-line winds, and microbursts also bring risk for property damage and injury. The Oklahoma Climatological Survey estimates that the planning area is in an area that experiences 30-50 days with thunderstorms per year per 10,000 square miles.

The State of Iowa's loss estimation calculation for damaged caused by lightning considers the following factors:

- 17 Year Lightning Record for County (WR)
- Statewide Annual Lightning Damage History (DH)

Resulting in the following equation:

$$\begin{aligned} & \text{Annual Lightning Damage History (DH) / Number of Years of Recorded Loss (17 Years)} \\ & = \text{Annual Countywide Lightning Loss Estimate (LLE)} \end{aligned}$$

The calculation for estimating loss due to thunderstorms considers the following factors:

- 17 Year Thunderstorm Record for County (WR)
- Statewide Annual Thunderstorm Damage History (DH)

And results in the following equation:

$$\begin{aligned} & \text{Annual Thunderstorm Damage History (DH) / Number of Years of Recorded Loss (17 Years)} \\ & = \text{Annual Countywide Thunderstorm Loss Estimate (TSLE)} \end{aligned}$$

Using these equations, the State estimates Winneshiek County has an annual estimated loss of: \$132,765 due to thunderstorm events and \$9,706 due to lightning events (Homeland Security and Emergency Management Division, 2010)

Tornado Vulnerability

Planning Significance: Moderate. The planning area is located in a region of the U.S. with high frequency of dangerous and destructive tornadoes. On at least two occasions since 1957, tornadoes have resulted in injuries to residents in Winneshiek County and there have been six occurrences of tornado related damages totaling \$250,000 or more. Warning time for tornados is relatively short. Children, the elderly and disabled persons are particularly vulnerable to hazards with rapid onset (See Table 50). There is an identified need for storm shelters that can withstand the force of a major tornado and to protect the residents in the communities of Winneshiek County. All infrastructure and structures are at risk for

damage since currently none are built to resist tornado wind speeds. The State of Iowa's loss estimation calculation for tornado damage considers the following factors:

- 60 Year Tornado Record for County (WR)
- Statewide Annual Tornado Damage History (DH)

Resulting in the following equation:

$$\text{Annual Tornado Damage History (DH) / Number of Years of Recorded Loss (60 Years)} \\ = \text{Annual Countywide Tornado Loss Estimate (TLE)}$$

Using this calculation, the State estimates that Winneshiek County could experience an annual loss of \$103,233 due to tornado events.

Transportation Incident Vulnerability

*Planning Significance: Moderate (**all city jurisdictions also rated hailstorm as moderate to high).*

Transportation incidents can occur anywhere on the 1,175 miles of roads or 30 miles of railway. In addition, air incidents involving planes or helicopters are possible with an airport and heliport in the community of Decorah. Approximately 32% of all vehicle crashes over the past decade were caused by animal encounters, by far the greatest cause of accidents in the county (Iowa DOT, CMAT, 2012). According to State Farm®, Iowa ranks third in the list of states where an individual driver is most likely to run into a deer (2013). HMPC members also noted that with the high number of livestock in the county, the risk of accidents involving any animal is significant. Concern was also raised over the increasing volume and size of agricultural vehicles and oversized loads hauling wind turbines, towers, blades and large industrial or agricultural equipment. Transportation by bicycle and ATV often conflicts with the general traveling public when they are expected to share the same roadway. HMPC members indicated that the use of bicycles and ATVs is growing in the county and that there have been deaths and severe injuries occurring as a result.

Windstorm Vulnerability

Planning Significance: Moderate. Damaging windstorms are a common occurrence in the planning area. Damages frequently occur to structures and power lines. Debris flying from high wind events can shatter windows in structures and vehicles and can harm people that are not adequately sheltered.

The State of Iowa's loss estimation calculation for windstorms considers the following factors:

- 17 Year Windstorm Record for County (WR)
- Statewide Annual Windstorm Damage History (DH)

Resulting in the following equation:

$$\text{Annual Windstorm Damage History (DH) / Number of Years of Recorded Loss (17 Years)} \\ = \text{Annual Countywide Windstorm Loss Estimate (WSLE)}$$

The State estimates Winneshiek County has an annual loss of \$18,455 due to windstorm events.

Summary of Key Issues

Table 58 reflects the results of the Hazard Ranking for the County in order of High to Low Planning Significance based on the methodology described in the Hazard Summary on pages 76-77.

Table 58: Winneshiek County Hazard Profile Summary

Hazard	Probability	Magnitude	Warning Time	Duration	Spatial Extent	CPRI	Planning Significance
Flash Floods	3	3	4	3	2	3.1	High
Animal/Plant/Crop Disease	4	2	1	4	2	2.95	Moderate
Infrastructure Failure	3	2	4	3	3	2.9	Moderate
Thunderstorms and lightning	4	1	4	1	3	2.9	Moderate
Transportation Incident	4	1	4	2	1	2.9	Moderate
River Floods	4	1	3	3	1	2.85	Moderate
Hailstorm	4	1	4	1	1	2.8	Moderate
Severe Winter Storms	4	1	1	3	4	2.7	Moderate
Tornadoes	3	2	4	1	1	2.6	Moderate
Extreme Heat	3	2	1	3	4	2.5	Moderate
Windstorms	3	1	4	1	2	2.4	Moderate
Droughts	2	2	1	4	4	2.15	Moderate
Hazardous Materials	2	1	4	2	1	2	Moderate
Terrorism	2	1	4	2	1	2	Moderate
Human Disease	2	1	2	4	2	1.95	Low
Levee Failure	1	2	3	4	2	1.9	Low
Radiological	1	1	4	3	1	1.65	Low
Grass or Wildfire	1	1	4	2	1	1.55	Low
Sink Holes	1	1	4	2	1	1.55	Low
Earthquakes	1	1	4	1	1	1.45	Low
Landslides	1	1	4	1	1	1.45	Low
Dam Failure	1	1	1	3	1	1.2	Low

The following section summarizes key issues brought out by the risk assessment from the hazards of moderate and high planning significance, arranged alphabetically by hazard.

Animal/Plant/Crop Disease

- Livestock disease

Droughts

- Economic impact of crop loss
- Economic impact of higher livestock feed costs
- Fires at certain times of year

Extreme Heat

- Public health and safety
- Economic impact of livestock loss

Flash Floods

- Individuals can get caught unexpectedly in flash flooding
- There is no adequate warning for flash flooding
- Driveways, roads, bridges, etc. can get washed out, leaving no access in case of an emergency

- Low-lying areas and the foundations of structures are vulnerable with heavy rains
- When flood waters saturate the ground, ground water can become contaminated
- Private wells can become contaminated
- Flash floods have had and can have severe impacts to areas with structures and infrastructure damaged routinely, especially in the unincorporated areas in the low-lying areas adjacent to the water source

Hailstorm

- 43 hail events in the past 16 years in Winneshiek County, including the Participating Jurisdictions
- Crops, structures, and vehicles are damaged by large hail events
- \$4,433,034 in crop insurance claims in Winneshiek County as a result of hail damage from 2007-2012
- Hail events have become more prevalent in recent years
- The associated thunderstorms can generate damaging winds

Hazardous Materials

- Entire planning area and beyond could be affected depending on the amount of hazmat released and its potency
- A technician level response team out of Waterloo, IA responds to hazmat incidents in Winneshiek County to assist county fire departments at the operations level
- Hazardous materials, in both liquid and gas form, are transported on the county's roadways, railways and through pipelines year round

Infrastructure Failure

- Bridge collapse
- Communications failure through interrupted cellular service

River Floods

- Initial public safety and long term health concerns
- When flood waters saturate the ground, ground water can become contaminated
- Private wells can become contaminated
- River floods have had and can have severe impacts to areas with structures and infrastructure damaged routinely, especially in the low-lying areas adjacent to the water source

Severe Winter Storms

- Closure of schools and business impact economic productivity
- Access to people and livestock limited
- Unsafe driving conditions

Terrorism

- Active shooting incident
- Workplace violence
- Agro-terrorism (at the county fair or other public livestock venues)
- Bomb Threats

Thunderstorms and lightning

- Associated winds and hail can cause damage to power infrastructure, structures, and vehicles
- Direct lightning strikes can cause major damage to the power infrastructure or structures, start a fire or cause death

- Six presidential disasters have been declared in Winneshiek County as part of severe storms
- Agricultural production and financial return can be severely impacted

Tornadoes

- Only one FEMA-compliant tornado safe room currently exists in schools or public buildings in the planning area
- Communities in the planning area have made some improvements in warning systems, but there is no countywide emergency alert system
- Damage endured from a tornado could range from minimal to complete devastations
- Agricultural production and financial return can be severely impacted

Transportation Incident

- Highway Transportation Incidents can range in severity to minor injuries and damage to the vehicles to loss of life
- Over 30% of crashes in the past decade were caused by animal collisions or avoidance
- Increased size and volume of agricultural and oversized-load vehicles
- Roadways could be blocked off while the involved vehicles and/or response personnel are on scene

Windstorms

- Wind events can frequently cause damage to power lines
- Unsecured mobile homes, campers, barns, and sheds and their occupants are specifically vulnerable
- Human safety and wellbeing
- Trees and tree limb debris damage power lines, power infrastructure, structures, and automobiles
- Storefront windows are vulnerable to damage from high-winds
- Roofs are frequently damaged

Table 59 records the CPRI scores for each city within Winneshiek County. Scores indicating a high planning significance for each city are shaded in red, hazard CPRI scores with moderate planning significance are shaded in purple.

Table 59: CPRI Scores by City

Hazard: \ City:	Calmar	Castalia	Decorah	Fort Atkinson	Jackson Jct.	Ossian	Ridgeway	Spillville
Animal/Plant/Crop Disease	1.60	1.60	2.10	1.00	1.95	1.25	1.90	3.20
Dam Failure	NA	NA	NA	2.40	NA	NA	NA	NA
Droughts	2.23	2.05	2.30	1.30	2.05	2.05	2.55	3.25
Earthquakes	1.45	1.45	2.35	1.45	1.45	1.45	1.45	1.45
Extreme Heat	2.60	2.05	2.30	1.20	1.65	1.75	3.20	2.40
Flash Floods	2.75	2.20	3.15	2.15	2.15	2.15	2.20	3.45
Grass or Wildfire	1.45	2.30	1.45	1.45	1.45	1.45	2.20	1.45
Hailstorm	2.65	2.25	2.70	2.20	2.20	2.20	2.70	2.95
Hazardous Materials	3.40	3.00	2.30	1.85	3.80	3.25	2.30	1.85
Human Disease	1.60	1.95	2.05	1.20	1.85	1.20	1.65	1.35
Infrastructure Failure	2.15	2.40	1.85	1.55	2.30	1.45	2.20	2.85
Landslides	NA	NA	2.75	1.65	NA	NA	NA	NA
Levee Failure	NA	NA	2.50	2.65	NA	NA	NA	2.40
Radiological	1.45	1.65	1.60	1.55	1.55	NA	1.65	1.80
River Floods	NA	NA	2.55	3.45	2.10	NA	NA	3.65
Severe Winter Storms	2.30	2.90	3.30	2.10	2.45	2.35	3.35	2.40
Sink Holes	NA	1.75	1.90	1.65	1.30	1.75	1.75	1.75
Terrorism	2.30	1.85	2.00	1.55	2.15	2.60	1.75	1.45
Thunderstorms and Lightning	2.65	2.70	2.80	2.15	2.15	2.75	3.00	2.95
Tornadoes	2.95	2.80	2.80	2.15	2.20	2.70	2.35	2.35
Transportation Incident	2.65	2.45	1.70	1.85	2.65	2.65	2.20	3.45
Windstorms	2.65	2.20	2.65	1.40	2.05	2.75	3.05	2.50

Mitigation Strategy

This section presents the mitigation strategy developed by the Hazard Mitigation Planning Committee (HMPC) and the participating jurisdictions based on the county-wide risk assessment as well as each city's strategies. The mitigation strategies were developed through a collaborative group process and consist of general goal statements to guide the Participating Jurisdictions in efforts to lessen disaster impacts as well as specific mitigation actions that can be put in place to directly reduce vulnerability to hazards and losses. The following definitions are based on those found in FEMA publication 386-3, *Developing a Mitigation Plan* (April, 2003):

- **Goals** – General guidelines that explain what you want to achieve. They are usually long-term, policy-type statements and represent broad visions
- **Objectives** – Strategies or implementation steps to attain the identified goals
- **Mitigation Actions** – Specific actions that help achieve goals and objectives

Goals

Requirement §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.

Goals were used to provide direction for reducing hazard-related losses in the Participating Jurisdictions. The HMPC reviewed the goals from previously approved hazard mitigation plans (MJ-4 and MJ-5) and determined that the goals were still valid for this update. The four main goals, in no order of priority, are:

Goal 1: Minimize vulnerability of the people and their property in the Participating Jurisdictions to the impacts of hazards

Goal 2: Protect critical facilities, infrastructure and other community assets from the impacts of hazards

Goal 3: Improve education and awareness regarding hazards and risk in the Participating Jurisdictions

Goal 4: Strengthen communication among agencies and between agencies and the public

Identification and Analysis of Mitigation Actions

Requirement §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.

After review of hazards and defining the level of concern placed on each by the county and its communities, mitigation actions were developed by each jurisdiction to address those hazards deemed most critical. Actions fell into broad categories as defined below:

- **Prevention:** Administrative or regulatory actions or processes that influence the way land and buildings are developed and built
- **Property protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard or remove them from the hazard area
- **Structural:** Actions that involve the construction of structures to reduce the impact of hazards
- **Natural resource protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems
- **Emergency services:** Actions that protect people and property during and immediately after a disaster or hazard event
- **Public education and awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them

Meetings open to the public were held in each community and by the planning committee to review past mitigation actions from the previous hazard mitigation plans (MJ-4 and MJ-5), brainstorm new possible mitigation actions and discuss all for inclusion in this updated plan. For each action identified in this plan, a mitigation action implementation worksheet and STAPLEE score was completed and included. The STAPLEE priorities are found in Table 60 and the implementation worksheets begin on page 185.

The HMPC approved the placement of the actions under the following goals and strategies. Some actions applied to more than one goal or strategy so may be listed twice:

Goal 1: Minimize vulnerability of the people and their property in the Participating Jurisdictions to the impacts of hazards

Strategy: Develop safe and functioning havens as well as evacuation plans for the public in the event of a disaster

Mitigation Actions:

- Storm shelter – FEMA compliant safe room
- Generators/Transfer Switches

Strategy: Ensure that emergency responders are prepared and able to react in any hazard situation

Mitigation Actions:

- Maintain/improve emergency responder training
- Expand/improve communications/technology infrastructure and equipment
- Maintain/improve emergency responder equipment
- New emergency responder vehicles

Strategy: Ensure that local jurisdictions are prepared and able to react in any hazard situation

Mitigation Actions:

- Maintain/improve flood mitigation equipment
- Sirens – additions/replacements/upgrades

- Develop an evacuation plan for community members – educate the public
- NFIP participation/consideration
- Maintain partnerships for effective and prompt emergency response
- Develop water and/or soil conservation strategies
- Improvements to transportation safety and response
- Waterway and structural changes/maintenance/upgrades/construction
- Develop city codes to address issues (buildings w/ tornado safe areas, flood plains, etc.)
- Acquire and demolish damaged structures
- Develop tree treatment and replacement plan

Goal 2: Protect critical facilities, infrastructure and other community assets from the impacts of hazards

Strategy: Ensure that emergency responders have the tools they need to prepare and/or respond to hazards

Mitigation Actions:

- Maintain/improve emergency responder training
- Maintain/improve flood mitigation equipment
- Expand/improve communications/technology infrastructure and equipment
- Maintain/improve emergency responder equipment
- New emergency responder vehicles
- Fire Station expansions/construction

Strategy: Maintain the function of critical facilities and services to provide continued support in the event of a disaster

Mitigation Actions:

- Generators/Transfer Switches
- Improved/upgraded water/sewer facilities (wells, systems, hydrants, lagoons...)

Strategy: Ensure that communities have the ability to take necessary action to lessen the impact of a disaster

Mitigation Actions:

- Ensure the plan is updated prior to expiration
- NFIP participation/consideration
- Maintain partnerships for effective and prompt emergency response
- Develop water and/or soil conservation strategies
- Waterway and structural changes/maintenance/upgrades/construction
- Develop city codes to address issues (buildings w/ tornado safe areas, flood plains, etc.)
- Acquire and demolish damaged structures
- Develop tree treatment and replacement plan

Strategy: Provide ample warning to people and business to reduce loss of life or property

Mitigation Actions:

- Expand/improve communications/technology infrastructure and equipment
- Sirens – additions/replacements/upgrades

Goal 3: Improve education and awareness regarding hazards and risk in the Participating Jurisdictions

Strategy: Increase public knowledge and awareness of potential hazards and the individual and collaborative actions that can be taken to reduce or eliminate the risk and impact of an event

Mitigation Actions:

- Ensure the plan is updated prior to expiration
- Develop an evacuation plan for community members – educate the public
- NFIP participation/consideration
- Maintain partnerships for effective and prompt emergency response
- Promote the Hazard Mitigation Plan to the public
- Improvements to transportation safety and response
- Promote/purchase/subsidize “all-hazards” radios for community members

Goal 4: Strengthen communication among agencies and between agencies and the public

Strategy: Ensure that emergency responders have the ability and protocol to communicate effectively with one another and the public before, during and after a hazard event

Mitigation Actions:

- Maintain/improve emergency responder training
- Maintain/improve flood mitigation equipment
- Expand/improve communications/technology infrastructure and equipment
- Maintain/improve emergency responder equipment
- Sirens – additions/replacements/upgrades
- Maintain partnerships for effective and prompt emergency response

Strategy: Increase public knowledge and awareness of potential hazards and the warning and response systems in place to react to an event

Mitigation Actions:

- Ensure the plan is updated prior to expiration
- Develop an evacuation plan for community members – educate the public
- Promote the Hazard Mitigation Plan to the public
- Promote/purchase/subsidize “all-hazards” radios for community members

Implementation of Mitigation Actions

Requirement §201.6(c)(3)(iii):

[The mitigation strategy shall include] an action strategy describing how the actions identified in paragraph (c)(3)(ii) 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 benefits review of the proposed projects and their associated costs.

After the actions to include in the mitigation strategy for the each of the jurisdictions were determined, a STAPLEE tool was used to help guide a discussion to prioritize the mitigation actions that are included in this plan. STAPLEE is used to assess the costs and benefits, and overall feasibility of mitigation actions. STAPLEE stands for the following:

- **Social:** Will the action be acceptable to the community? Could it have an unfair effect on a particular segment of the population?
- **Technical:** Is the action technically feasible? Are there secondary impacts? Does it offer a long-term solution?
- **Addministrative:** Are there adequate staffing, funding, and maintenance capabilities to implement the project?
- **Political:** Will there be adequate political and public support for the project?
- **Legal:** Does your jurisdiction have the legal authority to implement the action?
- **Economic:** Is the action cost-beneficial? Is there funding available? Will the action contribute to the local economy?
- **Environmental:** Will there be negative environmental consequences from the action? Does it comply with environmental regulations? Is it consistent with community environmental goals?

