Hardin County, Iowa
Hazard Mitigation Plan
2011 - 2016

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Plan Prepared By:
Region 6 Planning Commission
903 E Main Street
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This is a multi-jurisdictional multi-hazard plan written in accordance with the Code of Federal Regulation, Title 44, Part 201 pending FEMA approval.

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Cover Art: American Legion building roof collapsed after heavy hail storms ripped through Eldora, Iowa on Sunday, Aug. 9, 2009. (Matthew Putney / Courier Photo Editor)

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Special Thanks

A special thank you goes out to all those involved in the creation of the Hardin County Multi-Jurisdictional Hazard Mitigation Plan. These participants include:

Hardin County Planning Team; Hardin County Supervisors, especially Jim Johnson; Hardin County Emergency Management Coordinator, Doug Riggs; and Staff of the Region 6 Planning Commission.

Without the hard work and dedication of these people's time and effort, this plan would not be a reality. It now serves as documentation of the will of the people of Hardin County to protect the lives and physical assets in their area.

Executive Summary

This multi-jurisdictional hazard mitigation plan is being submitted to FEMA by the Region 6 Planning Commission in Marshalltown, Iowa on behalf of one of its four jurisdictional counties, Hardin County.

This plan defines hazards as- "any source of danger that threatens humans, property, and the environment" (FEMA 385-2/August 2001, Page iii) - and hazard mitigation planning - a proactive approach to prepare individual Hardin County jurisdictions for hazards that could affect them. The entire mitigation process is outlined, including the steps of organizing community resources, risk assessment and mitigation strategy, writing the plan, community comment period, submitting the plan, plan approval and adoption, and finally plan implementation by jurisdictions and counties.

One of the most important steps is the risk assessment and mitigation strategy in which countywide meetings attended by each participating jurisdiction were held. Asset mapping, identifying critical facilities and vulnerable populations, as well as establishing goals and prioritizing mitigation actions are all exercises the participants completed to help determine the needs of each jurisdiction.

The planning authors completed background research to produce a profile of Hardin County, which is the entire planning area. Information including location, demographics, housing, transportation, and economic conditions gives a statistically detailed depiction of the planning area. Similar data is presented for the individual jurisdictions of Hardin County, along with even more detailed information of the area including local government, services provided, resources employed, and previous mitigation efforts taken at the city level. Six school districts are also included in the planning area; profiles include enrollment and school building locations.

In the Risk Assessment chapter, every hazard that could possibly affect Hardin County is identified and profiled with the information of its description, historical occurrence, probability, vulnerability of the county, the maximum extent of its possible destruction, severity and speed of onset included. Based on the frequency and/or impact of each of these descriptors, the hazards are ranked with the highest, severe winter storms being the biggest threat to Hardin County.

The individual jurisdiction's assets and vulnerable populations (identified at the countywide meetings) are displayed in the plan in order to gauge what/who needs priority when a hazard strikes. City facilities, grocery stores, and elderly and disabled populations are the most frequently identified as critical facilities and vulnerable populations.

With these elements, along with the severity of the different hazards gauged, the vulnerability across all individual jurisdictions is calculated the highest rated hazard being severe winter storms.

Though all jurisdictions of Hardin County are affected by several hazards, none are of particular priority in the plan. None of the jurisdictions have repetitive loss properties identified by Iowa Homeland Security.

The mitigation strategy produced by each jurisdiction takes into account their risk assessment and vulnerability to hazards to create goals with subsequent projects that will help reach those goals. Some of the most popular goals include protecting the health and safety of residents, minimizing losses to structures, educating citizens of the dangers of hazards, and continuity of operations of the jurisdictions and county. Projects identified to help achieve those goals include the installation of safe rooms, purchase of generators, elevation of roads, and the creation of emergency contact sheets and procedures. Projects are evaluated and ranked to set their priority to each community using the STAPLEE evaluation method.

It is of the utmost importance that the maintenance and update of this plan continues in order to carry on proactive efforts in all jurisdictions of the planning area regarding hazards. Incorporating the plan and its ideals into everyday legislation, decisions and planning will ensure that hazards are considered in the future development and operations of cities. The opportunities of annual meetings to monitor and evaluate the plan, as well as publicizing success stories of projects, will keep the public involved and informed of what hazard mitigation can and is doing for their jurisdiction.

Recommendations made by the plan authors give final input and advice on the smooth running and implementation of the goals set forth by each jurisdiction.

Prerequisites

44 CFR 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 the jurisdiction requesting approval of the plan (e.g., City Council, County Commission, Tribal Council). For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.*

Note to reviewers: When this plan has been reviewed and approved pending adoption by FEMA Region VII, the adoption resolutions will be signed by the participating jurisdictions and added to Appendix A.