The STAPLEE criteria were reviewed prior to the prioritization discussion. For each action, the participating attendees discussed each proposed action and its feasibility given the STAPLEE criteria and came to consensus on the priority level of each proposed action. These priorities were also weighed in their ability to address or mitigate hazards that were given a high level of planning significance (priority) by **any** participating jurisdiction:

- | | | |
|-----------------------------|------------------------|-------------------------------|
| • Animal/Plant/Crop Disease | • Hailstorm | • Thunderstorms and Lightning |
| • Drought | • Hazardous Materials | • Transportation Incident |
| • Extreme Heat | • River Floods | • Windstorm |
| • Flash Floods | • Severe Winter Storms | |

Based on high feasibility (through STAPLEE criteria) and ability to address high priority hazards (through CPRI scoring), each action was prioritized as high, medium or low:

- High Priority = high feasibility and addresses higher priority hazards
- Medium Priority = fairly feasible and addresses moderate to high priority hazards
- Low Priority = low feasibility and addresses low to moderate priority hazards

Table 60 lists the general mitigation actions the Participating Jurisdictions selected to include in the plan, the action category, goals and hazards addressed by the mitigation action. More details regarding the specific actions by jurisdiction are included in the tables beginning on page 188.

Table 60: General Mitigation Actions by Jurisdiction and Priority

Mitigation Action:	Jurisdiction:	Action Category:	Priority:	Goal Addressed:	Priority Hazard Addressed:
Generators/Transfer Switches	All	Emergency Services	High	1,2	All Floods, All Storms
Storm shelter – FEMA compliant safe room	All	Structural, Emergency Services	High	1	All Storms
Maintain/improve emergency responder training	County, Calmar, Castalia, Decorah, Ridgeway	Emergency Services	High	1,2,4	All Priority Hazards
Maintain/improve flood mitigation equipment	County, Decorah, Fort Atkinson, Spillville	Natural Resource Protection, Emergency Services	High	1,2,4	All Floods
Expand/improve communications/technology infrastructure and equipment	County, Decorah, Fort Atkinson	Emergency Services	High	1,2,4	All Priority Hazards
Ensure the plan is updated prior to expiration	County	Public Education and Awareness	High	2,3,4	All Priority Hazards
Maintain/improve emergency responder equipment	Calmar, Castalia, Decorah, Ridgeway	Emergency Services	High	1,2,4	All Priority Hazards
New emergency responder vehicles	Castalia, Decorah, Spillville	Emergency Services	High	1,2	All Priority Hazards
Sirens – additions/replacements/upgrades	Castalia, Decorah, Fort Atkinson, Spillville	Emergency Services	High	1,2,4	All Storms
Fire Station expansions/construction	Castalia	Structural, Emergency Services	High	2	Hazardous Materials, Transportation Incident
Improved/upgraded water/sewer facilities (wells, systems, hydrants, lagoons...)	Decorah, Fort Atkinson, Spillville	Property Protection, Structural, Natural Resource Protection	High	2	All Floods, All Storms
Maintain partnerships for effective and prompt emergency response	Jackson Junction	Emergency Services	High	1,2,3,4	All Priority Hazards
Develop water and/or soil conservation strategies	County, Spillville	Natural Resource Protection, Public Education and Awareness	Medium	1,2	All Floods, Drought, Extreme Heat
Promote the Hazard Mitigation Plan to the public	County	Public Education and Awareness	Medium	3,4	All Priority Hazards

Mitigation Action:	Jurisdiction:	Action Category:	Priority:	Goal Addressed:	Priority Hazard Addressed:
Improvements to transportation safety and response	Calmar, Castalia, Decorah, Ossian, Ridgeway, Spillville	Public Education and Awareness	Medium	1,3,4	All Floods, Hazardous Materials, Transportation Incident
Promote/purchase/subsidize “all-hazards” radios for community members	Castalia, Jackson Junction, Ossian	Emergency Services, Public Education and Awareness	Medium	3,4	All Priority Hazards
Waterway and structural changes/maintenance/upgrades/construction	Decorah, Fort Atkinson	Property Protection, Structural, Natural Resource Protection	Medium	1,2	All Floods
Develop city codes to address issues (buildings w/ tornado safe areas, flood plains, etc.)	Decorah	Prevention	Medium	1,2	All Floods, Hazardous Materials, Transportation Incident,
Acquire and demolish damaged structures	County	Property Protection, Natural Resource Protection	Low	1,2	All Priority Hazards
Develop tree treatment and replacement plan	Spillville	Natural Resource Protection, Public Education and Awareness	Low	1,2	Animal/Plant/ Crop Disease, Drought

Strategies for hazard mitigation in any jurisdiction reduce overall damage in the county.

Implementation of the actions will be undertaken by the county and participating jurisdictions. Not all of the mitigation actions included in the plan are relevant to all jurisdictions. The following tables provide more detailed information for each general mitigation action listed in Table 60, including the jurisdiction and its specific action, the responsible agency for pursuing the action, potential funding sources and timeframes. Timeframes listed as “ongoing” indicate that the action is something that the jurisdiction has started and will continue to pursue and/or an action (like training) that re-occurs throughout the life of the planning document. Specific actions can also be found listed in each jurisdictional section of this plan.

Requirement §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

High Priority Actions

1. Generators/Transfer Switches

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Winneshiek County	Purchase a generator for the Franklin Community Center	Frankville Fire Department	Township taxes, Fire grants, HMGP	6 – 12 mos. after funding	<\$10,000
	Purchase mobile generators for deployment countywide as needed	Winneshiek County EMC	HMGP, DNR, Iowa HSEMD	6 – 12 mos. after funding	<\$10,000
	Provide stability to countywide technology resources through the addition of suitable back-up power at Decorah Middle School/Carrie Lee Campus	Metronet Partners: City of Decorah, Decorah CSD, Winneshiek County, Winneshiek Medical Center, Luther College Provost, UERPC	Partner grants or funds	1 – 2 years	<\$10,000
Calmar	Purchase generator for NE lift station and the water tower	Calmar City Council	City general/enterprise funds, LOST, HMGP	~ 1yr. after funding	<\$10,000
Castalia	Purchase portable generator for lift stations with transfer switches and wiring	Castalia City Council	City general/enterprise funds, LOST, HMGP, Iowa HSEMD	~ 1yr. after funding	<\$10,000
Decorah and/or Decorah CSD	Purchase and install permanent generator for the Carrie Lee Campus/Middle School	Decorah CSD School Board	District funds, HMGP	6 – 12 mos. after funding	<\$10,000
	Purchase and install permanent generator for the water department at the main pumping station	Decorah City Council	City general/enterprise funds, LOST, HMGP	~ 1yr. after funding	<\$10,000
	Purchase and install a smaller permanent generator for the bus repeater	Decorah Police/Fire Departments	City general funds, Fire or Police grants, HMGP	6 – 12 mos. after funding	<\$10,000
Fort Atkinson	Purchase and install power supply transfer switches	Fort Atkinson City Council	City general/enterprise funds, LOST, HMGP, Iowa HSEMD	~ 3 mos. after funding	<\$10,000
Jackson Junction and/or Turkey Valley CSD	Replace existing fixed generator at Turkey Valley school for compatibility with new boiler system (boiler system is being changed from fuel oil to LP)	Turkey Valley CSD School Board	District funds, HMGP	6 – 12 mos. after funding	<\$10,000

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Ossian	Continue to wire lift stations for portable generator and purchase the generator	Ossian City Council	City general/enterprise funds, LOST, HMGP, Iowa HSEMD	~ 1yr. after funding	<\$10,000
	Purchase generator for community center	Ossian City Council	City general funds, LOST, HMGP, Iowa HSEMD	~ 1yr. after funding	<\$10,000
Ridgeway	Purchase and install a fixed generator for the water tower	Ridgeway City Council	City general/enterprise funds, LOST, HMGP, Iowa HSEMD	~ 1yr. after funding	<\$10,000
	Purchase and install a portable or fixed generator for the community center	Ridgeway City Council	City general funds, LOST, HMGP, Iowa HSEMD	~ 1yr. after funding	<\$10,000
Spillville	Purchase and install generators as needed for replacements and new needs	Spillville City Council	City general/enterprise funds, LOST, HMGP, Iowa HSEMD	~ 1yr. after funding	<\$10,000
	Purchase and install power supply transfer switch for the Community Center	Spillville City Council	City general funds, LOST, HMGP, Iowa HSEMD	~ 3 mos. after funding	<\$10,000

2. Storm shelter – FEMA compliant safe room

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Winneshiek County	Construct one or more shelters/safe rooms for rural residents	Winneshiek County Board of Supervisors	County general funds, HMGP	1 – 2 yr. after funding	>\$300,000
	Develop an Emergency Operations Center (EOC) as a safe room site	Winneshiek County EMC	County general funds, LOST, HMGP, safety agency grants	1 – 2 yr. after funding	>\$300,000
Calmar and/or NICC and/or South Winn	Construct a shelter/safe room for residents/students	Calmar City Council and/or NICC Provost and/or South Winn School Board	City general funds, LOST, HMGP, Institutional grants	1 – 2 yr. after funding	>\$300,000
Castalia	Construct a shelter/safe room for residents	Castalia City Council	City general funds, LOST, HMGP	1 – 2 yr. after funding	>\$300,000

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Decorah and/or Decorah CSD	Construct one or more shelter/safe rooms for residents/students. One is under consideration at Carrie Lee Campus/Middle School	Decorah City Council and/or Decorah CSD School Board and/or Luther College Provost	City general funds, LOST, District funds, HMGP, Institutional grants	1 – 2 yr. after funding	>\$300,000
Fort Atkinson	Construct a shelter/safe room outside of the flood plain for residents	Fort Atkinson City Council	City general funds, LOST, HMGP	1 – 2 yr. after funding	>\$300,000
Jackson Junction and/or Turkey Valley CSD	Construct another shelter/safe room for residents/students	Jackson Junction City Council and/or Turkey Valley CSD School Board	City general funds, LOST, District funds, HMGP	1 – 2 yr. after funding	>\$300,000
Ossian	Construct shelter/safe room or retrofit Community Center safe room to meet FEMA standards	Ossian City Council	City general, LOST, HMGP, CDGB	1 – 2 yr. after funding	>\$300,000
Ridgeway	Construct a shelter/safe room for residents	Ridgeway City Council	City general funds, LOST, HMGP	1 – 2 yr. after funding	>\$300,000
Spillville	Construct new or improve existing tornado shelter (in library basement) to be FEMA-compliant	Spillville City Council	City general funds, LOST, HMGP, CDGB	1 – 2 yr. after funding	>\$300,000

3. *Maintain/improve emergency responder training*

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Winneshiek County	Training for health care coalition members	Winneshiek County EMC	EMC staff time, county emergency mgmt. funds	Ongoing	>\$10,000 & <\$100,000
Calmar	Maintain/improve emergency responder training	Calmar Fire Department and NICC	Fire grants, HMGP, participant fees	Ongoing	>\$10,000 & <\$100,000
Castalia	Keep up training hours for emergency responders	Castalia Fire Department	Fire grants, HMGP, participant fees	Ongoing	>\$10,000 & <\$100,000
Decorah	Continue to train community emergency responders	Decorah Police and Fire Departments	Safety/fire grants, HMGP, participant fees	Ongoing	>\$10,000 & <\$100,000
Ridgeway	Continue to improve and maintain emergency response capabilities through training	Ridgeway Fire Department	Fire grants, HMGP, participant fees	Ongoing	>\$10,000 & <\$100,000

4. *Maintain/improve flood mitigation equipment*

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Winneshiek County	Purchase additional stream gauges	Winneshiek County EMC	County emergency mgmt. funds, FEMA, DNR, Conservation district, NRCS	3 – 6 mos	<\$10,000
Decorah	Continue to maintain and improve flood mitigation equipment and related safety measures	Decorah City Council	City general funds, HMGP, PDM, FMA	Ongoing	>\$10,000 & <\$100,000
Fort Atkinson	Purchase and manage flood mitigation equipment	Fort Atkinson City Council	City general funds, HMGP, PDM, FMA	Ongoing	>\$10,000 & <\$100,000
Spillville	Purchase portable flood barriers	Spillville City Council	City general funds, HMGP, PDM, FMA	Ongoing	>\$100,000 & <\$300,000
	Increase the number of gauges within the watershed	Spillville City Council	City general funds, FEMA, DNR, NRCS, Conservation district,	Ongoing	<\$10,000
	Continue armoring assets along the river	Spillville City Council	City general/enterprise funds, FEMA, DNR	Ongoing	>\$10,000 & <\$100,000

5. *Expand/improve communications/technology infrastructure and equipment*

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Winneshiek County	Improve data collection software and technology resources	Winneshiek County EMC	County emergency mgmt. funds, FEMA, DNR, Conservation district, NRCS	3 – 6 mos.	>\$10,000 & <\$100,000
	Set up interagency VoIP phone systems	Winneshiek County EMC	Agency funds, staff time	6 – 12 mos.	<\$10,000
	Computer mobile data terminals	Winneshiek County Dispatch Center	Agency funds	1 – 2 years after funding	>\$10,000 & <\$100,000
	Evaluate and purchase automated reverse 911 system	Winneshiek County Dispatch Center	HMPG, 911 funds	6 – 12 mos. after funding	>\$10,000 & <\$100,000
	Purchase and implement countywide interagency portable mobile data	Winneshiek County Dispatch Center	HMPG, Iowa HSEMD, federal grants	1 – 2 years after funding	>\$10,000 & <\$100,000
	Develop mass notification system for schools	Winneshiek County EMC and/or School Districts	Agency funds, HMGP	12 mos.	<\$10,000

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Fort Atkinson	Create and maintain a communication system along the Turkey River Corridor	Fort Atkinson City Council	City general funds, HMGP, PDM, FMA	Ongoing	<\$10,000
Decorah and/or Decorah CSD	Improve the emergency alert notification system for the Decorah Community School District	Decorah Community School District School Board	District funds, HMGP	12 mos.	<\$10,000
	Continue to improve city and countywide interagency portable mobile data by implementing new technologies	Decorah Communication Center	Agency budget, HMGP, Iowa HSEMD, federal grants	Ongoing	>\$10,000 & <\$100,000
	Expand and maintain the Metronet fiber optic cable and related equipment – consolidate projects where feasible (i.e. lay conduit when city infrastructure projects occur)	Metronet Partners: City of Decorah, Decorah CSD, Winneshiek County, Winneshiek Medical Center, Luther College, UERPC	Partner grants or funds	1 – 2 years	>\$300,000

6. *Ensure the plan is updated prior to expiration*

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Winneshiek County	Ensure that the Winneshiek County MJ-9 Hazard Mitigation plan remains current and is updated and submitted for approval every 5 years	Winneshiek County EMC	County emergency mgmt. funds, HMPG	3 -4 years	>\$10,000 & <\$100,000

7. *Maintain/improve emergency responder equipment*

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Calmar	Maintain/improve emergency responder equipment	Calmar Fire Department	Fire grants, HMGP, local fundraising	Ongoing	>\$10,000 & <\$100,000
Castalia	Continue to update existing equipment	Castalia Fire Department	Fire Grants, HMGP, local fundraising	Ongoing	>\$10,000 & <\$100,000
Decorah	Continue to equip community emergency responders	Decorah Police and Fire Departments	Safety/fire grants, HMGP, local fundraising	Ongoing	>\$10,000 & <\$100,000
Ridgeway	Continue to improve and maintain emergency response capabilities through new and upgraded equipment	Ridgeway Fire Department	Fire grants, HMGP, local fundraising	Ongoing	>\$10,000 & <\$100,000

8. *New emergency responder vehicles*

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Castalia	Purchase new fire truck	Castalia Fire Department	Fire Grants, HMGP, local fundraising	1 – 2 years	<\$300,000
Decorah	New boat or rescue raft and new motor for the boat	Decorah Police and Fire Departments	Safety/fire grants, HMGP, local fundraising	1 – 2 years	>\$10,000 & <\$100,000
Spillville	Obtain responder boat and life jackets	Spillville City Council	HMGP, local fundraising	1 – 2 years	>\$10,000 & <\$100,000

9. Sirens – additions/replacements/upgrades

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Castalia	Replace existing siren with a siren that has a stronger coverage area	Castalia City Council	HMGP, City general funds	~ 1 year	>\$10,000 & <\$100,000
Decorah	Upgrade all sirens to be radio controlled and address all gaps in the city	Decorah Communication Center	HMGP, City general funds	Ongoing	>\$10,000 & <\$100,000
Fort Atkinson	Continue to maintain city warning system	Fort Atkinson City Council	HMGP, City general funds	Ongoing	<\$10,000
Spillville	Purchase and install warning siren near lagoon, upgrade all warning sirens to battery backup	Spillville City Council	HMGP, City general funds	1 – 2 years	>\$10,000 & <100,000

10. Fire Station expansions/construction

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Castalia	Expand station size to accommodate new truck sizes	Castalia Fire Department	Fire grants, HMGP, local fundraising	3 -4 years	>\$300,000

Requirement §201.6(c)(3)(ii):

[The mitigation plan] must address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate

11. NFIP participation/consideration

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Decorah	Continue participation in the National Flood Insurance Program (NFIP)	Decorah City Council	City general funds	Ongoing	>\$10,000 & <\$100,000
Fort Atkinson	Maintain membership in NFIP	Fort Atkinson City Council	City general funds	Ongoing	>\$10,000 & <\$100,000
Jackson Junction	Continue to consider joining the National Flood Insurance Program (NFIP)	Jackson Junction City Council	City general funds	Ongoing	>\$10,000 & <\$100,000
Spillville	Maintain membership in NFIP	Spillville City Council	City general funds	Ongoing	>\$10,000 & <\$100,000

12. Improved/upgraded water/sewer facilities (wells, systems, hydrants, lagoons...)

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Decorah	New well needed on west side of city – in remote and elevated area	Decorah City Council	City general/enterprise funds, CDBG, USDA, HMGP, PDM, FMA	3 -4 years	>\$100,000
	Enlarge the well at the business park	Decorah City Council	City general/enterprise funds, CDBG, USDA, HMGP, PDM, FMA	3 -4 years	>\$100,000 & <\$300,000
	Continue to work on wastewater system to reduce inflow and infiltration and reline sewers	Decorah City Council	City general/enterprise funds	Ongoing	>\$100,000 & <\$300,000
Fort Atkinson	Upgrades to water and wastewater treatment infrastructure	Fort Atkinson City Council	City general/enterprise funds, CDBG, USDA, HMGP, PDM, FMA	2 – 3 years	>\$100,000
Spillville	Monitor and maintain manhole covers to avoid floodwater in the sanitary sewer system	Spillville City Council	City general/enterprise funds	Ongoing	<\$10,000
	Purchase flood-proof covers for manholes	Spillville City Council	City general/enterprise funds, CDBG, USDA, HMGP, PDM, FMA	3 – 4 years	>\$10,000 & <\$100,000
	Update existing wells to increase depth in response to falling water table	Spillville City Council	City general/enterprise funds, CDBG, USDA, HMGP, PDM	3 – 4 years	>\$100,000 & <\$300,00
	Review water study and implement the recommendations	Spillville City Council	City general/enterprise funds, CDBG, USDA	Ongoing	>\$10,000 & <\$300,000

13. Maintain partnerships for effective and prompt emergency response

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Jackson Junction	Maintain partnerships to ensure swift and effective emergency response to community needs	Jackson Junction City Council	Time, City general fund	Ongoing	<\$10,000

Medium Priority Actions

1. Develop water and/or soil conservation strategies

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Winneshiek County	Improve land use management to minimize water runoff and soil conservation	Winneshiek County SWCD	Time, DNR, NRCS	Ongoing	>\$100,000 & <\$300,000
Spillville	Consider water conservation strategies and programs to prepare and/or react to drought	Spillville City Council	Time	Ongoing	<\$10,000

2. Promote the Hazard Mitigation Plan to the public

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Winneshiek County	Promote the Winneshiek County Hazard Mitigation Plan to the public	Winneshiek County EMC	Time only	Ongoing	<\$10,000

3. Improvements to transportation safety and response

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Calmar and/or NICC	Identify/develop safe routes for vehicle and pedestrian traffic – educate the public	Calmar City Council/NICC Provost	Time, City funds, DOT, grants	Ongoing	<\$10,000
Castalia	Develop an evacuation plan for community members	Castalia City Council	Time only	~ 1 year	<\$10,000
	Inform community members of suitable actions to take in the event of a rail/road/hazardous materials incident	Castalia City Council	Time only	Ongoing	<\$10,000
Decorah	Develop truck routes that designate hazmat routes and safe harbors for parking	Decorah City Council	Time, City funds, DOT	Ongoing	<\$10,000
Ossian	Pursue crossing arms or signals for rail crossings on Hall, West and Lydia streets	Ossian City Council	Time, City funds, DOT	Ongoing	<\$100,000

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Ridgeway	Develop safe pedestrian and bicycle routes/crossings and provide information to residents about their locations and proper use	Ridgeway City Council	Time, City funds, DOT	Ongoing	<\$10,000
Spillville	Improve roadway safety by adding additional speed limit signs and road markings	Spillville City Council	City funds, DOT	Ongoing	<\$10,000
	Purchase a portable speed monitor sign	Spillville City Council	City funds, DOT	1 – 2 years	<\$10,000

4. *Promote/purchase/subsidize “all-hazards” radios for community members*

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Castalia	Promote the use/purchase of all-hazard radios – consider a purchase plan or subsidy to help with the cost.	Castalia City Council	City funds, federal or state emergency management grants	Ongoing	<\$10,000
Jackson Junction	Consider a program to subsidize the purchase of All-Hazards radios for all households and businesses in the community.	Jackson Junction City Council	City funds, federal or state emergency management grants	Ongoing	<\$10,000
Ossian	Encourage and educate residents to utilize “all-hazards” radios	Ossian City Council	City funds, federal or state emergency management grants	Ongoing	<\$10,000

5. Waterway and structural changes/maintenance/upgrades/construction

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Decorah	Continue to address waterway/infrastructure issues to minimize flooding	Decorah City Council	City general funds, FEMA	Ongoing	>\$10,000 & <\$100,000
	Cleanup/maintain the Dry Run levee	Decorah City Council	City general funds	Ongoing	<\$10,000
	Construct upstream water retention structures on Dry Run to control quantity and velocity of water	Decorah City Council	City general funds, FEMA, DNR	3 – 4 years	>\$10,000 & <\$300,000
Fort Atkinson	Continue to take actions that contain the river and creek within designated boundaries	Fort Atkinson City Council	City general funds, FEMA, DNR	Ongoing	>\$10,000 & <\$300,000
Spillville	Continue installing rip-rap along the river	Spillville City Council	City general funds, FEMA, DNR	Ongoing	>\$10,000 & <\$100,000

6. Develop city codes to address issues (buildings w/ tornado safe areas, flood plains, etc.)

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Decorah	Develop codes that encourage buildings with tornado-safe areas	Decorah City Council	Time only	Ongoing	<\$10,000

Low Priority Actions

1. Acquire and demolish damaged structures

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Winneshiek County	Acquire and demolish damaged structures	Winneshiek County Board of Supervisors	FEMA, HMPG, County funds	As needed	>\$10,000

2. Develop tree treatment and replacement plan

Jurisdiction:	Specific Actions:	Responsible Agency:	Funding Source:	Timeframe:	Cost:
Spillville	Prepare for probable damage to city trees from the Emerald Ash Borer by setting aside funds for replacement and research Alliant Energy's tree program	Spillville City Council	City funds, local fundraising, Alliant Energy	Ongoing	>\$10,000 & <\$100,000

Plan Maintenance Process

In order to ensure that this plan remains an active and relevant document, this section provides an overview of the overall strategy for plan maintenance and outlines the method and schedule for monitoring, updating and evaluating the plan. It also discusses how the plan can be incorporated into existing planning mechanisms and how to address continued public involvement.

Monitoring, Evaluating, and Updating the Plan

Requirement 201.6(c)(4)(i):

[The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five year cycle.

With adoption of this plan, the HMPC and the governing bodies with legal authority for each Participating Jurisdiction will be tasked with monitoring, evaluating, and maintaining the plan.

Hazard Mitigation Planning Committee (HMPC)

A multi-jurisdictional Hazard Mitigation Planning Committee (HMPC) has been appointed by the Participating Jurisdictions. The HMPC will meet as a committee once annually to monitor and evaluate the plan. The Winneshiek County Emergency Management Coordinator will organize the meeting time and place and notify other members. The core duty of the HMPC in relation to this plan is to see it successfully carried out and to report to the community governing boards and the public on the status of plan implementation and mitigation opportunities. Other duties include reviewing and promoting mitigation proposals, hearing stakeholder concerns about hazard mitigation, passing concerns on to appropriate entities, and posting relevant information for the public to access.

More specifically, the HMPC, led by the Winneshiek County Emergency Management Coordinator, agree to:

- Meet annually to monitor and evaluate the implementation of the plan;
- Act as a forum for hazard mitigation issues;
- Disseminate hazard mitigation ideas and activities to all participants;
- Pursue the implementation of high priority, low- or no-cost recommended actions;
- Maintain vigilant monitoring of multi-objective, cost-share, and other funding opportunities to help the community implement the plan's recommended actions for which no current funding exists;
- Monitor and assist in implementation and update of this plan;
- Keep the concept of mitigation in the forefront of community decision making by identifying plan recommendations when other community goals, plans, and activities overlap, influence, or directly affect increased community vulnerability to disasters;
- Report on plan progress and recommended changes to the governing body with legal authority of the Participating Jurisdictions, Winneshiek County Emergency Management Coordinator and Upper Explorerland Regional Planning Commission (UERPC); and
- Inform and solicit the public for input.

Plan Maintenance Schedule

The HMPC agrees to meet annually to monitor progress and update the mitigation strategy. The Winneshiek County Emergency Management Coordinator is responsible for initiating these plan reviews. A five-year written update of the plan will be submitted to the Iowa Homeland Security and Emergency Management Division (HSEMD), FEMA Iowa and FEMA Region VII per Requirement §201.6(c)(4)(i) of the Disaster Mitigation Act (DMA) of 2000 and adopted by the governing body with legal authority of the Participating Jurisdictions within a five-year period from the final approval of this plan unless a disaster or other circumstances (e.g., changing regulations) require a change to this schedule.

Plan Maintenance Process

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).

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.

To evaluate any changes in vulnerability as a result of plan implementation, the Participating Jurisdictions will undergo the following process:

- A representative from the responsible office identified in each mitigation action will be responsible for tracking and reporting to the jurisdictional lead annually on action status. The representative will also provide input on whether the action, as implemented, meets the defined objectives and is likely to be successful in reducing vulnerabilities.
- If the action does not meet identified objectives, the jurisdictional lead 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.

Changes will be made to the plan to accommodate actions that have failed or are not considered feasible after a review of their adherence to established criteria, time frames, community priorities, and/or funding resources. Actions that were not ranked high but were identified as potential mitigation activities will be reviewed during the monitoring and update of this plan to determine feasibility for

future implementation. Updating of the plan will be enacted through written changes and submissions as the HMPC, particularly the Winneshiek County Emergency Management Coordinator, deems appropriate and necessary, and as approved by the governing bodies with legal authority for the Participating Jurisdictions.

Incorporation into Existing Planning Mechanisms

Requirement §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 improvement plans, when appropriate.

Where possible, the Participating Jurisdictions will use existing plans and/or programs to implement hazard mitigation actions. Based on the capability assessments of the Participating Jurisdictions, the communities will continue to plan and implement programs to reduce loss of life and property from hazards. This plan builds upon the momentum developed through previous related planning efforts and mitigation programs, and recommends implementing actions, where possible, through the following means:

- Winneshiek County Basic Operations Plan
- General or master plans of participating jurisdictions
- Winneshiek County Comprehensive Plan – plan updated in 2013 – includes all communities
- Ordinances of participating jurisdictions
- Capital improvement plans and budgets
- Winneshiek County Multi-Jurisdiction Mitigation Plan developed in future
- Other community plans either in existence or developed in the future
- Other county/regional plans either in existence or developed in the future

The governing body with legal authority for the participating jurisdictions adopting this plan will encourage other relevant planning mechanisms under their authority to consult this plan to ensure minimization of risk to natural hazards as well as maximum coordination of activities.

This multi-hazard mitigation plan will be included in the next update of the Winneshiek County Basic Operations Plan, Part B. The local data collected will be included in the State of Iowa Hazard Mitigation Plan where appropriate.

HMPC members involved in updating these existing planning mechanisms will be responsible for integrating the findings and actions of the mitigation plan, as appropriate. The HMPC is also responsible for monitoring this integration and incorporating the appropriate information into the five-year update of the multi-hazard mitigation plan.

Continued Public Involvement

Requirement §201.6(c)(4)(iii):

[The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.

The update process provides an opportunity to publicize success stories from the plan's implementation and seek additional public comment. Information will be posted in a county-wide publication following the annual review of the mitigation plan. Public meeting(s) to receive public comment on plan maintenance and updating will be held during the update period. When the HMPC reconvenes for the update, it will coordinate with all stakeholders participating in the planning process, including those who joined the HMPC after the initial effort, to update and revise the plan. In conclusion, public notices will continue to be posted and public participation will continue to be sought and encouraged through available local media outlets as this planning document is reviewed and revised.

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Appendix B – Jurisdictional Resolutions

Winneshiek County Board of Supervisors

Winneshiek County

RESOLUTION NO. 15-21

A RESOLUTION OF THE WINNESHIEK COUNTY BOARD OF SUPERVISORS ADOPTING
THE 2015 WINNESHIEK COUNTY, IOWA MULTI-JURISDICTION (MJ-9) MULTI-HAZARD MITIGATION PLAN

WHEREAS the Winneshiek County Board of Supervisors (Board) recognizes the threat that natural hazards pose to people and property within Winneshiek County; and

WHEREAS the Board has prepared a multi-hazard mitigation plan, hereby known as the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" identifies mitigation goals and actions to reduce or eliminate long term risk to people and property in Winneshiek County from the impacts of future hazards and disasters; and

WHEREAS adoption by the Board demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan."

NOW THEREFORE, be it resolved by the Winneshiek County, Iowa Board of Supervisors approves and adopts the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan," as an official plan.

ADOPTED by a vote of 5 in favor; 0 against; 0 abstaining this 15th day of December, 2014.

By: 

(Name)

JOHN L. GORDON, CHAIR, BOARD OF SUPERVISORS

ATTEST:

By: 

(Name)

BENJAMIN A. STEINES, COUNTY AUDITOR

CALMAR
RESOLUTION NO. 502

A RESOLUTION OF THE CITY OF CALMAR ADOPTING
THE 2015 WINNESHIEK COUNTY, IOWA MULTI-JURISDICTION (MJ-9) MULTI-HAZARD MITIGATION PLAN

WHEREAS the City of Calmar recognizes the threat that natural hazards pose to people and property within (local community); and

WHEREAS the Calmar community has prepared a multi-hazard mitigation plan, hereby known as the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" identifies mitigation goals and actions to reduce or eliminate long term risk to people and property in (local community) from the impacts of future hazards and disasters; and

WHEREAS adoption by the Calmar City Council demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan."

NOW THEREFORE, be it resolved by the City of Calmar, Iowa that the Calmar City Council approves and adopts the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan," as an official plan.

ADOPTED by a vote of 5 in favor; 0 against; ____ abstaining this 1st day of December 2014.

By: Keith Frana
Keith Frana, Mayor

ATTEST:

By: Michele Elsbernd
Michele Elsbernd, City Clerk

City of Castalia

City of Castalia
RESOLUTION NO. D114

A RESOLUTION OF THE City of Castalia ADOPTING
THE 2015 WINNESHIEK COUNTY, IOWA MULTI-JURISDICTION (MJ-9) MULTI-HAZARD MITIGATION PLAN

WHEREAS the City of Castalia recognizes the threat that natural hazards pose to people and property within Castalia; and

WHEREAS the City of Castalia has prepared a multi-hazard mitigation plan, hereby known as the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" identifies mitigation goals and actions to reduce or eliminate long term risk to people and property in Castalia from the impacts of future hazards and disasters; and

WHEREAS adoption by the City of Castalia demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan."

NOW THEREFORE, be it resolved by the City of Castalia, Iowa that the (City of Castalia approves and adopts the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan," as an official plan.

ADOPTED by a vote of 4 in favor; 0^{absent} against; 0 abstaining this 1st day of December, 2014.

By: Margaret Jones Mayor
Margaret Jones, Mayor

ATTEST:

By: Chris Bodensteiner, Clerk
Chris Bodensteiner, City Clerk

RESOLUTION NO. 2621

**A RESOLUTION OF THE CITY OF DECORAH ADOPTING
THE 2015 WINNESHIEK COUNTY, IOWA MULTI-JURISDICTION (MJ-9) MULTI-HAZARD
MITIGATION PLAN**

WHEREAS the Decorah City Council recognizes the threat that natural hazards pose to people and property within the City of Decorah; and

WHEREAS the City of Decorah has prepared a multi-hazard mitigation plan, hereby known as the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" identifies mitigation goals and actions to reduce or eliminate long term risk to people and property in the City of Decorah from the impacts of future hazards and disasters; and

WHEREAS adoption by the City of Decorah demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan."

NOW THEREFORE, be it resolved by the City of Decorah, Iowa that the City Council approves and adopts the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan," as an official plan.

PASSED AND ADOPTED this 17th day of November 2014.


Donald P. Arendt, Mayor


Wanda Hemesath, MMC, City Clerk, Treasurer

Motion by: Schissel

Second by: Niess

Voting aye: Schissel, Niess, Wanless, Wagner, Lore, Rustad, Kerndt

Voting nay:

City of Fort Atkinson

City of Fort Atkinson
RESOLUTION NO. 264

A RESOLUTION OF THE CITY OF FORT ATKINSON ADOPTING
THE 2015 WINNESHIEK COUNTY, IOWA MULTI-JURISDICTION (MJ-9) MULTI-HAZARD MITIGATION PLAN

WHEREAS the Fort Atkinson City Council recognizes the threat that natural hazards pose to people and property within the City of Fort Atkinson; and

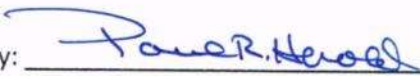
WHEREAS the City of Fort Atkinson has prepared a multi-hazard mitigation plan, hereby known as the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" identifies mitigation goals and actions to reduce or eliminate long term risk to people and property in the City of Fort Atkinson from the impacts of future hazards and disasters; and

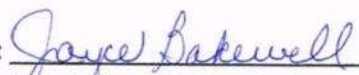
WHEREAS adoption by the Fort Atkinson City Council demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan."

NOW THEREFORE, be it resolved by the City of Fort Atkinson, Iowa that the Fort Atkinson City Council approves and adopts the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan," as an official plan.

ADOPTED by a vote of 5 in favor; 0 against; 0 abstaining this 2nd day of December, 2014.

By: 
Paul Herold, Mayor

ATTEST:

By: 
Joyce Bakewell, City Clerk

City of Jackson Junction

CITY OF JACKSON JUNCTION

RESOLUTION NO. 120914

A RESOLUTION BY THE CITY OF JACKSON JUNCTION ADOPTING
THE 2015 WINNESHIEK COUNTY, IOWA MULTI-JURISDICTION (MJ-9) MULTI-HAZARD MITIGATION PLAN

WHEREAS the City of Jackson Junction recognizes the threat that natural hazards pose to people and property within this community and

WHEREAS the City of Jackson Junction has prepared a multi-hazard mitigation plan, hereby known as the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" identifies mitigation goals and actions to reduce or eliminate long term risk to people and property in the City of Jackson Junction from the impacts of future hazards and disasters; and

WHEREAS adoption by the City of Jackson Junction Council demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan."

NOW THEREFORE, be it resolved by the City of Jackson Junction, Iowa that the City Council hereby approves and adopts the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan," as an official plan.

ADOPTED by a vote of 5 in favor; 0 against; 0 abstaining this 9th day of December, 2014.

By: Mae Schmitt, Mayor
Mae Schmitt, Mayor

ATTEST:

By: Sue Cutsforth
Sue Cutsforth, Clerk

City of Ossian

CITY OF OSSIAN RESOLUTION NO. 550

A RESOLUTION OF THE CITY OF OSSIAN ADOPTING THE 2015 WINNESHIEK COUNTY, IOWA MULTI-JURISDICTION (MJ-9) MULTI-HAZARD MITIGATION PLAN

WHEREAS the Ossian City Council recognizes the threat that natural hazards pose to people and property within the City of Ossian; and

WHEREAS the City of Ossian has prepared a multi-hazard mitigation plan, hereby known as the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" identifies mitigation goals and actions to reduce or eliminate long term risk to people and property in the City of Ossian from the impacts of future hazards and disasters; and

WHEREAS adoption by the Ossian City Council demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan."

NOW THEREFORE, be it resolved by the City of Ossian, Iowa that the Ossian City Council approves and adopts the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan," as an official plan.

ADOPTED by a vote of 4 in favor; 0 against; 1 ^{absent}~~abstaining~~ this 1st day of December, 2014.

By: Charles Covell
Charles Covell, Mayor

ATTEST:

By: Joyce Bakewell
Joyce Bakewell, City Clerk

City of Ridgeway

(LOCAL JURISDICTION)
RESOLUTION NO. 12-8-2014-1

A RESOLUTION OF THE CITY OF RIDGEWAY ADOPTING
THE 2015 WINNESHIEK COUNTY, IOWA MULTI-JURISDICTION (MJ-9) MULTI-HAZARD MITIGATION PLAN

WHEREAS the City of Ridgeway recognizes the threat that natural hazards pose to people and property within the Ridgeway community; and

WHEREAS the Ridgeway community has prepared a multi-hazard mitigation plan, hereby known as the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" identifies mitigation goals and actions to reduce or eliminate long term risk to people and property in the Ridgeway community from the impacts of future hazards and disasters; and

WHEREAS adoption by the City of Ridgeway demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan."