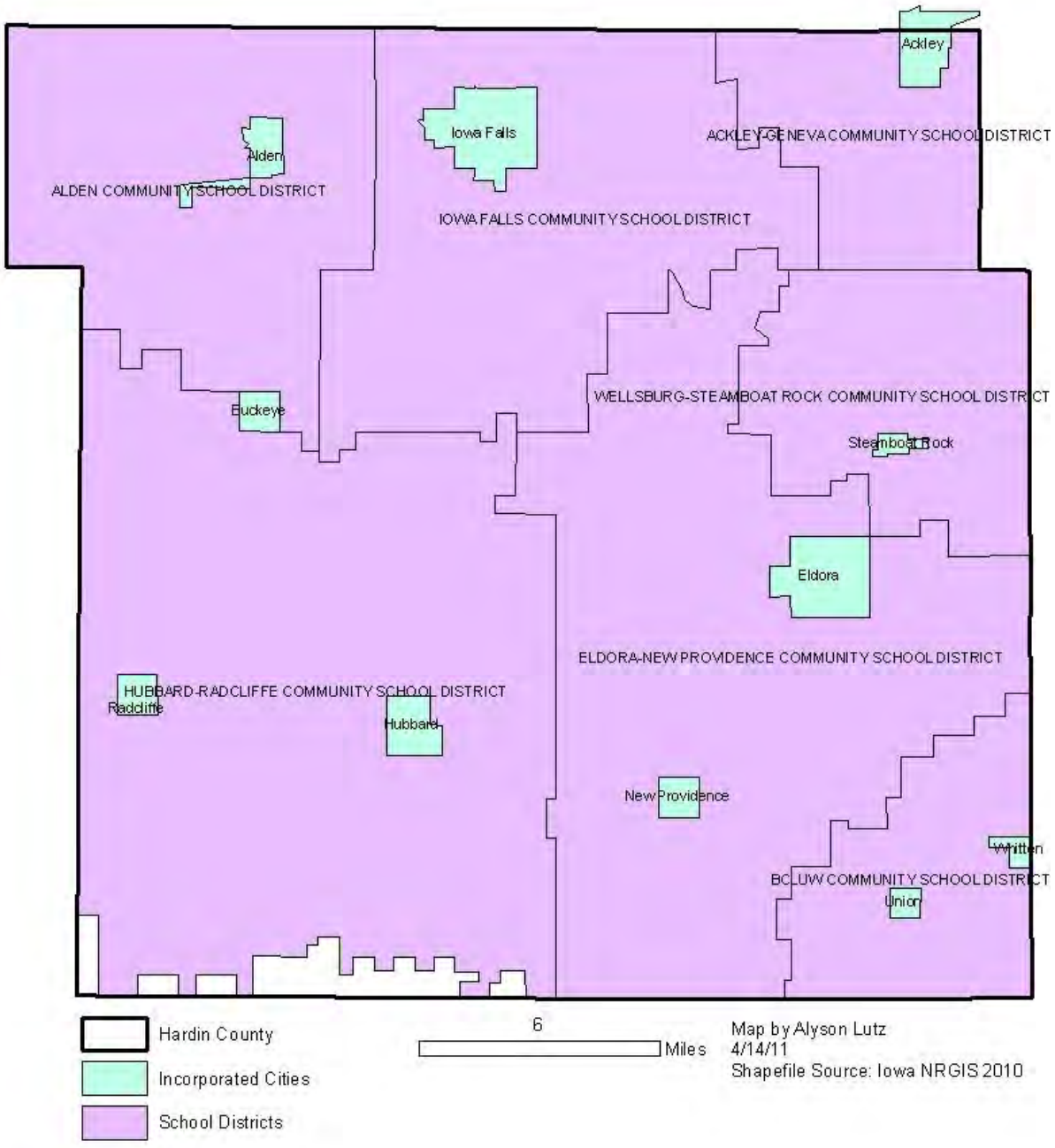
The following 18 jurisdictions participated in the creation of this plan. Two jurisdictions have adopted the multi-jurisdictional plan and the other 16 jurisdictions will adopt within a year of the plan's approval. Refer to Figure 1 for a map of the jurisdictions included in this plan.

- City of Ackley
- City of Alden
- City of Buckeye
- City of Eldora
- City of Hubbard
- City of Iowa Falls
- City of New Providence
- City of Radcliffe
- City of Steamboat Rock
- City of Union
- City of Whitten
- Hardin County (Unincorporated)
- AGWSR Community School District
- Alden Community School District
- BCLUW Community School District
- Eldora-New Providence Community School District
- Hubbard-Radcliffe Community School District
- Iowa Falls Community School District

The City of Owasa was invited to participate in this plan process but did not respond to the invitation.

The planning boundary for this multi-jurisdictional hazard mitigation plan includes all of the incorporated and unincorporated areas of Hardin County, Iowa, except the City of Owasa. All of the school districts and associated buildings that are located in Hardin County are included in the planning boundary. Refer to Figure 1 on the next page.

Figure 1: Hardin County Participating Jurisdictions



*Please note that the Ackley-Geneva and Wellsburg-Steamboat Rock Community School Districts consolidated in 2001 to become the AGWSR Community School District, which is presented as such in this plan.

44 CFR §201.6(a) (4): *Multi-jurisdictional plan may be accepted, as appropriate, as long as each jurisdiction has participated in the process.*

In order to be included in the plan and eligible for Hazard Mitigation Grant Program funding, each jurisdiction had to fulfill certain planning participation requirements. In order to be considered a full participant eligible for inclusion and funding, each jurisdiction must do the following:

1. Complete a community assessment (optional)
2. Host a hazard mitigation kick-off meeting (optional)
3. Appoint jurisdiction representative(s) (see Table 1)
4. Representative(s) of the jurisdiction attend two countywide hazard mitigation meetings (see Table 1)
5. Collaborate with the Region 6 Planning Commission to complete all required plan-related tasks and research (information is incorporated throughout plan)
6. Host a public comment period for plan revisions
7. Adopt the Hardin County Multi-Jurisdictional Hazard Mitigation Plan (pending approval)

Refer to Table 1 for meeting attendance and representatives for each jurisdiction. Some jurisdictions had multiple representatives in order to ensure that someone was always available for plan development meetings and information gathering.

All jurisdictions included in this plan participated in the entirety of the planning process. Each jurisdiction was represented by an official, staff member, or resident. Refer to Table 1 below.