NOW THEREFORE, be it resolved by the City of Ridgeway, Iowa that the Ridgeway City Council approves and adopts the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan," as an official plan.

ADOPTED by a vote of 4 in favor; 0 against; 0 abstaining this 8th day of December 2014.

By: Paul Stevens
Paul Stevens, Mayor

ATTEST:

By: Sharla Berns
Sharla Berns, City Clerk

City of Spillville

CITY OF SPILLVILLE
RESOLUTION NO. 04-14

A RESOLUTION OF THE CITY OF SPILLVILLE ADOPTING
THE 2015 WINNESHIEK COUNTY, IOWA MULTI-JURISDICTION (MJ-9) MULTI-HAZARD MITIGATION PLAN

WHEREAS the City of Spillville recognizes the threat that natural hazards pose to people and property within Spillville; and

WHEREAS the City of Spillville has prepared a multi-hazard mitigation plan, hereby known as the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" identifies mitigation goals and actions to reduce or eliminate long term risk to people and property in Spillville from the impacts of future hazards and disasters; and


WHEREAS adoption by the City of Spillville demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan."

NOW THEREFORE, be it resolved by the City of Spillville Iowa that the Spillville City Council approves and adopts the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan," as an official plan.

ADOPTED by a vote of 5 in favor; 0 against; 0 abstaining this 13 day of December, 2014.

By: 
(Mayor)

ATTEST:

By: 
(City Clerk)

Decorah Community School District

DECORAH COMMUNITY SCHOOL DISTRICT

A RESOLUTION OF THE DECORAH COMMUNITY SCHOOL DISTRICT ADOPTING THE 2015 WINNESHIEK COUNTY, IOWA MULTI-JURISDICTION (MJ-9) MULTI-HAZARD MITIGATION PLAN

WHEREAS the Decorah Community School District Board of Directors recognizes the threat that natural hazards pose to people and property within Decorah, IA; and

WHEREAS Decorah, IA has prepared a multi-hazard mitigation plan, hereby known as the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" identifies mitigation goals and actions to reduce or eliminate long term risk to people and property in Decorah, IA from the impacts of future hazards and disasters; and

WHEREAS adoption by the Decorah Community School District Board of Directors demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan."

NOW THEREFORE, be it resolved by the Decorah Community School District, Decorah, Iowa that the Decorah Community School District Board of Directors approves and adopts the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan," as an official plan.

ADOPTED by a vote of 5 in favor; 0 against; — abstaining this 8 day of December 2014.

By: Rebecca Fels
(Name)

ATTEST:

By: Darlene Woodhouse
(Name)

South Winneshiek Community School District

SOUTH WINNESHIEK COMMUNITY SCHOOL DISTRICT

RESOLUTION NO. _____

A RESOLUTION OF THE SOUTH WINNESHIEK COMMUNITY SCHOOL DISTRICT ADOPTING THE 2015 WINNESHIEK COUNTY, IOWA MULTI-JURISDICTION (MJ-9) MULTI-HAZARD MITIGATION PLAN

WHEREAS the South Winneshiek Community School District Board of Directors recognizes the threat that natural hazards pose to people and property within its district boundaries and the communities of Calmar and Ossian, IA; and

WHEREAS Winneshiek County, including the cities of Calmar and Ossian, IA have prepared a multi-hazard mitigation plan, hereby known as the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" identifies mitigation goals and actions to reduce or eliminate long term risk to people and property within the South Winneshiek CSD boundaries including the communities of Calmar and Ossian, IA from the impacts of future hazards and disasters; and

WHEREAS adoption by the South Winneshiek Community School District Board of Directors demonstrates their commitment to hazard mitigation and achieving the goals outlined in the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan."

NOW THEREFORE, be it resolved by the South Winneshiek Community School District, Calmar, Iowa that the South Winneshiek Community School District Board of Directors approves and adopts the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan," as an official plan.

ADOPTED by a vote of 5 in favor; 0 against; ____ abstaining this 16 day of April 2015.

By: Arnold C. Kuene
(Name) Board President

ATTEST:

By: Kris Smith
(Name) Board Secretary

Northeast Iowa Community College

(NORTHEAST IOWA COMMUNITY COLLEGE)

RESOLUTION DATE: DECEMBER 15, 2014

A RESOLUTION OF THE NORTHEAST IOWA COMMUNITY COLLEGE BOARD OF TRUSTEES ADOPTING
THE 2015 WINNESHIEK COUNTY, IOWA MULTI-JURISDICTION (MJ-9) MULTI-HAZARD MITIGATION PLAN

WHEREAS the Board of Trustees recognizes the threat that natural hazards pose to people and property within the city of Calmar, Iowa; and

WHEREAS Winneshiek County and its jurisdictions have prepared a multi-hazard mitigation plan, hereby known as the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan" identifies mitigation goals and actions to reduce or eliminate long term risk to people and property in the city of Calmar, Iowa, encompassing the Northeast Iowa Community College campus, from the impacts of future hazards and disasters; and

WHEREAS adoption by the Board of Trustees demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan."

NOW THEREFORE, be it resolved by Northeast Iowa Community College, Calmar, Iowa that the Board of Trustees approves and adopts the "2015 Winneshiek County, Iowa Multi-Jurisdiction (MJ-9) Multi-Hazard Mitigation Plan," as an official plan.

ADOPTED by a vote of 7 in favor; 0 against; 0 abstaining this 15th day of December, 2014.

By: Ken G. Reimer

(Name) Ken G. Reimer

ATTEST:

By: Janet Bullerman

(Name) Janet Bullerman

BOARD MEETING

DEC 15 2014

ENCLOSURE NO. 10.5

Appendix C – Planning Process Documentation

Hazard Mitigation Planning Committee Meetings

Kick-off Meeting, December 4, 2012

Agenda



Serving Allamakee, Clayton, Fayette, Howard and Winneshiek Counties
325 Washington Street, Suite A, Decorah, IA 52101
Phone: 563-382-6171 Fax: 563-382-6311
www.uerpc.org

Hazard Mitigation Planning Meeting Agenda Planning Kick-off Meeting Winneshiek County, Iowa

Meeting Date: December 4, 2012
Meeting Time: 7:00 p.m.
Meeting Location: Decorah City Hall Council Chambers
400 Claiborne Drive, Decorah, IA 52101



1. Call to order and welcome
2. Introductions/sign-in sheets
3. Purpose of mitigation planning
4. Overview of the planning project
 - Review of Winneshiek County multi-jurisdictional planning efforts to date
 - Benefits of continued participation in the plan update
 - Key steps of the process
 - Participation requirements
 - Project timeline
 - Questions & Answers
5. Select Hazard Mitigation Planning Committee members, appointing by formal resolution
6. Next steps
7. Set next meeting date
8. Adjourn

Economic Development * Comprehensive Planning * Transportation * Workforce * Housing * Revolving Loan Fund

Established in 1972



Agenda

1. Call to order and welcome
2. Introductions
3. Purpose of mitigation planning
4. Overview of the planning project
5. Select Hazard Mitigation Planning Committee
6. Next steps
7. Set next meeting date
8. Adjourn



What is Hazard Mitigation?

- ▶ Any action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects - an effort to reduce loss of life and property by lessening the impact of disasters.
- ▶ Hazard mitigation is specifically dedicated to breaking the cycle of damage, reconstruction, and repeated damage.
- ▶ Mitigation is taking action *now*—before the next disaster—to reduce human and financial consequences later (analyzing risk, reducing risk, insuring against risk).

Why Plan?

- ▶ To identify policies and actions that can be implemented over the long term to reduce risk and future losses.
- ▶ Mitigation Plans form the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage.
- ▶ Plans create a framework for risk-based decision making to reduce damages to lives, property, and the economy from future disasters.



Benefits of planning

- ▶ Identifies cost effective actions for risk reduction that are agreed upon by stakeholders and the public
- ▶ Focuses resources on the greatest risks and vulnerabilities
- ▶ Builds partnerships by involving people, organizations, and businesses



Benefits of planning

- Increases education and awareness of hazards and risk
- Communicates priorities to state and federal officials
- Aligns risk reduction with other community objectives



Current Plans MJ-4 and MJ-5

- Covers nine jurisdictions and the unincorporated areas
- Both expire in 2015
- Received suggestions for improvements to the new updated plan
- Available for review on the UERPC website:
<http://www.uerpc.org/winneshiek-haz-mit.html>

Key Steps



Key Steps

- **Step 1:** Identify and organize interested members of the community and the technical expertise required.
- **Step 2:** Identify the characteristics and potential consequences of hazards.
- **Step 3:** Determine what the priorities should be and find possible ways to avoid or minimize the undesired effects.
- **Step 4:** Bring the plan to life.

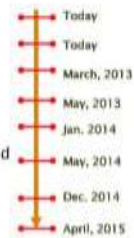
Participation Requirements

- Meetings – approximately eight
- In-kind time:
 - Volunteers
 - Personnel
- Draft plan reviews
- Final plan reviews
- Public engagement



Project Timeline

- Planning Kick-off Meeting
- Planning Committee
- Community Profiles
- Hazard Identification
- Vulnerability Assessment
- Develop Mitigation Strategies and Actions
- Finalize Written Document
- Adoption and Approval



Questions

- ▶ On the process
- ▶ On the plan
- ▶ On mitigation



Will you join us?

Next Steps

- ▶ Set next meeting date
- ▶ Review existing plans
- ▶ Visit FEMA Site:
 - <http://www.fema.gov/multi-hazard-mitigation-planning>
- ▶ Recruit community members
- ▶ Other outreach?

Thank You!

Karla Organist, Program Manager
Community and Transportation
Planning
Upper Explorerland Regional
Planning Commission
korganist@uerc.org
563-382-6171



J. Bruce Gotsch, Coordinator
Winnebago County Emergency
Management Agency
ema96a@netins.net
563-387-4095



Meeting Minutes



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Hazard Mitigation Planning Meeting Minutes Planning Kick-off Meeting Winneshiek County, Iowa

Meeting Date: December 4, 2012
Meeting Time: 7:00 p.m. to 8:05 p.m.
Meeting Location: Decorah City Hall Council Chambers
400 Claiborne Drive, Decorah, IA 52101



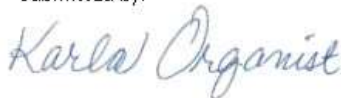
1. Meeting called to order at 7:00 p.m. by J. Bruce Goetsch, Coordinator, Winneshiek County Emergency Management
2. Name and affiliation introductions were led by Karla Organist, UERPC facilitator/planner. The following individuals were in attendance:
 - Volunteer basis: Don Arendt, Michael Wilder, Chad Bird, Barbara Schroeder, Barbara Schwamman, Chris Hoover, Paul Herold, Ronald Franzen, Steve Sweet, Margaret Jones, Mark Kuhn
 - Non-volunteer basis: Nancy Sacquitne, Steve VandenBrink, Bill Nixon, Jan Heikes, Bruce Goetsch
3. Meeting agenda was reviewed - presentation handout provided (see attached).
4. Bruce Goetsch gave a quick presentation on the role of the Emergency Management Commission and Coordinator in the county.
5. Purpose of mitigation planning - identifying policies and actions that can be implemented to reduce risk and lessen future losses.
6. An overview of the current planning project was provided:
 - Review of Winneshiek County multi-jurisdictional planning efforts to date: MJ-4 and MJ-5 will expire in 2015 - both on UERPC website for review: <http://www.uerpc.org/winneshiek-haz-mit.html>
 - Will be combining and updating these plans for MJ-9. Need to see what has changed since their approval in 2010. Want approval by FEMA before the first plan expires in April 15th.
 - Shared feedback from MJ-4 and MJ-5 crosswalks, discussed meetings with individual jurisdictions to capture specific strategies and actions.
7. Key steps of the process
 - Organize resources: Identify and organize interested members of the community and the technical expertise required. Communities should focus on the resources needed for a successful mitigation planning process. Essential steps include identifying and organizing interested members of the community as well as the technical expertise required during the planning process.

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-
- Risk assessment: Identify the characteristics and potential consequences of hazards (**hazard identification**). It is important to understand how much of the community can be affected by specific hazards (**hazard mapping**) and what the impacts would be on important community assets (**vulnerability assessment**).
 - Develop a mitigation plan: Determine community priorities and then look at possible actions to take to avoid or minimize the undesired effects. The result is a hazard mitigation plan and strategy for implementation (**Mitigation strategies and actions**).
 - Implement Plan and Monitor Progress: Bring the plan to life, ranging from implementing specific mitigation projects to changes in day-to-day organizational operations. To ensure the success of an ongoing program, it is critical that the plan remains relevant. Thus, it is important to conduct periodic evaluations and make revisions as needed (**Plan Maintenance Process**).
8. Discussion of Committee Member requirements/expectations, volunteer vs. non-volunteer
 9. Discussion of the project timeline
 5. Discussion of appointing committee members by formal resolution. EM Commission will approve the resolution. Who is not here that should be? Suggestions were given to Bruce Goetsch who will follow up with other potential participants. It is expected that as the four new Supervisors come on board in January, one will become a member.
 6. Next steps: Review existing MJ-4 and MJ-5, visit FEMA site to learn more about hazard mitigation planning and best practices: <http://www.fema.gov/multi-hazard-mitigation-planning>
 7. Meeting documents will be posted on the UERPC website under the planning tab, click "Hazard Mitigation" and then select the Winneshiek County page.
 8. Next meeting date set for January 24th, 7:00 p.m.
 9. Meeting adjourned at 8:05 p.m.

Submitted by:



Karla Organist
UERPC Program Manager

Sign-in Sheets

Meeting Sign-In Sheet

Sub-Grantee:

Winnebiek County

Date:

12/4/2012

Time:

7:00 p.m. - 8:05 p.m.

Page 1 of 2

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Donald Aesut	Boeoth,	382-3651	Boeoth, Clavhara, Drive 305 Montgomery St, Suite # 3, Boeoth,	X	Donald Aesut
Nancy Jacqueline	Winnebiek Public Health	382-4662	Suite # 3, Boeoth,	N	Nancy Jacqueline
Steve VandenBrink	Winnebiek Medical Center	503-387-3049	901 Montgomery St Boeoth	N	Steve VandenBrink
Michael Wilder	City of Colmar	662-3342	Box 26 Colmar	Y	Michael E. Wilder
Bill Nixon	Illinois Dept of Police	382-3067	400 Clinton St DE	N	Bill Nixon
Jan Heikes	Winnebiek CPC	387-4144	304 W. Broadway	N	Jan Heikes
Mark Kura	Winm. Co.			Y	Mark Kura

Meeting Sign-In Sheet

Sub-Grantee:

Winnebago County

Date:

12/4/2012

Time:

7:00 p.m.

Page 2 of 2

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Chad End	City of Winnebago	920-3651	400 Alhambra Dr.	Yes	Chad End
Barbara Schneider	Winnebago Co. Conservation	534-7145	2046 Lake Meyer Addition	Y	Barbara Schneider
Libby Schumann	South Winnebago School	532-9325	208 East Buffalo St. Oshkosh	Y	Libby Schumann
Chris Hovner	Shady Valley Smith Union	542-2449		Y	Chris Hovner
PAUL R. HEROLD	MARK-FERGATKUSON	563-563	103 STREET, NW F. ATTENTION	Y	Paul Herold
KEVIN L. FAYZEH	FOOT ATTENTION	563-563	PO BOX 117	Y	Kevin L. Fayzeh
STEVE SWEET	DECATUR F.D.	563-563	304 37	Y	Steve Sweet
Margaret Jones	Castalia Paper	963-9165	Castalia 52133	Y	Margaret Jones

Meeting #2, January 24, 2013

Agenda



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Hazard Mitigation Planning Meeting Agenda Meeting 2 Winneshiek County, Iowa

Meeting Date: January 24th, 2013
Meeting Time: 7:00 p.m.
Meeting Location: Decorah City Hall Council Chambers
400 Claiborne Drive, Decorah, IA 52101



1. Call to order and welcome
2. Introductions/sign-in sheets
3. Update from EMA on committee appointment resolution
4. Purpose of mitigation planning - review
5. Step Two: Assess Risks
 - Process
 - Review of hazards
 - Discussion of hazards to be profiled
 - Community profiles - needs
5. Next steps
 - UERPC compiles community profiles
 - UERPC collects data and hazard profiles
 - City and county data as requested
6. Questions/Comments
7. Set next meeting date - April
8. Adjourn

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**Hazard Mitigation Planning Meeting Minutes
Steering Committee Meeting 2
Winneshiek County, Iowa**

Meeting Date: January 24, 2013
Meeting Time: 7:00 p.m. to 8:05 p.m.
Meeting Location: Decorah City Hall Council Chambers
400 Claiborne Drive, Decorah, IA 52101



1. Meeting called to order at 7:00 p.m. by Karla Organist, UERPC facilitator/planner.
2. Introductions followed, in attendance were:
3. Volunteer basis: Don Arendt, Paul Herold, Ronald Franzen, Margaret Jones, Todd Ihde, Greg Schaller
4. Non-volunteer basis: Nancy Sacquitne, Steve VandenBrink, Bill Nixon, Jan Heikes, Bruce Goetsch
5. Bruce Goetsch gave an update regarding the completion of the resolution appointing the committee and the first quarterly report submission
6. Meeting agenda was reviewed
7. Reviewed of the purpose and process of mitigation planning
8. Discussion of Step two: Assess Risks (Hazard Analysis/Risk Assessment or HARA)
 - The Process:
 - Step 1 of this process – Identifying Hazards – helps explain how to determine which hazards can affect your community. We'll be creating an inventory so to speak.
 - What will be affected by these hazards?
 - Are there buildings, roads, utilities, or other facilities in the community that will be damaged or destroyed by these hazards? Are there concentrations of certain populations in hazard areas that are especially vulnerable, such as elderly or non-English speaking people? Are there unique or symbolic characteristics about the community that will be impacted adversely by a hazard? How will the economy of the community or region be impacted by the occurrence of the hazard?
 - Step 2 of this process – Community Profiles – will help determine if and to what extent these hazards will affect the assets of your jurisdiction.
 - How bad can it get?
 - How "big" is each hazard's potential impact? Will it affect every area the same or will certain areas get hit harder than others? How often will each type of hazard impact your community?
 - Step 3 of this process – Hazard Profiles – will help determine how bad a hazard can get.
 - What secondary impacts can the hazard create? What secondary hazards can be triggered by another hazard? Which hazards are priorities for planning?
 - Which hazards are candidates for special attention for response planning? On which hazards should we focus our mitigation efforts? Which hazards require further planning for post-disaster recovery?
 - Through completion of steps 1-3, the hazards can be sorted by their composite score. The hazard with a higher score represents the hazard with a higher risk to the community.

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- Step 4 of this process – Prioritizing Hazards – will help determine which hazards need to be addressed through mitigation planning. The hazards or impacts that cannot be mitigated need to be addressed in the response plan and the recovery plan.
 - The hazard analysis and risk assessment is a process for determining the emergency management needs for the county. This is possible when the knowledge of the hazards is combined with the knowledge of the impact it would have on citizens and property. The result is a measure of the jurisdiction's vulnerability and the probability of an incident occurring. Adequate information about the hazards will enable the us to know:
 - How frequently damage from a particular event could occur,
 - The extent of the damage, and
 - Which portions of the jurisdiction could be impacted?
 - Review/Discussion of hazards to be profiled:

<ul style="list-style-type: none"> ○ Avalanche ○ Active Shooting Incident – potential addition ○ Coastal Erosion ○ Coastal Storm ○ Dam Failure ○ Debris Flow ○ Domestic Terrorism – potential addition ○ Drought ○ Earthquake ○ Expansive Soils ○ Extreme Heat ○ Extreme Cold – potential addition ○ Flash Flood ○ Grass or Wild Land Fire ○ Hailstorm ○ Hurricane 	<ul style="list-style-type: none"> ○ Land Subsidence ○ Landslide ○ Levee Failure ○ Massive Power Outage – potential addition ○ Pandemic – potential addition ○ River Flood ○ Severe Winter Storm ○ Sinkhole ○ Thunderstorm and Lightning ○ Tornado ○ Tsunami ○ Volcano ○ Windstorm ○ Zoonotic Diseases – potential addition ○ Fixed Hazmat Incident ○ Hazmat Transportation Incident ○ Highway Transportation Incident ○ Railway Transportation Incident
---	--
9. Community profile worksheets were provided to community stakeholders to review, complete and return by March 1st. Karla will email the forms out to everyone and Bruce will follow up with missing communities.
 10. Next steps: Community profile worksheets completed by communities and returned to Karla at UERPC. UERPC will pull together community profiles – goal is to get to Bruce by Mar. 15th. UERPC will begin to compile hazard profiles.
 11. Next meeting date set for April 18th, 7:00 p.m. UPDATE: THIS DATE WILL NEED TO BE CHANGED DUE TO FACILITATOR CONFLICT.
 12. Meeting adjourned at 8:05 p.m.

Submitted by:

Karla Organist

Karla Organist

UERPC Program Manager

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Sign-in Sheets

Meeting Sign-In Sheet

Sub-Grantee:

Winnebago County

Date:

1/24/2013

Time:

7:00 p.m. - 8:05

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Margaret Jones	Castalia	563-8765	P.O. Box 37	Y	Margaret Jones
T. Id Elder	Dorash Water Dist	563-782-5171	P.O. Box 138	Y	T. Id Elder
Greg Scheller	Deer Creek, Can. Schells	379-4758	510 Winnebago St	Y	Greg Scheller
Ronald J. Thompson	Off. Thompson, FD	563-382-4662	P.O. Box 114	Y	Ronald J. Thompson
Nancy Saquinne	Winnebago, PH	563-382-4662	305 Montgomery St, Suite 3	N	Nancy Saquinne
Don Aender	Decorah City	365-3651	400 Cleveland Dr. Decorah	X	Don Aender
Bill Nixon	Decorah Police	367-367	400 Cleveland Dr.	N	Bill Nixon
Don Hines	Winnebago	387-4144	204 W. Broadway	N	Don Hines
Paul R. Herald	Forest, WI	563-780-2387	103 State St. Decorah	Y	Paul R. Herald
Steve VanderBrink	Winnebago Medical	563-380-2581	901 Montgomery St Decorah	N	Steve VanderBrink
Bruce Speisach	Winnebago	563-380-2581	400 Cleveland Dr	N	Bruce Speisach

Meeting #3, April 17, 2013

Agenda



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Hazard Mitigation Planning Meeting Agenda Meeting 3 Winneshiek County, Iowa



Meeting Date: April 17th, 2013
Meeting Time: 7:00 p.m.
Meeting Location: Upper Explorerland Meeting Room
325 Washington Street, Decorah, IA 52101
Parking behind the building off Winnebago – enter through "Upper Explorerland" door in back.

1. Call to order and welcome
2. Introductions/sign-in sheets
3. Update from EMA
4. Review of community profiles
 - Critical facilities – what is missing
 - School districts – where will you fit?
 - Other plans not listed?
5. Hazards most likely to affect each jurisdiction
 - List from Meeting 2:

Active Shooting Incident – potential addition	Dam Failure
Debris Flow	Domestic Terrorism – potential addition
Drought	Earthquake
Expansive Soils	Extreme Heat
Extreme Cold – potential addition	Flash Flood
Grass or Wild Land Fire	Hailstorm
Hurricane	Land Subsidence
Landslide	Levee Failure
Massive Power Outage – potential addition	Pandemic – potential addition
River Flood	Severe Winter Storm
Sinkhole	Thunderstorm and Lightning
Tornado	Windstorm
Zoonotic Diseases – potential addition	Fixed Hazmat Incident
Hazmat Transportation Incident	Highway Transportation Incident
Railway Transportation Incident	
6. Questions/Comments
7. Next Steps: UERPC to work on hazard profiles (definition, description, occurrences)
8. Set next meeting date – July (review hazard profiles, develop hazard assessment scores)
9. Adjourn

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Meeting Minutes



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Hazard Mitigation Planning Meeting Minutes Steering Committee Meeting 3 Winneshiek County, Iowa



Meeting Date: April 17th, 2013
Meeting Time: 7:00 p.m. to 8:30 p.m.
Meeting Location: Upper Explorerland Meeting Room
325 Washington Street, Decorah, IA 52101

1. Meeting was called to order at 7:00 p.m. by Karla Organist, UERPC facilitator/planner
2. Persons in attendance:
 - Volunteer basis: Margaret Jones, Don Arendt, Ronald Franzen, Paul Herold, Chad Bird, Mark Kuhn
 - Non-volunteer basis: Bill Nixon, Bruce Goetsch, Steve VandenBrink
3. Update from EMA:
 - Quarterly grant report filed
 - With the Boston Marathon bombings that just occurred, we will want to put more emphasis on event preparation in the plan.
 - Has scheduled the hospital to do a mass casualty/fatality exercise within the next month or so.
4. Review of community profiles
 - School districts – will need to decide where they will fit in – do they want to be part of a city section, or have their own profile. Will need to identify their unique risks and own mitigation actions. No districts were present, so will need to follow up on this. Also NICC.
 - Reviewed community profile packet. Identified necessary changes and additions (see next bullet). Karla will make the changes or verify those items that were questioned and send out the document again for review. Will also be working with each community to further refine their resources, services and recent mitigation activities.
 - Questions/Changes:
 - Can we find out how much the trains are hauling or count by cars – especially chemicals?
 - Add a sub-section on our trail system in the Transportation section and what about snowmobile trails – find out how many miles. Snowmobile trails may vary each season. Karla will talk to Jon Lubke and Barb Schroeder to identify trail miles, as well as the two major snowmobile clubs.
 - Added Burr Oak to Wastewater list.
 - Discussed cell phone tower locations. There are several in the rural areas, but it looks like they are all in communities the way it is phrased. Also need to add Fort Atkinson and mention the rural locations.

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- Add the communities from which TV broadcasts to the area to the communications section.
 - Add emergency services to Winneshiek Med. Center
 - Add VA Clinic, Family Care Clinic and U of I Pediatric Clinic in Decorah to list of Health Care Entities.
 - Reconfirm senior care facility classifications with Iowa DIA
 - If 2012 agricultural census is done before plan completion – will be updating that data. ACS data too.
 - In community-specific sections, adjust wording surrounding HAZMAT Team information
 - Corrected/added some ambulance service provider information.
 - Change “first responders” to “emergency medical responders” throughout
 - Corrected some numbers on Decorah Police Department staffing
 - Ask auditor for more recent valuation data – update
 - Check on service area for Ridgeway Fire Dept.
 - Will be adding a school district map
 - Will want to capture historic sites at some point
 - Will want to capture Frankville Fire Dept. Maybe add to beginning section – with coverage map.
 - Discussed anhydrous in Ridgeway and Ossian – may want to incorporate all tier 2 reporters?
5. Questions/Comments:
 - Discussion regarding hazardous vehicles in town – how do they end up there and can they be embargoed?
 - Any other things committee members notice – send to Karla
 6. Next Steps: UERPC to work on hazard profiles (definition, description, occurrences)
 7. Next meeting date – Thursday, July 18th in conference room at Decorah City Hall at 7:00 p.m.
 - Will review hazard profiles and start work on Calculated Priority Risk Index (CPRI) scoring.
 8. Meeting Adjourned at 8:30 p.m.

Sign-in Sheets

Meeting Sign-In Sheet

Sub-Grantee:

Winnebago County

Date:

4/17/2013

Time:

7:00 p.m. - 8:30

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Margaret Jones	Castalia	563-8995	201 E. Greer	Y	Margaret Jones
Don Abers	Decorah	563-5370	910 Park Dr. S. Decorah	Y	Don Abers
ROYALD FRANKLIN	ST ARTHUR	563-4944	301 2nd St NW	Y	Ronald Franklin
Sue Nieren	Decorah	563-3667	460 Clairmont Dr	N	Sue Nieren
Bruce Goetsch	Wadena	361-4075	400 CLAIRMONT DR	N	Bruce Goetsch
Chad Bird	Decorah	563-3661	460 Clairmont Dr	Y	Chad Bird
Mark Kuhn	County	534-7158	1799 293rd Ave	Y	Mark Kuhn
Sherridan Brink	Winn. Med. Center Decorah WENSA	563-3873049	1518 Locust St	N	Sherridan Brink
Ronald H. Hume	FOOT STEPHENSON	563-3802507	103 STEEL ST	Y	Ronald Hume

Meeting #4, July 24, 2013

Agenda



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Hazard Mitigation Planning Meeting Agenda Meeting 4 Winneshiek County, Iowa



Meeting Date: July 24th, 2013
Meeting Time: 7:00 p.m.
Meeting Location: UERPC Conference Room
325 Washington Street, Decorah, IA 52101

1. Call to order and welcome
2. Introductions/sign-in sheets
3. Update from EMA
4. Review of hazard profiles
5. CPRI Scoring
6. Questions/Comments
7. Next Steps: Risk assessment and identification of vulnerable buildings
8. Set next meeting date – late September?
9. Adjourn

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Meeting Worksheet

FEMA HAZARD LIST:	State of Iowa List:	MJ-4 and MJ-5 Considerations:	MJ-9 Committee Considerations:	Reason for Omission: (MJ-4 and MJ-5 highlighted)
<u>Atmospheric Hazards:</u>				
Tropical Cyclones		Coastal Storm, Hurricane		Planning area is not near coastal area
Thunderstorms and lightning	Thunderstorms and Lightning	Thunderstorm and Lightning	Thunderstorm and Lightning	
Tornadoes	Tornadoes	Tornado	Tornado	
Windstorms	Windstorms	Windstorm	Windstorm	
Hailstorms	Hailstorms	Hailstorm	Hailstorm	
Snow Avalanches		Avalanche		There are no mountains in the planning area
Severe Winter Storms	Severe Winter Storms	Severe Winter Storm	Severe Winter Storm	
Extreme Heat	Extreme Heat	Extreme Heat	Extreme Heat	
			Extreme Cold	
<u>Geologic Hazards</u>				
Landslides	Landslides	Landslide	Landslide	
Land Subsidence (the loss of surface elevation due to the removal of subsurface support – primarily caused by human activities: mining of coal, groundwater or petroleum withdrawal and drainage of organic soils)		Land Subsidence	Land Subsidence	There are no known subsurface void spaces in the planning area and no known historical occurrences of this hazard
Expansive Soils (soils and soft rock that tend to swell or shrink due to changes in moisture content.	Expansive Soils	Expansive Soils	Expansive Soils	There are no known expansive soils in the planning area and no known historical occurrences of this hazard
	Sink Holes	Sinkhole	Sinkhole	
<u>Hydrologic Hazards</u>				
Floods	River Flooding/Flash Flood	River Flood/Flash Flood	River Flood/Flash Flood	
Storm Surges				
Coastal Erosion		Coastal Erosion		Planning area is not near coastal area
Droughts	Drought	Drought	Drought	
		Debris Flow	Debris Flow	There are no mountainous regions in the planning area susceptible to debris flow
<u>Seismic Hazards</u>				
Earthquakes	Earthquakes	Earthquake	Earthquake	
Tsunami Events		Tsunami		Planning area is not near coastal area
<u>Other Natural Hazards</u>				
Volcanic Hazards		Volcano		There are no volcanic mountains in the planning area
Wildfire Hazards	Grass or Wild land Fire	Grass or Wild Land Fire	Grass or Wild Land Fire	
<u>Technological Hazards:</u>				
Dam Failures	Dam Failure	Dam Failure	Dam Failure	
Fires				
Hazardous Materials Events	Hazardous Materials		Fixed Hazmat Incident	
Nuclear Accidents	Radiological			
	Levee Failure	Levee Failure	Levee Failure	
<u>Human Caused/Combo Hazards:</u>				
			Active Shooting Incident	
	Terrorism		Domestic Terrorism	
			Massive Power Outage	
	Human Disease		Pandemic	
	Animal/Plant/Crop Disease		Zoonotic diseases	
			Hazmat Transportation Incident	
	Transportation Incident		Highway Transportation Incident	
			Railway Transportation Incident	
	Infrastructure Failure			

Meeting Minutes



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Hazard Mitigation Planning Meeting Minutes Steering Committee Meeting 4 Winneshiek County, Iowa



Meeting Date: July 24th, 2013
Meeting Time: 7:00 p.m. to 8:30 p.m.
Meeting Location: Upper Explorerland Meeting Room
325 Washington Street, Decorah, IA 52101

1. Meeting was called to order at 7:00 p.m. by Bruce Goetsch, Winneshiek County Emergency Management Coordinator
2. Persons in attendance:
 - Volunteer basis: Margaret Jones, Don Arendt, Ronald Franzen, Barb Schroeder, Mark Kuhn
 - Non-volunteer basis: Bruce Goetsch, Nancy Sacquitne, Steve VandenBrink
3. Update from EMA:
 - An update on the recent flooding was given. Disaster declaration request has gone to the President for consideration
 - Quarterly grant report filed
 - There are three Hazard Mitigation NOFAs available right now. Communities should consider submitting an NOI if interested in pursuing a project at this time.
4. Review of hazard types for inclusion in plan. Determined that the following hazards will be profiled – some added since MJ-4 and MJ-5:

<ul style="list-style-type: none">• Flash Floods (captures debris flow)• Infrastructure Failure (added)• Thunderstorms and lightning• Transportation Incident (added)• Animal/Plant/Crop Disease (added)• Windstorms• River Floods (captures debris flow)• Hailstorm• Droughts• Tornadoes• Extreme Heat	<ul style="list-style-type: none">• Hazardous Materials (added)• Terrorism (include active shooting incident, domestic)• Human Disease (added)• Levee Failure• Radiological (added)• Grass or Wildfire• Sink Holes• Earthquakes• Landslides• Severe Winter Storms (includes extreme cold)• Dam Failure
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5. Reviewed preliminary hazard profiles and completed CPRI scoring:

CPRI Element:	Probability:	Magnitude	Warning Time	Duration	Spatial Extent	Planning Significance:	
						High (3.00-4.00), Moderate (2.00-2.99), and Low (1.00-1.99).	
Hazard/Score:						CPRI:	
Flash Floods	3	3	4	3	2	3.1	High
Infrastructure Failure	3	2	4	3	3	2.9	Moderate
Thunderstorms and lightning	4	1	4	1	3	2.9	Moderate
Transportation Incident	3	2	4	2	1	2.7	Moderate
Animal/Plant/Crop Disease	3	2	1	4	2	2.5	Moderate
Windstorms	3	1	4	1	2	2.4	Moderate
River Floods	2	2	3	3	2	2.25	Moderate
Hailstorm	2	2	4	1	2	2.2	Moderate
Droughts	2	2	1	4	4	2.15	Moderate
Tornadoes	2	2	4	1	1	2.15	Moderate
Extreme Heat	2	2	1	3	4	2.05	Moderate
Hazardous Materials	2	1	4	2	1	2	Moderate
Terrorism	2	1	4	2	1	2	Moderate
Human Disease	2	1	2	4	2	1.95	Low
Levee Failure	1	2	3	4	2	1.9	Low
Radiological	1	1	4	3	1	1.65	Low
Grass or Wildfire	1	1	4	2	1	1.55	Low
Sink Holes	1	1	4	2	1	1.55	Low
Earthquakes	1	1	4	1	1	1.45	Low
Landslides	1	1	4	1	1	1.45	Low
Severe Winter Storms	1	1	1	3	4	1.35	Low
Dam Failure	1	1	1	3	1	1.2	Low

6. Next Steps: UERPC to update hazard profiles (definition, description, occurrences) and complete risk assessment and ID of vulnerable buildings
7. Next meeting date – Thursday, October 3rd in the UERPC conference room at 7:00 p.m.
8. Meeting Adjourned at 8:30 p.m.

Sign-in Sheets

Meeting Sign-In Sheet

Sub-Grantee:

Winnebiek County

Date:

7/24/2013

Time:

7:00 p.m. - 8:30

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Bruce Goetsch	WEHA		420 Cambridge Dr Decatur	N	Bruce Goetsch
Don Auerst	Spokane		WEHSA 201 E. Duane St	Y	Don Auerst
Deborah Brink	Winnebiek Medical Center		201 E. Duane St	N	Deborah Brink
Margaret A Jones	Castalia Mayor		201 E. Duane St	Y	Margaret A Jones
RONALD FRANZEN	POPE JOHN		301 2ND ST NW	Y	Ronald Franzen
Barbara Schneider	US Forest Service		301 2ND ST NW	Y	Barbara Schneider
Nancy Saegvime	WCPH		305 Montgomery St	N	Nancy Saegvime
Mark Kuhn	County		1709 243rd Ave, Fort Atkinson, 53144	Y	Mark Kuhn

Meeting #5, October 3, 2013

Agenda



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Hazard Mitigation Planning Meeting Agenda Meeting 5 Winneshiek County, Iowa



Meeting Date: October 3, 2013
Meeting Time: 7:00 p.m.
Meeting Location: UERPC Conference Room
325 Washington Street, Decorah, IA 52101

1. Call to order and welcome
2. Introductions/sign-in sheets
3. Update from EMA
4. Review of vulnerability assessment
5. Identify Mitigation Strategies (goals, objectives)
6. Questions/Comments
7. Next Steps: Community meetings
8. Set next meeting date – April, 2014?
9. Adjourn

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**Hazard Mitigation Planning Meeting Minutes
Steering Committee Meeting 5
Winneshiek County, Iowa**



Meeting Date: Oct. 3, 2013
Meeting Time: 7:00 p.m. to 9:15 p.m.
Meeting Location: Upper Explorerland Meeting Room
325 Washington Street, Decorah, IA 52101

1. Meeting was called to order at 7:00 p.m. by Karla Organist, Upper Explorerland Regional Planning Commission, plan facilitator
2. Persons in attendance:
 - Volunteer Basis: Don Arendt, Paul Herold, Ron Franzen, Mark Kuhn
 - Non-volunteer basis: Bruce Goetsch, Jan Heikes, Nancy Sacquitne
3. Update from EMA:
 - An update on potential weather was provided
 - EMA Coordinator gave a presentation to North Winn 7-8th graders on hazard mitigation planning as part of a Lego Grant, "Nature's Fury."
4. Review of vulnerability assessment, comments and changes are as follows:
 - Add population numbers to the "Total Structure Counts and Valuations" table
 - Confirm with GIS Coordinator: residential properties in Ridgeway (seems low) and industrial properties in Fort Atkinson (should be some)
 - On "Critical Facilities by Jurisdiction" table: add new storm shelter in Decorah, check with Black Hills and Alliant as to the number of lines and distribution stations
 - Add "drought can carry over from year to year, impacting the health of the subsoil" to the Drought Vulnerability section
 - In the "Vulnerable Population Data for Winneshiek County" use the % of state to estimate the number of residents with a disability in the county, footnote the calculation
 - In the Flash Flood section, add committee's recent anecdotes to the Vulnerability section and the human cost potential
 - In the "Flood Vulnerability by Jurisdiction" table, remove the education rows since we have no data.
 - In the Hail section, add committee anecdotes to the vulnerability section
 - In the Hazardous Materials section, verify the number of hazmat transportation incidents with the DNR – committee felt it was low; include the train accidents with hazmat; and change the wording in the vulnerability section about the seasonality of hazmat travel.
 - In the HARA Infrastructure Failure section, remove the reference to the energy crisis in the 70s
 - In the Infrastructure Failure section, add committee anecdote to the vulnerability section.
 - In the "Structure Inventory" table, verify number of bridges/box culverts with Lee Bjerke, County Engineer.
 - Add "immediate public safety and long term health concerns" to the river flooding vulnerability section.