Table 1: Hardin County Strategic Planning Team Members and Meeting Attendance

Jurisdiction	Representative	Kick-Off Meeting	County Meeting #1	Make-up Meeting 1	County Meeting #2	Make-up Meeting 2
City of Ackley	Mike Nuss	X	X	N/A	X	N/A
	Kevin Meyer	---	---	N/A	X	N/A
City of Alden	Lorrie Watts	N/A	---	X	---	---
	Jeff Fiscus	N/A	---	N/A	---	X
City of Buckeye	Gordon Kolterman	N/A	---	X	---	X
City of Eldora	Ian Rigg	X	---	N/A	---	N/A
	Dave Lloyd	---	X	N/A	X	N/A
	Curt Crosser	---	X	N/A	X	N/A
	Dan Caldara	---	X	N/A	X	N/A
	Jim Brown	---	X	N/A	---	N/A
City of Hubbard	Randy Smuck	X	---	N/A	---	N/A
	Rick Gustafson	X	---	N/A	---	N/A
	Marshall Simmerman	X	---	N/A	---	N/A
	Ken Wennekamp	X	---	N/A	---	N/A
	Norm Kulow	X	---	N/A	---	N/A
	Cheri Boelman	X	X	N/A	X	N/A
	Dave Elerding	---	X	N/A	X	N/A
City of Iowa Falls	Tom Deimerly	N/A	X	N/A	---	N/A
	Ron Kuhfus	N/A	X	N/A	---	N/A
	Brian Weuve	N/A	---	N/A	X	N/A
City of New Providence	Tammy Strait	X	X	N/A	---	N/A
	Katie Reifschneider	X	---	N/A	---	N/A
	Terry Beare	X	---	N/A	X	N/A
	Lou Schafer	X	---	N/A	X	N/A
	June Balvenz	X	---	N/A	---	N/A
	Steve Teske	X	---	N/A	---	N/A
	Chris Renihan	X	---	N/A	---	N/A
	Brian Barben	X	---	N/A	---	N/A
	Kevin Babcock	X	---	N/A	---	N/A
City of Radcliffe	April Eller	X	X	N/A	X	N/A
City of Steamboat Rock	Marvin Veld	---	X	N/A	X	N/A
	S Miller	X	---	N/A	---	N/A
	Jim Shallon	X	---	N/A	---	N/A
	E. Buthman	X	---	N/A	---	N/A
	Arlene Finger	X	---	N/A	---	N/A
	Robert Finger	X	---	N/A	---	N/A
	Lois Luiken	X	---	N/A	---	N/A
	Margaret Schuneman	X	---	N/A	---	N/A
	Kenny Primus	X	---	N/A	---	N/A
	John Stupp	X	---	N/A	---	N/A
	Cathy Armstrong	X	---	N/A	---	N/A

Jurisdiction	Representative	Kick-Off Meeting	County Meeting #1	Make-up Meeting 1	County Meeting #2	Make-up Meeting 2
Steamboat Rock Continued	Betty Klatt	X	---	N/A	---	N/A
	Darrell Freese	X	---	N/A	---	N/A
	Mildred Griffin	X	---	N/A	---	N/A
	Keith Griffin	X	---	N/A	---	N/A
	Gary Klatt	X	---	N/A	---	N/A
	Janice Kroker	X	---	N/A	---	N/A
	Arlene Montgomery	X	---	N/A	---	N/A
	Sharon Lindsey	X	---	N/A	---	N/A
	Jay Jordan	X	---	N/A	---	N/A
City of Union	Tom Pieper	X	X	N/A	X	N/A
	Cindy Clemons	X	---	N/A	---	N/A
	Lori Ingebritson	X	---	N/A	---	N/A
	Jim Tecke	X	---	N/A	---	N/A
	Ray Clark	X	---	N/A	---	N/A
	Ardith Donaldson	X	---	N/A	---	N/A
	Donna Holloway	X	---	N/A	---	N/A
	David Holloway	X	---	N/A	---	N/A
	Ann Bracy	X	---	N/A	---	N/A
	James Donaldson	X	---	N/A	---	N/A
	Cheryl Halveson	X	---	N/A	---	N/A
	Judy Clark	X	---	N/A	---	N/A
	Jeremiah Andrew	X	---	N/A	---	N/A
City of Whitten	Paul Bollmeier	X	X	N/A	X	N/A
	G. Strait	X	---	N/A	---	N/A
	Tammy Strait	X	---	N/A	---	N/A
	William Lott	X	---	N/A	---	N/A
	Jim Meyer	X	---	N/A	---	N/A
AGWSR School District	Brent Harrenstein	N/A	X	N/A	---	N/A
	Robert Weber	N/A	---	N/A	X	N/A
Alden School District	John Robbins	N/A	X	N/A	X	N/A
BCLUW Schools	Barry Hoy	N/A	X	N/A	X	N/A
Eldora-New Providence Schools	Randall Nichols	N/A	X	N/A	---	X
Hubbard –Radcliffe Schools	Joel Semprini	N/A	X	N/A	X	N/A
Iowa Falls Schools	John Robbins	N/A	X	N/A	X	N/A
Hardin County Emergency Management	Douglas Riggs	X	X	N/A	X	N/A
Marshall County Emergency Mgmt.	Kim Elder	N/A	---	N/A	X	N/A
Hardin County Board of Supervisors	Jim Johnson*	N/A	X	N/A	X	N/A
	Erv Miller	N/A	X	N/A	---	N/A
Pine Lake Camps	Roger Sutton	N/A	---	N/A	X	N/A

N/A – no kick off meeting required for these jurisdictions, but representative may have attended a city kick-off meeting
*Team Lead for participating jurisdictions

1 Introduction

Hazards

A hazard is any source of danger that threatens humans, property, and the environment (FEMA 385-2/August 2001, Page iii). In the context of hazard mitigation planning, there are two types of hazards. The first type of hazard is a natural hazard, which is one that occurs in nature often due to climate and geographic location. There are 16 main natural hazards identified by the State of Iowa. The other hazard type is a man-made or technological hazard, which is caused by some sort of human activity. Table 1.1 lists both natural and man-made hazards.