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-
- Add bioterrorism and workplace violence to the HARA description of terrorism.
 - Add Luther College and NIIC to the "School Enrollment by Building and Community" table in the terrorism vulnerability section
 - In the transportation vulnerability section: address wildlife, bicycles, ATVs, agricultural and large industrial equipment on the roads
 - In the windstorm HARA description – remove references to specific wind types and just refer to them generically "a variety of wind types can cause damage"
 - Additions/Changes to Key Issues:
 - Animal/Plant/Crop Disease: Livestock Diseases
 - Drought: economic impact, fires
 - Extreme Heat: economic impact, public health/safety
 - Flash floods: foundations, warning, public safety, emergency access
 - Hailstorm: update number of events and claims; have become more prevalent
 - Hazardous Materials: change "specialized" to "technician level" and add "to assist county fire departments at the operations level." Add ethanol and other fuels, add railway
 - Infrastructure Failure: add communications failure – cellular services
 - River floods: add initial public safety and long-term health concerns
 - Terrorism: add workplace violence, agri-terrorism, bomb threats
 - Tornadoes: mention "only one" shelter, add county-wide emergency alert system
 - Transportation Incident: add increased size and volume of ag & large industry and car-animal collisions
 - Windstorms: Add human safety and wellbeing
 - 5. ID of mitigation strategies – tabled for next meeting
 - 6. Next Steps:
 - UERPC and EMA to meet with communities
 - Next meeting: ID mitigation strategies, determine actions and prioritize
 - UERPC will write draft (combine all existing materials)
 - Share with public/public input
 - Approve by jurisdictions
 - Submit to FEMA
 - 7. Next meeting date – March or April, 2014 – will set at a later date
 - 8. Meeting Adjourned at 9:15 p.m.

Winnebago County

10/3/2013

7:00 p.m. - 9:15

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Bruce Gerscht	WLEMA			N	Bruce Gerscht
Jan Heikes	Win CFC Altimetrix Co			N	Jan Heikes
Nancy Sagarine	Public Health			N	Nancy Sagarine
Paul R. Herold	PTA KANSAS			N	Paul R. Herold
Don Freund	Deer Creek			N	Don Freund
Mark Kuma	WIMCO			N	Mark Kuma
Ronald Thompson	First Lutheran			N	Ronald Thompson

Meeting #6, April 3, 2014

Agenda



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Hazard Mitigation Planning Meeting Agenda Meeting 6 Winneshiek County, Iowa



Meeting Date: April 3, 2014
Meeting Time: 7:00 p.m.
Meeting Location: UERPC Conference Room
325 Washington Street, Decorah, IA 52101

1. Call to order and welcome
2. Introductions/sign-in sheets
3. Update from EMA
4. Review of community meetings (prioritized hazards and mitigation actions)
5. Review past mitigation goals, make changes if necessary
6. Review past countywide mitigation strategies, capture improvements made to date
7. Identify mitigation strategies for new plan
8. Prioritize strategies (STAPLEE tool)
9. Questions/Comments
10. Next Five Steps:
 - Outreach to school districts
 - Write the draft document – send to committee and jurisdictions for initial review
 - Committee meeting in September
 - Make recommended changes to document
 - Take to the public for comment
11. Set next meeting date – September, 2014
12. Adjourn

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**Hazard Mitigation Planning Meeting Minutes
Steering Committee Meeting 6
Winneshiek County, Iowa**



Meeting Date: April 3, 2014
Meeting Time: 7:00 p.m. to 8:30 p.m.
Meeting Location: Upper Explorerland Meeting Room
325 Washington Street, Decorah, IA 52101

1. Meeting was called to order at 7:00 p.m. by Karla Organist, Upper Explorerland Regional Planning Commission, plan facilitator
2. Persons in attendance:
 - Volunteer Basis: Margaret Jones, Don Arendt, Bill Nixon, Ron Franzen, Kurt DeVore, Chad Bird, Paul Herald
 - Non-volunteer basis: Bruce Goetsch
3. Update from EMA:
 - Discussion of the regional communication outage that occurred on March 31st
4. Review of community meetings (prioritized hazards and mitigation actions)
 - Committee was provided with a table illustrating the community-identified mitigation actions
5. Review of past mitigation goals: after some discussion, committee decided that the goals were still relevant and represented the broad vision for hazard mitigation in the county as a whole.
6. Reviewed past countywide mitigation strategies, identified the following actions taken since:
 1. Promote the Winneshiek County Hazard Mitigation Plan to the public
 - Presented at various venues, utilized by cities and counties when seeking funding
 2. Ensure the Winneshiek County Hazard Mitigation Plan is reviewed and kept current
 - Update completed at five year interval (prior to expiration)
 3. Improve data collection software and technology resources
 - Moving forward and continue to remain current with technology – an ongoing process
 - Added countywide disaster recovery site at Decorah Middle School/Carrie Lee Campus
 4. Construct FEMA-compliant tornado safe room(s)
 - Decorah High School has added safe room areas
 5. Purchase and implement countywide interagency portable mobile data
 - Records management system implemented
 - Computer-aided dispatch system implemented
 6. Improve land use management to minimize water runoff and soil conservation
 - Turkey River Management Authority created
 7. Obtain an oblique photography product/program
 - Completed
7. Identified mitigation strategies for new plan – those that needed to remain and new strategies:
 - Promote the Winneshiek County Hazard Mitigation Plan to the public
 - Ensure the Winneshiek County Hazard Mitigation Plan is reviewed and kept current
 - Acquisition and demolition of damaged structures

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-
- Improve data collection software and technology resources
 - Interagency VoIP phone systems
 - Provide stability to countywide technology resources through the addition of suitable back-up power at Decorah Middle School/Carrie Lee Campus
 - Computer mobile data terminals
 - Evaluate and purchase automated reverse 911 system
 - Purchase generator for Frankville Community Center
 - Construct FEMA-compliant tornado safe room(s)
 - Purchase and implement countywide interagency portable mobile data
 - Purchase mobile generators for deployment countywide as needed
 - Improve land use management to minimize water runoff and soil conservation
 - Develop an Emergency Operations Center (EOC) as a safe room site
 - Training for health care coalition members
 - Develop mass notification system for schools
 - Purchase additional stream gauges
8. Prioritized strategies using the STAPLEE scoring tool
9. Reviewed Next Steps:
- Outreach to school districts
 - Write the draft document – send to committee and jurisdictions for initial review
 - Committee meeting in September
 - Make recommended changes to document
 - Take to the public for comment
 -
10. Set next meeting date – Thursday, September 11th, 2014
11. Meeting adjourned at 8:30 p.m.

Sign-in Sheets

Meeting Sign-In Sheet

Sub-Grantee:

Winnebago County

Date:

4/3/2014

Time/Place:

7:00 p.m./JERP Conference Room, 325 Washington, Decorah

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Margaret Jones	Mayor Castalia	563-363-445	P.O. Box 37 Castalia, IA 52113	Y	Margaret Jones
Don Alenard	Mayor Decorah		400 Lincoln	Y	Don Alenard
Eric Nye	Chief Decorah	563-363-447	100 Clearview Dr	Y	Eric Nye
Bruce Goetsch	Wadena	563-449	400 Lincoln	N	Bruce Goetsch
Arnold Frazee	Frazee Arkla	563-449	700 Box 114	Y	Arnold Frazee
Kurt Mt Dora	Decorah Community School District	563-363-445	510 W. Indiana St	Y	Kurt Mt Dora
Chad Bird	City of Decorah	563-363-445	400 Clearview	Y	Chad Bird
Paul R. Herold	Mayor Mt. Arkla	563-363-445	103 5th St, Decorah	Y	Paul R. Herold

#6

Meeting #7, September 11, 2014

Agenda



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Hazard Mitigation Planning Meeting Agenda Meeting 7 Winneshiek County, Iowa



Meeting Date: September 11, 2014
Meeting Time: 7:00 p.m.
Meeting Location: UERPC Conference Room
325 Washington Street, Decorah, IA 52101

1. Call to order and welcome
2. Introductions/sign-in sheets – update on in-kind time
3. Update from EMA
4. Community responses to our request for final review
5. Develop plan for final public review and jurisdictional resolutions
6. Questions/Comments
7. Next Steps:
 - Public Input
 - Jurisdictional resolutions
 - Submit to IHSEMD
8. Adjourn

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Meeting Minutes



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Hazard Mitigation Planning Meeting Minutes Steering Committee Meeting 7 Winneshiek County, Iowa



Meeting Date: September 11, 2014
Meeting Time: 7:00 p.m. to 8:00 p.m.
Meeting Location: Upper Explorerland Meeting Room
325 Washington Street, Decorah, IA 52101

1. Meeting was called to order at 7:00 p.m. by Karla Organist, Upper Explorerland Regional Planning Commission, plan facilitator
2. Persons in attendance:
 - Volunteer Basis: Don Arendt, Mark Kuhn, Ron Franzen, Kurt DeVore, Paul Herald
 - Non-volunteer basis: Bruce Goetsch, Nancy Sacquitne
3. Update from EMA:
 - Discussion of progress on grant reporting and in-kind volunteer hours
 - Bruce met with South Winn/Turkey Valley to make sure that their needs were captured in the plan
4. Review of community responses to our request for final review
 - Letters and a copy of the draft plan were sent out to each jurisdiction in June with the request that each council member read the plan and offer feedback as necessary.
 - Responses were received from Calmar and Ridgeway
 - Bruce and committee members will follow up with other jurisdictions
 - Committee discussed the status of watershed authorities within the county (Upper Iowa, Turkey and Yellow). They are working on putting together plans right now that include flood-reducing actions like retention ponds and other on-road structures. Karla will make contact with RC&D to make sure that the watershed authorities' actions are included in the plan where appropriate.
 - Bruce will check with Rhonda Siebert at NICC about plan actions
7. Plan for final public review and jurisdictional resolutions:
 - Karla will develop a short powerpoint presentation to be made (by any committee member) at city council meetings and other meetings throughout the county.
 - Will try to get to the County Firemen's Meeting (Nov. 20 – Fort Atkinson); the Decorah Firemen's Meeting (contact Mike Ashbacker about date); the Health Care Emergency Preparedness Coalition (October 16), county and city meetings, and school boards
 - A press release will be sent to county news outlets – with link to document
 - Karla will contact cities, county and school districts about getting on the agenda for presentations and resolutions.
8. Other: Karla has been contacted by IHSEMD for a potential training with FEMA staff in the next month. They will be willing to do a pre-review of the plan before we submit the document.
9. Reviewed Next Steps:
 - Public input
 - Collect resolutions
 - Submit to IHSEMD
10. Meeting adjourned at 8:00 p.m.

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Winnebago County

9/11/2014

7:00 p.m./UEERPC Conference Room, 325 Washington, Decorah

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Bruce Bennett	WEMA	565-387 409 S	400 CLAIRBORNE DRIVE DEARBORN, MI 48106	Y	Bruce Bennett
James Deane	DCSD	563-387 5100	5100 WINDHOLLO STREET DEARBORN, MI 48101	Y	James Deane
Robert Brown	Fort Atkinson	563-350 2347	305 MONTGOMERY ST. DEARBORN, MI 48101	Y	Robert Brown
Marney Senguitre	Winchester Public Works	563-382 3462	1749 243RD AVE. FORT ATKINSON, IA 52144	Y	Marney Senguitre
Mark Kuhn	Winm. Co. Supervisor	563-419 6441	400 CLAIRBORNE DEARBORN, MI 48106	Y	Mark Kuhn
Don Harris	Deard. Ct	563-334 7514	700 E. 24th St. Fort Atkinson, IA 52144	Y	Don Harris
Donald Thompson	Fort Atkinson	563-334 7514	700 E. 24th St. Fort Atkinson, IA 52144	Y	Donald Thompson

City Meetings

Common Agenda



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Hazard Mitigation Planning Meeting Agenda City Meetings Winneshiek County, Iowa

Meeting Date:
Meeting Time:
Meeting Location:



1. Introductions/sign-in sheets
2. Review of Community Profiles
3. Review of previous mitigation actions, status report for each
4. CPRI – guided discussion of hazards most relevant to community
5. Mitigation Actions for inclusion in new plan
1. Adjourn

Economic Development * Comprehensive Planning * Transportation * Workforce * Housing * Revolving Loan Fund

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Page 6 of 6

Winnebago County

12/11/2013

10:00 a.m./Ossian

add-

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Lance Peters	Calmar/Ossian PD	563-562 3224 563-	101 S. Washington, PO Box 595 Calmar, Oosissian	Y	Lance Peters
DEAN Holien	OSSIAN FIRE DEPT	(563) 563	1505 C. Rd. W-42	Y	Dean Holien
Earl S. Meyer	Ossian City Council	563-5650 563	1075. Hall Street	Y	Earl Meyer
Don Meyer	Ossian Fire Dept	563-3303 563-532	PO Box 337	Y	Don Meyer
Page Adair	City Clerk	563-5639	103 W. Main St. 295	N	Page Adair
Bruce Goetsch	EMA DIRECTOR			N	Bruce Goetsch

City of Ossian

Meeting Sign-In Sheet

Sub-Grantee:

Winnebiek County

Date:

12/12/2013

Time/Place:

5:30 p.m./Decorah

Page 1 of 1

- 7:15

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Don Alexander	Decorah		400 Clay Street	Y	Robert Alexander
Bruce Nixon	Decorah PD		400 Clay Street	Y	Robert Nixon
Todd Ihde	Decorah Waste Dept.		810 W. Webster St.	N	Todd Ihde
Bruce Gotsch	WCERA			N	Bruce Gotsch
James Doyle	DCSD		510 W. Main St.	Y	James Doyle
Mike O'Hara	Decorah WLPD		1766 Old Stage	N	Mike O'Hara
Chris Paul	City of Decorah		1402 Webster St.	N	Chris Paul

City of Decorah

Meeting Sign-In Sheet

Sub-Grantee:

Winnebago County

Date:

1/8/2014

Time/Place:

7:00 p.m./Fort Atkinson City Hall

Page 1 of 1

45 min.

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Joyce BoNewell	Fort Atkinson	563-532-9939	PO Box 36, Fort Atkinson	N	Joyce BoNewell
PAUL R. HEBARD	Fort Atkinson	563-280-2287	103 5TH ST Box 155 FT.	Y	Paul R. Hebard
Ken A. Kenik	Fort Atkinson	563-394-1119	12th Court St, PO Box 374	Y	Ken A. Kenik
Kay Schmitt	Fort Atkinson	563-534-9455	300 10th Ave Brady	Y	Kay Schmitt
Bruce Gersert	WECMA		400 Cambridge Decatur	Y	Bruce Gersert
David Schmitt	Fort Atkinson	563-445-7845	2050 10th Street	Y	David Schmitt
ANNE FRAZER	Fort Atkinson	563-445-7845	2050 10th Street	Y	Anne Frazer
Robert Glass	Fort Atkinson	563-379-0311	708 8th St 105 3rd St SE	Y	Robert Glass

City of Fort Atkinson

Meeting Sign-In Sheet

Sub-Grantee:

Winneshek County

Date:

1/11/2014

Time/Place:

9:00 a.m./Spillville City Hall

to 10:30

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Teane Kulish	Spillville	563-549-5318	2053 33rd Ave Colmar	Y	Teane Kulish
Bellmeyer	Spillville	563-563-	3745 17th Ave North, MAZU, IA	Y	Bellmeyer
Scott Bell	Spillville	563-340-7089	107 School St	Y	Scott Bell
Bruce Goetsch	Wadena		460 Clarence Drive	N	Bruce Goetsch
Jan Strobe	Spillville	563-340-3366	107 Park St	Y	Jan Strobe
Ally de	Spillville	563-340-3013	305 4th St	Y	Ally de
Don King	Spillville	563-411-1658	Box 4 436 5 main St	N	Don King
Doreen Schmitt	Spillville	563-340-1601	101 5th St Box 1608	Y	Doreen Schmitt

City of Spillville

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non- Volunteer (N):	Signature:
SR Boyer	Calmar	319 362-8206	400 East 3rd	N	SR Boyer
Leigh Tramm	Calmar	319 362-4119	603 W Maple	Y	Leigh Tramm
Matt Hollerman	Calmar	319 362-5005	351 S. Weber St	N	Matt Hollerman
Tee Ward	Calmar	362 362-3221	101 S. Washington St.	Y	Tee Ward
Michele Ekstrand	Calmar	362 362-3154	101 S. Washington St.	N	Michele Ekstrand

City of Calmar

Meeting Sign-In Sheet

Sub-Grantee:

Winnebiek County

Date:

2/3/2014

Time/Place:

6:30 p.m./Castalia City Hall

Page 1 of 1

10:00

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Mark Imoehl	Castalia Fire	563-419 7794	1555 110th St Castalia	Yes	Mark Imoehl
David Brockway	City Council	563-419 5842	109 Mcwill Rd	Yes	David Brockway
Joe Moellers	City Council	563-380 9695	113 Westcrest Bldg	Yes	Joe Moellers
Dennis Williams	City Council	525-314 2817	215 East Green St	Yes	Dennis Williams
Chris Bodenstein	City Clerk	332-9764	1518 Centennial	Yes	Chris Bodenstein
Margaret Jones	Mayor	569-8465	301 E Greene St	Yes	Margaret Jones
Bruce Goetsch	WCHA	863-371-4095	Decorah	No	Bruce Goetsch

City of Castalia

Winnebago County

2/26/2014

6:30 p.m./Ridgeway Community Hall

- 8:00 pm -

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Ellen Novotny	Ridgely City Council	563 2030174	745 Railroad Street	Y	Ellen Novotny
Sue Schur	Ridgely City Council	563 319-6998	945 County St.	Y	Sue Schur
Rosemary Vojan	Ridgely Council	563 737-2287	510 County St / Ridgely	Y	Rosemary Vojan
Paul Stevens	Ridgely Mayor	563-737-2415	125 East St.	Y	Paul Stevens
Bruce Gortz	Woodloch	563-397-4405	400 Clearbough Dr	N	Bruce Gortz

City of Ridgeway

Meeting Sign-In Sheet

Sub-Grantee:

Winnebago County

Date:

3/6/2014

Time/Place:

7:30 p.m./Jackson Junction Township Hall

- 9:00 p.m.