Table 1.1: All Hazards

Natural Hazards	Man-made Hazards
Dam Failure	Agro-Terrorism
Drought	Air Transportation Incident
Earthquake	Animal/Crop/Plant Disease
Expansive Soils	Biological Terrorism
Extreme Heat	Chemical Terrorism
Flash Flood	Communications Failure
Grass or Wildland Fire	Conventional Terrorism
Hailstorm	Cyber Terrorism
Landslide	Enemy Attack
Levee Failure	Energy Failure
River Flood	Fixed Hazardous Materials Incident
Sinkholes	Fixed Radiological Incident
Severe Winter Storm	Highway Transportation Incident
Thunderstorms and Lightning	Human Disease Epidemic
Tornado	Pandemic Human Disease
Windstorm	Pipeline Transportation Incident
	Public Disorder
	Radiological Terrorism
	Railway Transportation Incident
	Structural Failure
	Structural Fire
	Transportation Hazardous Materials Incident
	Transportation Radiological Incident
	Waterway Incident

Note that dam and levee failure are included under natural hazards. These are normally considered man-made, but FEMA requires the inclusion of these two hazards so they are considered a natural hazard in this plan. The natural hazards listed are identified by both FEMA and the 2007 Iowa Hazard Mitigation Plan, while the man-made hazards were only identified in Iowa's state hazard mitigation plan. Currently (2010), the Iowa Hazard Mitigation Plan is being updated so the list of hazards will be reduced. Both natural and man-made hazards will be considered in this plan.

Hazard Mitigation Planning

To better structure the way in which communities in the United States respond to disasters, the "four phases of emergency management" were introduced in the early 1980s after the similarities between natural disasters and civil defense became clear. This approach can be applied to all disasters. The "four phases of emergency management" are described below.

1. **Mitigation** is defined as any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event. Mitigation, also known as prevention, encourages long-term reduction of hazard vulnerability. The goal of mitigation is to save lives and reduce property damage. Mitigation can accomplish this, and should be cost-effective and environmentally sound. This, in turn, can reduce the enormous cost of disasters to property owners and all levels of government. In addition, mitigation can protect critical community facilities, reduce exposure to liability, and minimize community disruption. Examples include land use planning, adoption of building codes, elevation, acquisition, or relocation of homes away from floodplains.

2. **Preparedness** includes plans and preparations made to save lives and property and to facilitate response operations.

3. **Response** includes actions taken to provide emergency assistance, save lives, minimize property damage, and speed recovery immediately following a disaster.

4. **Recovery** includes actions taken to return to normal or improved operating condition following a disaster. (FEMA 386-1/September 2002, Page v)

Hazard mitigation planning involves both phases one and two of emergency management, mitigation and preparedness. A proactive rather than reactive approach to emergency management is used for hazard mitigation planning.

As defined by FEMA, planning is the act or process of making or carrying out plans, specifically the establishment of goals, policies, and procedures for a social or economic unit (FEMA 386-1/September 2002, Page i). **In essence, planning, coupled with hazard mitigation, results in a process that involves determining what actions a community can take to reduce or eliminate the long-term risks to human life and property from natural and man-made hazards.**

Hazard Mitigation Planning Enabling Legislation

In the past, federal legislation has provided funding for disaster relief, recovery, and some hazard mitigation planning. The Disaster Mitigation Act of 2000 (DMA 2000) is the latest legislation to improve this planning process and was put into motion on October 20, 2000, when President George W. Bush signed the Act (Public Law 106-390). The legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. As such, this Act establishes a pre-disaster hazard mitigation program and requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP).

Section 322 of the Act specifically addresses mitigation planning at the state and local levels. It identifies requirements that allow HMGP funds to be used for planning activities, and increases the amount of HMGP funds available to states that have developed a comprehensive, enhanced mitigation plan prior to disaster. States and communities must have an approved mitigation plan in place prior to receiving post-disaster HMGP funds. Local and tribal mitigation plans must demonstrate that their proposed mitigation measures are based on a sound planning process that accounts for the risk to and the capabilities of the individual communities.

State governments have certain responsibilities for implementing Section 322, including:

- Preparing and submitting a standard or enhanced state mitigation plan;
- Reviewing and updating the state mitigation plan every three years;
- Providing technical assistance and training to local governments to assist them in applying for HMGP grants and in developing local mitigation plans; and
- Reviewing and approving local plans if the state is designated a managing state and has an approved enhanced plan.

DMA 2000 is intended to facilitate cooperation between state and local authorities, prompting them to work together. It encourages and rewards local and state pre-disaster planning and promotes sustainability as a strategy for disaster resistance. This enhanced planning network will better enable local and state governments to articulate accurate needs for mitigation, resulting in faster allocation of funding and more effective risk reduction projects.

To implement the DMA 2000 requirements, FEMA prepared an Interim Final Rule, published in the Code of Federal Registration (CFR) on February 26, 2002, at 44 CFR Parts 201 and 206, which establishes planning and funding criteria for states and local communities. (FEMA 386-1/September 2002, Page i)

Multi-jurisdictional Hazard Mitigation Plan

The agreement for this plan indicates that it is a multi-jurisdictional hazard mitigation plan, which is a plan that is jointly prepared by more than one jurisdiction. The term "jurisdiction" in this context means "local government." Title 44 Part 201 Mitigation Planning in the CFR defines a "local government" as "any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity."

In this specific case, the Region 6 Planning Commission is under contract with Hardin County Emergency Management to write the Hardin County Multi-Jurisdiction Hazard Mitigation Plan. Operating as a non-profit, council of government, Region 6 maintains planning staff with knowledge and expertise to facilitate the hazard mitigation planning process and write the final plan.

Local jurisdictions have the option of preparing a multi-jurisdictional hazard mitigation plan under DMA 2000. Jurisdictions can benefit in several ways when they choose to participate in a multi-jurisdictional planning process. Among such benefits, this process:

- enables comprehensive approaches to mitigation of hazards that affect multiple jurisdictions;
- allows economies of scale by leveraging individual capabilities and sharing costs and resources;
- avoids duplication of efforts; and
- imposes an external discipline on the process

A multi-jurisdictional planning approach may also have certain complications. Some potential challenges include:

- less individual control over the process;
- needing strong, centralized leadership and organizational skills;
- conflict that may arise among participants; and
- requiring consistent participation by each jurisdiction throughout the planning process so that the plan stays on schedule.