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Kenneth Priebe	Jackson, Tenn.		3222 118th St.	Y	Kenneth Priebe
Leon Blanke	70 S.W. 1st Jackson, Tenn.		1181 2nd Ave	Y	Leon Blanke
Mae Schmitt	Jackson, Tenn.		3165 Hwy 24	Y	Mae Schmitt
Donna Cusumano	Jackson, Tenn.		306 1st Ave S.E.	Y	Donna Cusumano
Rodney N. Nye	Jackson, Tenn.		3378 5th Hwy 24	Y	Rodney N. Nye
Richard Nye	Jackson, Tenn.		3378 5th Hwy 24	X	Richard Nye
Bruce Goff	WILKINSON		400 Clear Lake Dr. Decatur	N	Bruce Goff

City of Jackson Junction

Final Public Input Presentations

Presentation



2015 Winneshiek County Hazard Mitigation Plan

Including Calmar, Castalia, Decorah, Fort Atkinson, Jackson Junction, Ossian, Ridgeway, Spillville and the County's Unincorporated Areas

<http://tinyurl.com/winnhmplan>

What is Hazard Mitigation?

- ▶ Any action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects – an effort to reduce loss of life and property by lessening the impact of disasters.
- ▶ Hazard mitigation is specifically dedicated to breaking the cycle of damage, reconstruction, and repeated damage.
- ▶ Mitigation is taking action *now*—before the next disaster—to reduce human and financial consequences later (analyzing risk, reducing risk, insuring against risk).

Why Plan?

- ▶ To identify policies and actions that can be implemented over the long term to reduce risk and future losses.
- ▶ To break the cycle of disaster damage, reconstruction, and repeated damage.
- ▶ To focus resources on the greatest risks and vulnerabilities
- ▶ To build partnerships by involving people, organizations, and businesses
- ▶ To increase education and awareness of hazards and risk
- ▶ To align risk reduction with other community objectives



Key Steps

- ▶ **Step 1:** Identify and organize interested members of the community and the technical expertise required.
- ▶ **Step 2:** Identify the characteristics and potential consequences of hazards.
- ▶ **Step 3:** Determine what the priorities should be and find possible ways to avoid or minimize the undesired effects.
- ▶ **Step 4:** Bring the plan to life.

Participants

▶ City of Calmar	▶ City of Jackson Junction
▶ City of Castalia	▶ City of Ossian
▶ City of Decorah	▶ City of Ridgeway
▶ City of Fort Atkinson	▶ City of Spillville
▶ Unincorporated Areas of Winneshiek County	
▶ School Districts	
▶ NICC	



Project Timeline

▶ Planning Kick-off Meeting	Dec. 2012
▶ Planning Committee	Jan. 2013
▶ Community Profiles	March, 2013
▶ Hazard Identification and Profiles	May, 2013
▶ Vulnerability Assessment	Jan. 2014
▶ Develop Mitigation Strategies and Actions	May, 2014
▶ Public Presentations and Jurisdiction Adoption	Oct. 2014
▶ FEMA Approval	April, 2015

Community Profiles

- ▶ Climate & Weather
- ▶ Geography & Land Use
- ▶ Demographics
- ▶ Infrastructure – Transportation and Utility
- ▶ Care Facilities & Emergency Services
- ▶ Governance and leadership
- ▶ Status and progress on 2010 plan actions
- ▶ Identified mitigation actions still needed

Hazard Identification & Profiles

- ▶ Identifies the types of natural hazards that threaten the planning area and describes why some hazards have been omitted from further consideration
- ▶ Describes the location and extent of each natural hazard that can affect the planning area and describes previous occurrences of hazard events and the probability of future occurrences.

Hazard Identification & Profiles

- | | |
|-----------------------------|----------------------------------|
| • Animal/Plant/Crop Disease | • Landslides |
| • Dam Failures | • Levee Failure |
| • Drought | • Nuclear/Radiological Accidents |
| • Earthquakes | • River Flooding |
| • Extreme Heat | • Severe Winter Storms |
| • Flash Floods | • Sink Holes |
| • Grass or Wild Land Fire | • Terrorism |
| • Hailstorms | • Thunderstorms and Lightning |
| • Hazardous Material Events | • Tornadoes |
| • Human Disease | • Transportation Incident |
| • Infrastructure Failure | • Windstorms |

Hazard Identification & Profiles

- | | |
|-------------------------------|-----------------------|
| ▶ Flash Floods | ▶ River Floods |
| ▶ Infrastructure Failure | ▶ Hailstorm |
| ▶ Thunderstorms and Lightning | ▶ Droughts |
| ▶ Transportation Incident | ▶ Tornadoes |
| ▶ Animal/Plant/Crop Disease | ▶ Extreme Heat |
| ▶ Windstorms | ▶ Hazardous Materials |
| | ▶ Terrorism |

Vulnerability Assessment

- ▶ Community Assets
- ▶ Vulnerability by Hazard
- ▶ Summary of Key Issues

Key Issues

- ▶ Animal/Plant/Crop Disease (moderate significance)
 - Livestock disease
- ▶ Droughts (moderate significance)
 - Economic impact of crop loss
 - Economic impact of higher livestock feed costs
 - Fires at certain times of year
- ▶ Extreme Heat (moderate significance)
 - Public health and safety
 - Economic impact of livestock loss

Key Issues

► Flash Floods (high significance)

- Individuals can get caught unexpectedly in flash flooding
- There is no adequate warning for flash flooding
- Driveways, roads, bridges, etc. can get washed out, leaving no access in case of an emergency
- Low-lying areas and the foundations of structures are vulnerable with heavy rains
- When flood waters saturate the ground, ground water can become contaminated
- Private wells can become contaminated
- Flash floods have had and can have severe impacts to areas with structures and infrastructure damaged routinely, especially in the unincorporated areas in the low-lying areas adjacent to the water source

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Key Issues

► Hailstorm (moderate significance)

- 43 hail events in the past 16 years in Winneshiek County, including the Participating Jurisdictions
- Crops, structures, and vehicles are damaged by large hail events
- \$4,433,034 in crop insurance claims in Winneshiek County as a result of hail damage from 2007-2012
- Hail events have become more prevalent in recent years
- The associated thunderstorms can generate damaging winds

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Key Issues

► Hazardous Materials (moderate significance)

- Entire planning area and beyond could be affected depending on the amount of hazmat released and its potency
- A technician level response team out of Waterloo, IA responds to hazmat incidents in Winneshiek County to assist county fire departments at the operations level
- Hazardous materials, in both liquid and gas form, are transported on the county's roadways, railways and through pipelines year round

► Infrastructure Failure (moderate significance)

- Bridge collapse
- Communications failure through interrupted cellular service

15

Key Issues

► River Floods (moderate significance)

- Initial public safety and long term health concerns
- When flood waters saturate the ground, ground water can become contaminated
- Private wells can become contaminated
- River floods have had and can have severe impacts to areas with structures and infrastructure damaged routinely, especially in the low-lying areas adjacent to the water source

► Severe Winter Storms (moderate significance)

- Closure of schools and business impact economic productivity
- Access to people and livestock limited
- Unsafe driving conditions

16

Key Issues

► Terrorism

- Active shooting incident
- Workplace violence
- Agro-terrorism (at the county fair or other public livestock venues)
- Bomb Threats

► Thunderstorms and Lightning

- Associated winds and hail can cause damage to power infrastructure, structures, and vehicles
- Direct lightning strikes can cause major damage to the power infrastructure or structures, start a fire or cause death
- Six presidential disasters have been declared in Winneshiek County as part of severe storms
- Agricultural production and financial return can be severely impacted

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Key Issues

► Tornadoes (moderate significance)

- Only one FEMA-compliant tornado safe room currently exists in schools or public buildings in the planning area
- Communities in the planning area have made some improvements in warning systems, but there is no countywide emergency alert system
- Damage endured from a tornado could range from minimal to complete devastations
- Agricultural production and financial return can be severely impacted

18

Key Issues

- ▶ Transportation Incident (moderate significance)
 - Highway Transportation Incidents can range in severity to minor injuries and damage to the vehicles to loss of life
 - Over 30% of crashes in the past decade were caused by animal collisions or avoidance
 - Increased size and volume of agricultural and oversized-load vehicles
 - Roadways could be blocked off while the involved vehicles and/or response personnel are on scene

19

Key Issues

- ▶ Windstorms (moderate significance)
 - Wind events can frequently cause damage to power lines
 - Unsecured mobile homes, campers, barns, and sheds and their occupants are specifically vulnerable
 - Human safety and wellbeing
 - Trees and tree limb debris damage power lines, power infrastructure, structures, and automobiles
 - Storefront windows are vulnerable to damage from high-winds
 - Roofs are frequently damaged

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Addressing Key Issues

- ▶ Goals – General guidelines that explain what you want to achieve. They are usually long-term, policy-type statements and represent broad visions
- ▶ Objectives – Strategies or implementation steps to attain the identified goals
- ▶ Mitigation Actions – Specific actions that help achieve goals and objectives

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Goals

- ▶ Goal 1: Minimize vulnerability of the people and their property in the Participating Jurisdictions to the impacts of hazards
- ▶ Goal 2: Protect critical facilities, infrastructure and other community assets from the impacts of hazards
- ▶ Goal 3: Improve education and awareness regarding hazards and risk in the Participating Jurisdictions
- ▶ Goal 4: Strengthen communication among agencies and between agencies and the public

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Goal 1 – Strategies & Actions

- ▶ Strategy: Develop safe and functioning havens as well as evacuation plans for the public in the event of a disaster
- ▶ Strategy: Ensure that emergency responders are prepared and able to react in any hazard situation
- ▶ Strategy: Ensure that local jurisdictions are prepared and able to react in any hazard situation

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Goal 2 – Strategies & Actions

- ▶ Strategy: Ensure that emergency responders have the tools they need to prepare and/or respond to hazards
- ▶ Strategy: Ensure that communities have the ability to take necessary action to lessen the impact of a disaster
- ▶ Strategy: Maintain the function of critical facilities and services to provide continued support in the event of a disaster
- ▶ Strategy: Provide ample warning to people and business to reduce loss of life or property

24

Goal 3 – Strategies & Actions

- › Strategy: Increase public knowledge and awareness of potential hazards and the individual and collaborative actions that can be taken to reduce or eliminate the risk and impact of an event

Goal 4 – Strategies & Actions

- › Strategy: Ensure that emergency responders have the ability and protocol to communicate effectively with one another and the public before, during and after a hazard event
- › Strategy: Increase public knowledge and awareness of potential hazards and the warning and response systems in place to react to an event

Mitigation Actions – High Priority

- › Purchase/install generators/transfer switches
- › Construct storm shelters or FEMA compliant safe rooms
- › Maintain/improve emergency responder training
- › Maintain/improve flood mitigation equipment
- › Expand or improve communications and technology infrastructure and equipment
- › Ensure that the plan is updated prior to expiration

Mitigation Actions – High Priority

- › Maintain/improve emergency responder equipment
- › Purchase new emergency responder vehicles
- › Add/replace/upgrade sirens
- › Fire Station expansion or construction
- › Improved or upgraded water/sewer facilities (wells, systems, hydrants, lagoons...)
- › Maintain partnerships for effective and prompt emergency response

Mitigation Actions – Medium Priority

- › Develop water and/or soil conservation strategies
- › Promote the Hazard Mitigation Plan to the public
- › Make improvements to transportation safety and response
- › Promote, purchase or subsidize "all-hazards" radios for community members
- › Waterway and structural changes, maintenance, upgrades and constructions
- › Develop city codes to address issues (tornado safe area building requirements, flood plains, etc.)

Mitigation Actions – Low Priority

- › Acquire and demolish damaged structures
- › Develop a tree treatment and replacement plan

Next Steps

- ▶ More public input
 - Review the plan at <http://tinyurl.com/winnhmgplan>
 - Leave comments if you wish
- ▶ Obtain Jurisdictions' Resolutions of Support
- ▶ Submit the plan for FEMA approval
- ▶ Any questions?

Thank You!

Karla Organist, Senior Planner
Community and Transportation
Planning
Upper Explorerland Regional
Planning Commission
korganist@uerpc.org
563-382-6171



J Bruce Goetsch, Coordinator
Winnebago County Emergency
Management Agency

jbruce@co.winnebago.il.us
563-387-4055



WHEPC Meeting Sign-In Sheet			
Meeting Date 10/16/2014		Winneshiek	COUNTY NAME
Place/Room:		Decorah City Hall, Decorah	
NAME (print and sign name)	AGENCY	PHONE	E-MAIL (only if new)
Matt Larson	guest	563.349.3152	
Justin Heim	Family Care Clinic		
Gail Hovatt	AKA		
Paula Schneider	Red Cross	563.419.5717	pschneider@gmail.com
Lolene Andersen	OSHA Safety Respire	563.532.7746	
Bruce Goetz	WEMA		
Keri Sand	Public Health		
Juli Shuey	Walter College		
Nancy Sackuitt	Winn Co PH		
Steve Hansen	WMC		

WHEPC PRE 45
A. DOWNTON
YES 02-150

yes

yes

yes

yes

yes

yes

yes

no

Meeting Sign-In Sheet

Sub-Grantee:

Winnebago County

Date:

11/12/2014

Time/Place:

7:45 p.m./Decorah City Hall - Decorah Firemen's Meeting

Page 1 of 2

end time 8:15

Printed Name:	Organization/City:	Phone:	Address: Home	Volunteer (Y) or Non-Volunteer (N):	Signature:
DARRON SANDER	Decorah Fire Dept. Decorah	563-383 8472	1602 Decorah Ave.	Y	Darron Sander
Sheldene Brink	Decorah Fire Dept	563-380 2581	1510 Locust Rd	N	Sheldene Brink
Gregg Rude	Decorah Fire	3472 382	400 Claborn	Y	Gregg Rude
Garry Galvud	Decorah Fire	563-383 8525	400 Claborn	Y	Garry Galvud
Dan Voss	Decorah Fire	563-383 3430	801 Fair St	Y	Dan Voss
Scott Kiteberg	Decorah Fire	563-380 3294	1105 College Dr.	Y	Scott Kiteberg
Darren Sneddon	Decorah Fire	563-380 3408	521 Franklin St	Y	Darren Sneddon
Jeff Clement	Decorah Fire	563-383 1385	3061 Leander Rd	Y	Jeff Clement
Keith Doolan	Decorah Fire	563-380 7817	1100 Winnebago Ave	Y	Keith Doolan
Howard Ilgen	Decorah Fire	563-380 4217	906 W Pearl St.	Y	Howard Ilgen
Weylin Smith	Decorah Fire	563-383 0525	304 Decorah Ave	Y	Weylin Smith
Steve Smith	Decorah Fire	563-382 0899	606 Franklin St	Y	Steve Smith
Jordan Whissman	Decorah Fire	563-380 6117	1407 Sylvia Dr.	Y	Jordan Whissman
Jeff Oda	Decorah Fire	3801787	716 Decorah Ave	Y	Jeff Oda
Mike Ashbaker	Decorah Fire	380-2555	2279 011 West Rd.	Y	Mike Ashbaker

Meeting Sign-In Sheet

Sub-Grantee:

Winnebago County

Date:

11/12/2014

Time/Place:

7:45 p.m./Decorah City Hall - Decorah Firemen's Meeting

Page 2 of 2

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Eric Sorensen	Decorah FD			Y	
Kurtis Jensen	DFD			Y	
Paul L. Hageman	DFD			Y	
Steve Sorensen	DFD			Y	
Brian W. Powell	DFD			Y	
Byrre Hageman	DFD			Y	
Alex Duvet	DFD			Y	
Kyle Kohl's	DFD			Y	
Kurt Hageman	DFD			Y	
May Nickelson	DFD			Y	
Kurt Sall	DFD	880-3779		Y	
Michael Backman	DFD	763-889-5439	Decorah Ia 315 Pershing Ave	Y	
Dave Nielsen	DFD		1311 Skyline Dr.	Y	

Meeting Sign-In Sheet

Sub-Grantee:

Winnebiek County

Date:

11/17/2014

Time/Place:

5:00 p.m./Decorah City Hall

Page 1 of 2

END @ 5:30

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Michael O'Hara	City of Decorah	382-3910	1764 old stage Rd.	Y	M. O'Hara
Jody Nie SS	City of Decorah	379-1023	303 W. Water St	Y	Jody Nie
Chad Bero	City of Decorah		400 Claiborne	Y	Chad Bero
Dan Hendon	"		400 Claiborne	Y	Dan Hendon
Kathy Schusel	City of Decorah		400 Claiborne	Y	Kathy Schusel
Tate Krenth	City of Decorah	382-1415	305 cly & Main	Y	Tate Krenth
William J. Warner	City of Decorah	380-1848	311 View St	Y	William J. Warner
David Tolleson	" " "	379-0798	2929 - 300th St	X	David Tolleson
Shirley Bernal	" " "	382-3777	202 Winnebago St.	X	Shirley Bernal
Charles C. Lore	City of Decorah	382-850	808 Ridge Rd.	Y	Charles C. Lore
Gary Rustad	City of Decorah	380-2001	820 E Main	Y	Gary Rustad
Linusay Leonard	City of Decorah	382-4194	708 Commerce Dr	Y	Linusay Leonard
Erin Eng.					