(FEMA 386-8/August 2006, Page 1)

Each jurisdiction considered whether the advantages in participating in a joint planning effort outweighed the disadvantages for its particular situation. Jurisdictions understood that when opting to participate in a multijurisdictional plan, they still must meet all planning requirements in the Rule, including formal adoption of the plan. It was noted that failure to meet requirements would disqualify the noncompliant jurisdictions from adopting the plan, getting it approved by FEMA, and consequently being eligible for project grants.

2 Hazard Mitigation Planning Process

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

Hazard mitigation planning is the process of determining how to reduce or eliminate the loss of life and property damage resulting from natural and human-made hazards. According to FEMA, four basic phases comprise the basic hazard mitigation planning process.

1. **Organize resources:** involves organizing resources, mobilizing the community, and getting started with the planning process.
    a. Assess community support
    b. Build the planning team
    c. Engage the public

2. **Assess risks:** identifies hazards and estimates the losses associated with these hazards.
    a. Identify hazards
    b. Profile hazard events
    c. Inventory assets
    d. Estimate losses

3. **Develop mitigation plan:** describes how to identify, plan, and initiate cost-effective actions.
    a. Develop mitigation goals and objectives
    b. Identify and prioritize mitigation actions
    c. Prepare an implementation strategy
    d. Document the mitigation planning process

4. **Implementation and monitoring progress:** leads communities and states through the formal adoption of the plan and discusses how to implement, monitor, and evaluate the results of the mitigation actions to keep the mitigation plan relevant over time.
    a. Adopt the mitigation plan
    b. Implement the plan recommendations
    c. Evaluate planning results
    d. Revise the plan

(FEMA 386-1/September 2002)

This is a general outline of the planning process that was used to create the hazard mitigation plans for Hardin County. Since this plan is specifically a multi-jurisdictional hazard mitigation plan, modifications had to be made throughout the planning process to better reflect each participating community's values and capabilities. The detailed process used for creating this plan is outlined and narrated in the following pages.

Hardin County Hazard Mitigation Planning Process

1. **Organize Community Resources**
    A. Region 6 meets with Hardin County Emergency Management Coordinator
    B. Complete community inventory in each jurisdiction with Region 6
    C. Region 6 completes county and community profiles, determine local capabilities, research existing regulations
    D. Hazard mitigation planning kick-off meeting in jurisdictions facilitated by Region 6
    E. Hardin County Emergency Management assists Region 6 with forming county-wide strategic planning team

2. **Risk Assessment and Mitigation Strategy**
    A. Hardin County Strategic Planning Team Meeting #1 and Make-up Work Session facilitated by Region 6
        i. Identify hazards for Hardin County
        ii. Profile all possible hazards
        iii. Rank hazards
        iv. Identify hazard boundaries
        v. Inventory assets through concept mapping
        vi. Identify potential mitigation actions based on assets and hazard boundaries
    B. Hardin County Strategic Planning Team Meeting #2 and Make-up Work Session facilitated by Region 6
        i. Identify critical facilities and vulnerable populations
        ii. Vulnerability assessment
        iii. Determine overall goals
        iv. Determine potential mitigation actions
        v. Evaluate mitigation actions
    C. Region 6 follows-up with the county and each jurisdiction
        i. Finish determining goals, mitigation actions, and evaluations
        ii. Create work plans for mitigation actions
        iii. Prioritize mitigation actions based on evaluations and work plans
        iv. Create implementation plan

3. **Write Plan** (primary plan authors are Alyson Lutz and Alicia Rosman at Region 6)

4. **Community Comment Period** with plan posted 30 days

5. **Submit Plan** for comment and approval

6. **Plan Approval and Adoption** by resolution in each jurisdiction and the county

7. **Plan Implementation by Jurisdictions and County**

1. Organize Community Resources

A. Meeting with Hardin County Emergency Management Coordinator

In Spring 2009, Region 6 met with the Emergency Management Coordinator (EMC) for Hardin County. We discussed the EMC's role in the hazard mitigation process in terms of the information he can provide, involvement in kick-off and planning team meetings, and the main hazards affecting Hardin County. Throughout the hazard mitigation planning process, the Hardin County EMC was a valuable resource for both information and establishing contacts within each jurisdiction.

Also, an interest in meeting with other emergency management coordinators from surrounding counties was expressed. Meeting annually to discuss common issues is a feasible option. During the hazard mitigation process, getting regional participation from the other counties belonging to the Region 6 Planning Commission proved to be difficult, so having these meetings may help to incorporate regionalism into future plan updates.

B. Complete community inventory

After meeting with the Hardin County EMC, Region 6 created a community inventory that was optionally completed in jurisdictions that were willing to participate. The jurisdictions that participated in this assessment include:

- City of Ackley
- City of Hubbard
- City of Iowa Falls

The inventory covered a wide range of topics like zoning, ordinances, transportation safety, NOAA All-Hazards Radios, warning sirens, backup power capabilities, housing, water distribution and sewer infrastructure, wastewater treatment, flooding, agriculture, and hazardous materials.

The main goal of this inventory was to gain an understanding of the broad range of issues that are being faced in each jurisdiction. Secondary goals were to introduce hazard mitigation planning and to establish a reliable contact within the jurisdiction. In most jurisdictions, the contact established was either the mayor or city clerk. Refer to Appendix B.

C. Complete county and community profiles, determine local capabilities, research existing regulations

Through extensive research and local knowledge, Region 6 completed a profile for Hardin County and each jurisdiction that participated in the planning process. The profiles for the county and each jurisdiction highlight a broad range of topics including geographic location, population identification and trends, housing and residential development trends, and commercial and industrial development trends. Other topics like historic structures, recreational activities, and cultural institutions are also discussed. Also, each jurisdiction's capability to administer and fund mitigation projects, current regulations, and existing mitigation projects are included. Existing regulations in each jurisdiction were used like the city code, zoning ordinance, and Iowa Code.

D. Hazard mitigation planning kick-off meeting in each jurisdiction

With an understanding of the main issues faced by jurisdictions, Region 6 was able to facilitate a Hazard Mitigation and Community Development Meeting that served as the kick-off planning meeting for each jurisdiction. These meetings were advertised to the public with the help of our contact in the jurisdiction and the Hardin County EMC. The jurisdictions that participated in the kick-off process included:

- City of Ackley
- City of Eldora
- City of Hubbard
- City of New Providence
- City of Radcliffe
- City of Steamboat Rock
- City of Union
- City of Whitten
- Hardin County (Unincorporated)

At the kick-off meeting, Region 6 introduced the concept of hazard mitigation planning and guided attendees through a brainstorming and prioritization exercise. This exercise gave city officials, employees, and citizens a chance to share their ideas and decide which ideas are the most important. The meeting was ended with a discussion that outlines the next steps in the hazard mitigation planning process and the need for representation in the countywide planning team.

The kick-off meeting in each jurisdiction was very valuable, because it not only introduced the concept and process of hazard mitigation planning but also engaged the community in a discussion about its needs and gave the public a chance to share their ideas. Most ideas for hazard mitigation fall into the emergency services and structural projects categories. The meeting materials, correspondence, minutes, and complete list of all the mitigations ideas from these meetings are included in Appendix C.

E. Form countywide strategic planning team

Once kick-off meetings were held in jurisdictions, the Hardin County Strategic Planning Team was formed. This group of people is responsible for representing their particular jurisdiction, school district, or the unincorporated areas of Hardin County during the bulk of the hazard mitigation planning process. The public was invited to participate throughout the entire process, but the people in this particular group ensured that their jurisdiction had representation throughout the remainder of the process. These particular people were identified for the Hardin County Strategic Planning Team with the help of the Hardin County Emergency Management Coordinator. Everyone except the Hardin County Emergency Management Coordinator participated as a volunteer planner who was not compensated for their time spent on hazard mitigation planning.

The Hardin County Strategic Planning Team is made up of 80 people who live in Hardin County, and a majority also works in Hardin County. The members of the Planning Team are listed in Table 1 along with the extent of their participation. Throughout the text of this plan, the Hardin County Strategic Planning Team will be referred to as the Planning Team.

2. Risk Assessment, Inventory Assets, and Mitigation Strategy

After establishing the Planning Team, two countywide meetings and two smaller make-up work sessions were held to complete the risk assessment, asset inventory, and develop a mitigation strategy. Some planning work was completed outside these meetings by both Region 6 and community representatives.

A. Hardin County Strategic Planning Team Meeting #1 and Make-up Work Session

All of the Planning Team members were invited to attend the first countywide hazard meeting by Alyson Lutz via mail or email depending on the contact information that was available. To invite the general public, a press release was sent to the Ackley World Journal, Eldora Herald-Ledger/ Eldora Hardin Co. Index, Hubbard South Hardin Signal-Review, Iowa Falls Iowa Farm Bureau Spokesman, and the Iowa Falls Times-Citizen, which combined, serve all jurisdictions in the county. For all meeting materials, refer to Appendix D. Other counties were invited to the following meeting so they could provide input on goals, projects, and possible collaborations. There was no regional presence at this meeting.

On Wednesday, September 22, 2010, the first Planning Team meeting was held in the City of Eldora (county seat) at the Eldora Public Library, facilitated by Alyson. The team lead for all participating jurisdictions was Jim Johnson, Supervisor for Hardin County. The meeting doubled as a luncheon so the members of the Planning Team could use their lunch break to volunteer their time. The theme of this meeting was "Dine and Diagram," which involved eating, listening, discussing, and participating in diagramming exercises tailored to hazard mitigation planning.

The following steps in the hazard mitigation process were completed either before or during the first countywide hazard mitigation meeting: identify and profile countywide hazards, rank hazards, determine hazard boundaries, inventory assets, and identify potential goals and mitigation actions based on activities. The following sections outline how these steps were completed.

Attendance at this meeting was not as expected so additional time was needed to ensure that all Hardin County jurisdictions could be included in the plan. All jurisdictions and participating school districts were represented except Alden and Buckeye who did their work from home and emailed it in at a later date.

Hardin County Strategic Planning Team Meeting #1: Dine and Diagram

Eldora Public Library

i. Identify hazards for Hardin County

Ultimately, the hazards chosen for the plan were determined by the Planning Team. Before the county meeting, Region 6 identified the hazards most likely to affect the county based on 2007 Iowa Hazard Mitigation Plan, research, and knowledge of the area.

At the meeting, the Planning Team was asked to agree or disagree with the list of hazards that Region 6 assumed would be chosen. The entire list of possible hazards (Table 1.1) was provided so Planning Team members could add hazards to the list. Members were also able to eliminate hazards if they could provide sufficient reasoning.

ii. Profile all Hardin County hazards

All hazards that were identified for Hardin County were profiled. This was done through review of the Iowa Hazard Mitigation Plan, past events and declared disasters, research, and reviewing data from Hardin County Emergency Management and the National Climatic Data Center.

The actual profiles of each possible hazard are based on the format used by Iowa's plan. The following information for hazards in Hardin County is addressed:

- Definition of the hazard
- General description of the hazard
- Historical occurrence of the hazard
- Probability of the hazard occurring in the future
- Vulnerability of citizens, visitors, and emergency responders during and after a hazard event
- Maximum geographic extent of the hazard
- Severity of the hazard's potential impact on human life and property
- Speed of onset or amount of warning time before the hazard occurs

iii. Rank hazards

Once the hazards for Hardin County were chosen and profiled, they were ranked against each other to determine which hazards can have the greatest impact on the county. The ranking was done according to the method used in the 2007 Iowa Hazard Mitigation Plan. The ranking method involves assigning a rating for historical occurrence, probability, vulnerability, maximum geographic extent, severity of impact, and speed of onset.