22

Wineshiek County

11/17/2014

5:00 p.m./Decorah City Hall

end p 5:30

Paul Winless	Decorah	383 3988	1304 Danesman Dr	Y	Fuller
Andy Winand	Decorah Pk	382- 4158	2936 15th Ave	Y	Fuller
Todd J. Elbe	Decorah	381- 5171	505 Humeant Dr.	Y	Fuller
Liberty Henrich	Decorah	380-3851	400 Clinton Dr	Y	Fuller

Reviewed W.C. MS-9 Multi-Agency Mitigation Plans - 12-hour Response Period

WINNEBAGO COUNTY EMERGENCY MANAGEMENT AGENCY - SIGN-IN SHEET - Date

11/20/2014 # 2014

[] Incident - [X] Planning - [] Training - [] Exercise - ()-Workshop ()-Tabletop ()-Drill ()-Functional ()-Full Scale

Responder Name	Response Agency	Phone	Email address
ART Uhlenhuth	OSSIAN FIRE		
DEMI'S HOLLEN	OSSIAN FIRE		
MARK CARROLL	Redding Fire		
KENNY CARROLL	REDWATER FIRE		
ARMANDO FORNBERG	FORT ATKINSON FIRE		
PAUL R. ARZOW	FORT ATKINSON FIRE		
Robert S. Closs	Fort Atkinson Fire		
David Nielsen	Fort FD		
Keith Harold	Fort FD		
Shane Landen Brink	Decorah FD		
Kurt Hageman	Decorah FD		
Scott Sindelar	Fort Atkinson FD		
JOE SKRETTN	FORT ATKINSON FD		

10/14

WINNESHIEK COUNTY EMERGENCY MANAGEMENT AGENCY - SIGN-IN SHEET - Date

[] Incident - [X] Planning - [] Training - [] Exercise - () Workshop () Tabletop () Drill () Functional () Full Scale

2084

WINNESHIEK COUNTY EMERGENCY MANAGEMENT AGENCY - SIGN-IN SHEET - Date 11/20/2014
☐ Incident - ☒ Planning - ☐ Training - ☐ Exercise - (-) Workshop (-) Tabletop (-) Drill (-) Functional (-) Full Scale

☐ Incident - ☒ Planning - ☐ Training - ☐ Exercise - ☐ Workshop ☐ Tabletop ☐ Drill ☐ Functional ☐ Full Scale

[illegible]

11/20/2014

11/20/2014

☐ Incident - ☒ Planning - ☐ Training - ☐ Exercise - ☐ Workshop ☐ Tabletop ☐ Drill ☐ Functional ☐ Full Scale

Responder Name	Response Agency	Phone	Email address
Jay Schumann	Fert FID		
Joe Scutty	Fert FID		
Mark Kurr			
Darin Brumby	Fert FID		
Bruce Butch	WECA	760-444-1111	

4.84

Meeting Sign-In Sheet

Sub-Grantee:

Winnebago County

Date:

12/1/2014

Time/Place:

5:00 p.m./Ossian City Hall

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Earl S. Meyer	Ossian			Y	<i>Earl S. Meyer</i>
Mike Meyer	Ossian			Y	<i>Mike Meyer</i>
Chuck Orrill	Ossian			N	<i>Chuck Orrill</i>
Joyce Bakewell	Ossian			N	<i>Joyce Bakewell</i>
Lance Peters	Ossian			N	<i>Lance Peters</i>
Dan Langreck	Ossian			N	<i>Dan Langreck</i>
Egg Krimer	Ossian			N	<i>Egg Krimer</i>
Don Meyer	Ossian			N	<i>Don Meyer</i>
Mitchell Holme	Ossian			Y	<i>Mitchell Holme</i>

Meeting Sign-In Sheet

Sub Grantee:

Winnebiek County

Date:

12/1/2014

Time/Place:

5:30 p.m./Calm Fire Station

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Michele Elsbernd	City			N	Michele Elsbernd
Larry Hunker	City			N	Larry Hunker
Dave Zweibach	City			N	Dave Zweibach
Tim Schissel	City			N	Tim Schissel
Mike J. Soper	City			N	Mike J. Soper
Deanna Kiere	City			N	Deanna Kiere
Don Wirtzel	City			N	Don Wirtzel
Aaron Brinks	City			N	Aaron Brinks
Chris Solis	City			N	Chris Solis
Ray	City			N	Ray
Lance Peters	City			N	Lance Peters
Matt Bullman	City			N	Matt Bullman
Mary Wink	City			N	Mary Wink

Meeting Sign-In Sheet

Sub-Grantee:

Winnebago County

Date:

12/1/2014

Time/Place:

6:00 p.m./Castalia City Hall

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
BRUCE GRIFFIN	WEMA			N	Bruce Griffin
Sam Smith	Castalia			Y	Sam Smith
Donna Wilkins	Castalia			Y	Donna Wilkins
Margaret R. Jones	Castalia			Y	Margaret R. Jones
Chris Bodenshteyn	Castalia			Y	Chris Bodenshteyn
Tie McEllis	Castalia			Y	Tie McEllis
Maureen Corbett	Castalia			Y	Maureen Corbett

Meeting Sign-In Sheet

Sub-Grantee:

Winnebago County

Date:

12/2/2014

Time/Place:

6:30 p.m./Fort Atkinson Library

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Joyce Bakerwell	Fort Atkinson			City Clerk	Joyce Bakerwell
Renee Heppel	Fort Atkinson			Mayor	Renee Heppel
Robert S. Clark	Fort Atkinson			N	Robert S. Clark
Karin A. Kasnik	Fort Atkinson			N	Karin A. Kasnik
Nichele Elsbend	Fort Atkinson			N	Nichele Elsbend
Mr. Schmitt	Fort Atkinson			N	Mr. Schmitt
Greg Scott	Fort Atkinson			N	Greg Scott
David Schmeiter	Fort Atkinson			N	David Schmeiter
Vera Priest	"			N	Vera Priest
Ronald Peterson	Fort Atkinson			N	Ronald Peterson
Tom Nodt	SEH	Cell 474 6214	215 N Adams Presque Isle 53101	N	Tom Nodt
Brian McWilliams	"	"	"	N	Brian McWilliams

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Scott Engelhardt	Ridgeview City Council	563-3860 4783	P.O. Box 159 445 South St Ridgeview, OH 44150	N	Scott Engelhardt
Sgt. Schur	Ridgeview City Council	563-3176 6118	945 County St Ridgeview, OH 44150	N	Sgt. Schur
Rosemary Kopava	Ridgeview City Council	2287	510 County St. Ridgeview, OH 44150	N	Rosemary Kopava
Paul Stevens	Ridgeview Mayor	563-3741	1215 East St. Ridgeview, OH 44150	N	Paul Stevens
Sharda Beens	Ridgeview Clerk	563-3776 3776	515 County St. Ridgeview, OH 44150	N	Sharda Beens
Elhan Novotny	Ridgeview City Council	563-3030 0134	745 Railroad St Ridgeview, OH 44150	N	Elhan Novotny

Meeting Sign-In Sheet

Sub-Grantee:

Date:

Time/Place:

Decorah CSD

12/8/2014

6:00 p.m./Central Administration Office

-6:30 end

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Cynthia Schissel	Decorah CSD	563-380-3040	108 Paulace Dr., Decorah	Y	Cynthia W. Schissel
Amyette Hrusch	"	563-387-6037	1104 Lincoln St., Decorah	Y	Michael Hrusch
Ronald Falm	Nealy	563-387-2020	701 Hwy 51, Decorah	Y	Rt D. Falm
Melanie Tietz	Decorah CSD	563-380-3040	1534 185th St Decorah	Y	Melanie Tietz
Brian Peterson	Decorah CSD	563-380-3040	2053 Decorah Inn	Y	Brian Peterson
John Hesse	Decorah CSD	563-380-3040	211 Hector Dr Decorah	Y	John Hesse
Jeffrey Berglund	Decorah CSD	563-380-3040	211 Hector Dr Decorah	Y	Jeffrey Berglund
Darlene Woodhouse	Decorah CSD	563-380-3040	2234 State Hwy 9 Decorah	Y	Darlene Woodhouse
Cheryl Miller	Decorah CSD	563-380-3040	115 Rural Ave	Y	Cheryl Miller
Dawn Stevenson	KDEC Ramo	380-2691	704 Winthrop Ave Decorah	N	Dawn Stevenson
Ted Folde	Decorah CSD	563-380-3040	1412 Laurel Dr.	N	Ted Folde
Fred Scheller	DCSD	379-4738	1131 350th St	Y	Fred Scheller
Chuck Albrey	DCSD	379-4740	1024 Locust Rd	Y	Chuck Albrey
Kurtus Peden	DCSD	380-1815	507 Pine Ridge Ct	Y	Kurtus Peden

Meeting Sign-In Sheet

Sub-Grantee:

Winnebago County

Date:

12/9/2014

Time/Place:

7:00 PM/Jackson Junction City Hall

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Art Perry	Jackson Tct.	523-379	3353 S Hwy 24 Wadena	Y	Art Perry
RICHARD VITZAK	JACKSON TCT	563-776	9374 ST HWY 24 WADENA	Y	Richard Vitzak
RODNEY VITZAK	JACKSON TCT	641-330	33185T Hwy 24 Wadena	Y	Rodney Vitzak
Ken Kriener	JACKSON TCT	563-776	3372A 118TH ST, Wadena Iowa	Y	Ken Kriener
Lana Schmitt	JACKSON TCT	563-776	1246 ColFedwy Wadena	Y	Lana Schmitt
Mia Schmitt	JACKSON TCT	726-9731	5145 Hwy 39 Wadena	Y	Mia Schmitt
Sue Christiansen	JACKSON TCT	563-776	300 N Bunk. Luman	Y	Sue Christiansen
Tamie DeSousa	JACKSON TCT	641-330	1198 Co Rd 168	Y	Tamie DeSousa
Bruce DeSousa	JACKSON TCT	641-330		N	Bruce DeSousa

Meeting Sign-In Sheet

Sub-Grantee:

Winnebago County








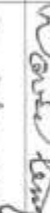





Date:

12/13/2014

Time/Place:

8:00 a.m./Spillville Community Center

Page 1 of 1

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Jeff Irie	Spillville	563-414 3843	P.O. Box 172 Spillville IA	Y	
Seane Kulish	Spillville	563-379 8283	2053 337th Avenue SE Spillville IA	Y	
Carroll Schmitt	Spillville	563-380 1661	101 Sumner Dr Spillville IA	Y	
Tom Straube	Spillville	563-379 1475	107 Park St Spillville IA	Y	
Scott Baile	Spillville	563-380 7088	107 School St Spillville IA	Y	
Rene Wagner	Spillville	563-419 8647	101 Bridgest Spillville IA	Y	
David Timp	Spillville	563 49-1698	436 S. Main St	Y	
Eva Skretva	West Union Spillville	563 380-6673	206 N.E. 5th West Union	Y	
Paul Wermers	Spillville	563 380 951-6353	P.O. Box 95 Spillville IA	Y	
Bulah Shindelar	Spillville	563 380 563-419 0613	P.O. Box 245 Spillville IA	Y	
CEANICE Wermers	Spillville	563 380 0613	P.O. Box 53 Spillville IA	N	
CAROLLE DAVOLAC	WEAVER	563-380-8841	509 W. MAIN ST.	Y	
James Gustafson	WEAVER	563-387-4045	400 Clarence Dr	N	

Page ____ of ____

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Page 1 of 1

9:30 a.m./Winnebago County Courthouse - Supervisors' Chambers

Printed Name:	Organization/City:	Phone:	Address:	Volunteer (Y) or Non-Volunteer (N):	Signature:
Eric Johnson			Decorah	Y	Eric Johnson
BEN STINES	Muskegon Co		Decorah		Ben Stines
Floyd Fishbacker	Decorah		Decorah		Floyd Fishbacker
Heavitt Anderson	Decorah		Decorah		Heavitt Anderson
John Legstien	Decorah		Decorah		John Legstien
Dean Thompson	Decorah		Decorah		Dean Thompson
Mark Kuhwa	Decorah		Decorah		Mark Kuhwa
Jim Beard	" "		Decorah		Jim Beard

Notices, Articles and Press Releases

FOR IMMEDIATE RELEASE: GRANT FUNDING RECEIVED FOR HAZARD PLANNING PROJECT

The public, business, and industry will have the opportunity to assist in the development of a new Multi-Jurisdiction Hazard Mitigation Plan that will replace two previous plans developed following the severe weather and flooding of 2008. FEMA requires the periodic review and replacement of the previous Multi-Jurisdictional Hazard Mitigation Plans developed for the four cities mapped for National Flood Insurance Protection (NFIP) and the four other communities and the rural portions of the County.

To assist in the development of the new plan FEMA, through Iowa Homeland Security & Emergency Management, has offered grant funds for the planning process. Following the filing of interest and later a grant application for the grant funding by Emergency Management as the Winneshiek County Emergency Management Commission, notice was received of acceptance of the application by FEMA.

The sub-grantee for the planning process is the Winneshiek County Emergency Management Commission; the Commission membership is composed of representatives from all eight cities, the Board of Supervisors, and the Sheriff. Following the notice of acceptance, the EM Commission issued a Request for Proposal (RFP) for a planner to assist/lead in the planning process. Following the receipt of proposals from three planning organizations, the EM Commission selected Upper Explorerland Regional Planning Council (UERPC) as the lead planner.

While Upper Explorerland will lead discussion and draft initial documents, it is the people of Winneshiek County that will be doing the planning and approval of the desired plan. The participants will be reviewing the two previous plans, MJ-4 and MJ-5 so named for the number of cities, as well as determining if new risks or hazards have been identified since these plans were approved by FEMA.

In the approval of MJ-4 and MJ-5 FEMA identified several weaknesses in the plans, namely needing to pay more attention to identification of structures in flood-prone areas, identification of structures of historical value, and the value of these structures. Additionally more detail in the history of previous incidents that caused damage to the county, not only from floods or severe weather but also from drought.

To start the planning process, an organizational meeting will be held at the Decorah City Hall Council Chambers on December 4th at 7:00 PM. A lead planning committee will be selected with representatives from all of the communities and the county as well as general public, business and industry, school districts and college representatives, and special interest groups.

Planning participants from each community will have the opportunity to meet separately during the planning period to discuss local concerns, define various local risks and hazards that face that particular location and then rate those risks and hazards as they might affect their community. Upper Explorerland and Emergency Management representatives will be present to guide discussion and the rating process during the planning period.

Organizations participating in the planning process and providing input as to hazards and risks will have the opportunity to be eligible for participating in application for grant funding to mitigate or reduce the

risk potential they have identified. Examples might be a community that desires one or more warning sirens could make application for funding assistance, or funding for safe rooms from storms might be on their funding list at some time.

For more information of the organizational meeting of December 4th or the entire Hazard Mitigation Planning process, please contact the Winneshiek County Emergency Management Agency at (563) 387-4095 or ema96ia@nettel.net.

Hazard mitigation meeting is April 3

The steering committee for the Winneshiek Multi-Jurisdiction-9 Hazard Mitigation Planning Grant will meet Thursday, April 3, at 7 p.m. at the Upper Explorerland RPC offices in Decorah.

This is one of the final meetings in the development of a new county-wide hazard mitigation plan for all the communities and the county. This plan, designated as MJ-9 2015, will replace the two previous plans, MJ-4 and MJ-5, completed in 2010 with grant funding. Funding was requested by Winneshiek County Emergency Management Agency (WCEMA) in the spring of 2012, with a final plan expected to be forwarded to FEMA later this year. Actual planning work started in late 2012.

During last year and early this year, UERPC and WCEMA met with representatives of all the county cities to complete their particular local hazard and risk assessment planning.

In previous county focused meetings, the County Steering Committee looked at potential hazards that could affect the residents, environment and the economy of the area. Then each of the hazards identified was rated as to the potential effect by a scoring formula.

Among the top-rated hazards were flooding, thunderstorms, including lightning, high winds and tornados and hazardous material releases.

At this meeting the Committee will look to see what mitigation efforts can be made to reduce or possibly totally mitigate a hazard effects and where available funds are best spent in the hazard's reduction. Having a valid FEMA-approved Mitigation Plan is valuable to the planning participants as it is a requirement for future FEMA grant funding.

This meeting is open to the public and interested parties are encouraged to attend. The public will have the opportunity to review the whole draft plan when completed later this year. Current meeting activities/minutes are available on the Upper Explorerland web site, uerpc.org.

Thomasville

Hazardous mitigation plan nears completion, feedback sought

A team of dedicated individuals has been working over the past two years to update and develop a comprehensive Hazard Mitigation Plan for Winneshiek County and its jurisdictions.

The team consisted of representatives from each jurisdiction, law enforcement, emergency responders, public health and others with the technical expertise that is required throughout the planning process.

The team, also known as the Hazard Mitigation Planning Committee, started working together in December of 2012. Their process began by identifying the characteristics and potential consequences

of hazards and assessing the vulnerabilities of communities and the county. After gaining an understanding of the risks posed by hazards, the Committee determined what the priorities should be and then looked at possible ways to avoid or minimize the undesired effects. The result is the hazard mitigation plan and strategies for implementation.

Strategies identified

Each community and the county, along with public schools, spent a considerable amount of time identifying strategies that addressed their individual concerns.

The plan is now in draft form and

presentations about the plan and its contents are being given throughout the county. After gaining an understanding of the risks posed by hazards, the Committee determined what the priorities should be and then looked at possible ways to avoid or minimize the undesired effects. The result is the hazard mitigation plan and strategies for implementation.

Feedback sought

Those who are unable to attend a presentation, the plan is available for review online at winshiekplan.com/winshiekplan. Comments may also be submitted through this webpage. For a hard copy of the plan, or for additional information, contact Karla Organist, Senior Planner at Upper Explorerland Regional

WMC Board

The Winneshiek Medical Center Board of Trustees meets Wednesday, Dec. 3, at 5 p.m. in conference room B3 of the Medical Center.

Planning Commission, at 563-382-6171 or korganist@uerpc.org, or Bruce Goetsch, Winneshiek County Emergency Management Director, at 563-387-4095 or emta@co.winneshiek.iowa.us. The team expects to submit the plan to FEMA for approval by the end of the year, with an expected FEMA approval by April of 2015.

Appendix D – FEMA Approval Letter



FEMA

U.S. Department of Homeland
Security
FEMA Region VII
9221 Ward Parkway, Ste. 300
Kansas City, MO 64114-3323

June 2, 2015

Mark Schouten, Director
Iowa Homeland Security & Emergency Management Division
7900 Hickman Road, Suite 500
Windsor Heights, IA 50324

Subject: Review of the Winneshiek County, Iowa Hazard Mitigation Plan

Dear Mr. Schouten:

The purpose of this letter is to provide the status of the above referenced Local Hazard Mitigation Plan, pursuant to the requirements of 44 CFR Part 201 - Mitigation Planning and the Local Multi-Hazard Mitigation Planning Guidance. The Local Hazard Mitigation Plan Review Tool documents the Region's review and compliance with all required elements of 44 CFR Part 201.6, as well as identifies the jurisdictions participating in the planning process. FEMA's approval will be for a period of five years effective starting with the approval date indicated below.

Prior to the expiration of the plan the community will be required to review and revise their plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval in order to continue to be eligible for mitigation project grant funding.

Plan Name	Date Submitted	Date Approved	Date of Plan Adoption	Date of Plan Expiration	Review Status
Winneshiek County	April 23, 2015	May 5, 2015	December 12, 2014	May 5, 2020	Approved

If you have any questions or concerns, please contact Joe Chandler, Planning Team Lead, at (816) 283-7071.

Sincerely,

for
Michael R. Scott, Director
Mitigation Division

www.fema.gov