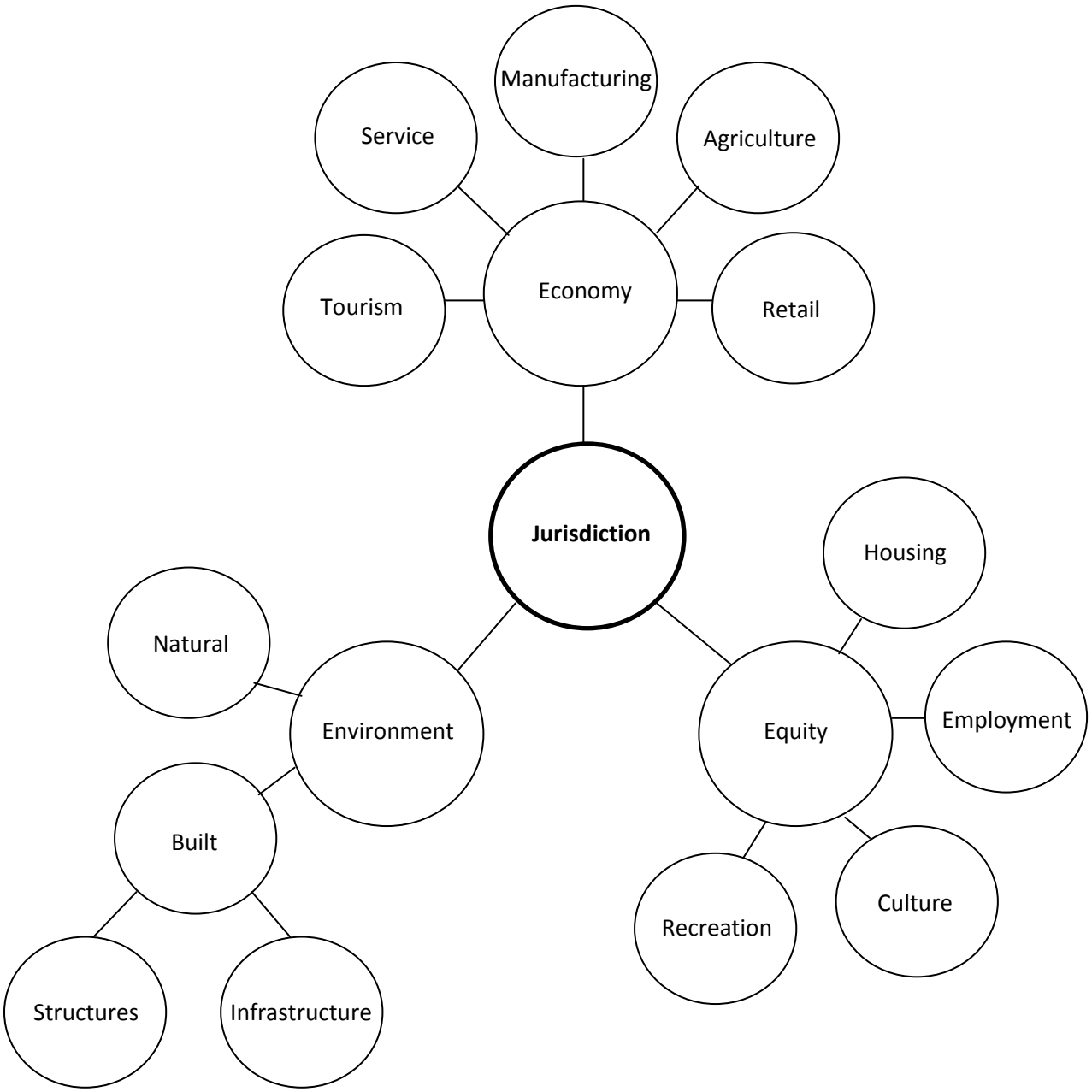
iv. Determine hazard boundaries

Many hazards are countywide or cover the entire planning boundary in terms of their potential geographic extent, but others do not affect all of Hardin County's jurisdictions. The hazards that are specific to a jurisdiction were identified through research and extensive discussion at the first countywide meeting. Maps were also created to easily identify hazard boundaries.

iv. Inventory community assets through concept mapping

To identify county and community assets, Region 6 developed a concept mapping activity that guided meeting participants through the asset inventory process. A diagram was developed and used to complete a comprehensive review of both assets and weaknesses. A simplified example of the diagram that was used is below in Figure 2.1.

Figure 2.1: Basic Asset Identification Diagram



The asset identification process involved adding more circles to the diagram and writing in the community's specific assets. Participants were also asked to identify community weaknesses.

A community asset diagram was completed for each individual jurisdiction and the unincorporated areas of Hardin County. The schools were also included in this process. Each school representative participated in the asset mapping for the community in which their buildings are located. The diagram was completed by Planning Team members who attended the meeting. The assets particular to each jurisdiction can be found in the vulnerability section of the risk assessment section of this plan. An example of a completed diagram is below in Figure 2.2.

Figure 2.2: Example Asset Identification Diagram

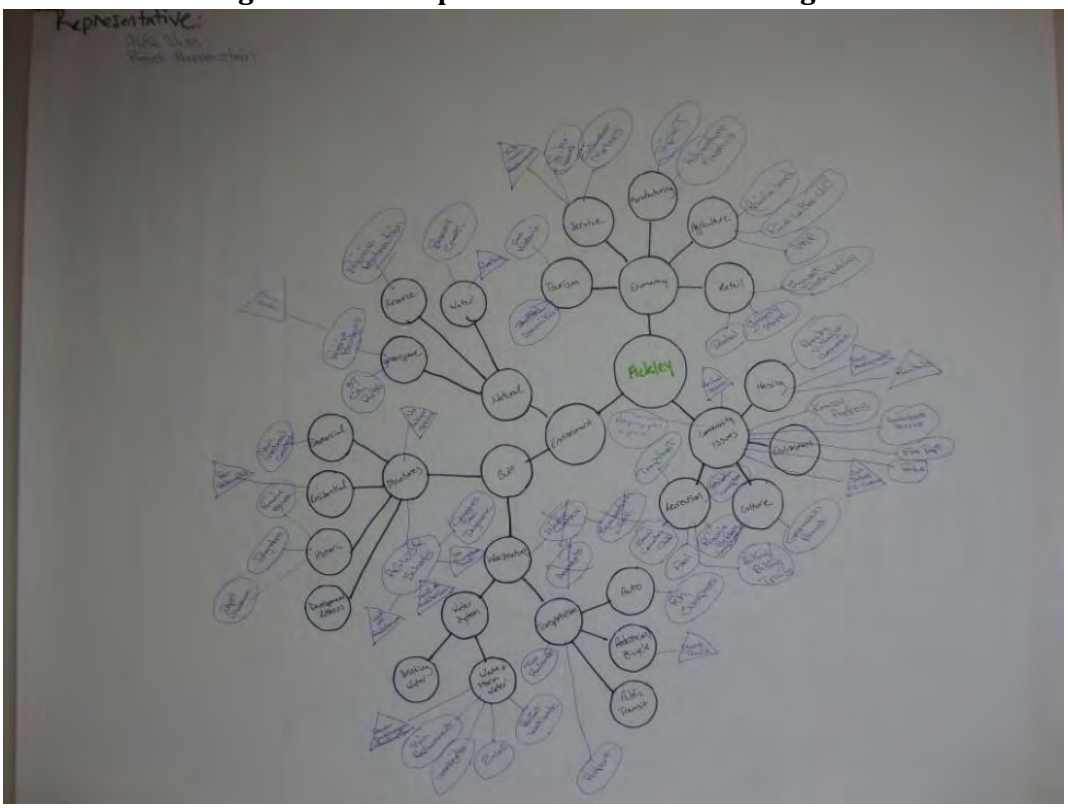


Image Source: Region 6 Planning Commission, February 2011

Most Planning Team members identified a wide, comprehensive range of assets in their jurisdiction along with its weaknesses. The land area, population, and culture of each jurisdiction differ so the resulting assets and weaknesses were very unique to each jurisdiction. Planning Team members were asked to use the results of their asset identification for the next meeting activity involving goal setting and identifying potential mitigation actions.

vi. Identify potential goals and mitigation action based on hazard boundaries and assets

Planning Team members were asked to think about potential goals and mitigation projects based on the community assets and weaknesses that they identified. They were also given a FEMA mitigation actions idea document to use as a reference. For this first goal setting and mitigation exercise, each jurisdiction was asked to consider the full range of hazards that could affect their respective community. At this point, goals and mitigation actions were just initial ideas. Refer to Appendix D.

B. Hardin County Strategic Planning Team Meeting #2 and Make-up Work Session

The second countywide meeting was scheduled for February 1, 2011, however the severe winter storms that week caused the meeting to be rescheduled to February 22, 2011 from noon to 1:30 PM at the Eldora Fire Station meeting room. This meeting was held at lunchtime so Planning Team members could volunteer their lunch time in order to contribute to the hazard mitigation planning process. Again, the meeting was facilitated by Alyson Lutz with Jim Johnson as team lead for all participating jurisdictions.

All of the Planning Team members plus others were invited to attend the meeting by either mail or email depending on the contact information that was available. To invite the general public, a press release was sent to local newspapers: Ackley World Journal, Eldora Herald-Ledger, Hubbard South Hardin Signal-Review, Iowa Falls Iowa Farm Bureau Spokesman, and the Iowa Falls Times-Citizen. To encourage a regional effort, emergency management coordinators from other counties (Region 6 Counties: Poweshiek, Marshall, and Tama) were invited to share their ideas and also invite people from their county to participate. The Marshall County Emergency Management Coordinator attended the meeting to help give input on Hardin County's behalf. Refer to Appendix E for all meeting related materials.

At this meeting, the following elements of the plan process were completed: confirm community assets and identify critical facilities, identify vulnerable populations, determine goals, determine potential mitigation actions, and evaluation of mitigation actions. Not all of these activities were completed in the allowed 90 minutes so some communities had to finish certain activities outside of the meeting. The following sections detail how these activities were completed.

Attendance at this meeting was not as expected so an additional meeting was needed to ensure that all Hardin County jurisdictions could be included in the plan. All jurisdictions and participating school districts were represented except Alden, Buckeye, and Eldora-New Providence Community School District. The makeup meeting was held at the Hardin County Engineer's Office on Tuesday, March 22, from noon to 1pm.

Collaboration at the 15th Avenue Fire Station in Eldora

Image Source: Region 6 Planning Commission, February, 2011

i. Identify critical facilities and vulnerable populations

The community assets and weaknesses that were identified through concept mapping at the first countywide meeting were compiled by Region 6 into jurisdiction specific worksheets that were given to each jurisdiction's representative(s). The Planning Team members who attended the meeting were asked to confirm their community's assets and weaknesses by adding or removing items from their respective list. In most cases, representatives added assets that they did not think to include at the first planning meeting.

Second, Region 6 provided Planning Team members with FEMA aerial maps of their community for the purpose of identifying critical facilities. An explanation and information sheet was provided to ensure that representatives understood the definition of a critical facility and vulnerable population. Ultimately, though, the Planning Team got to decide what structures are critical and which members of their community are most vulnerable during a disaster. This activity involved both recording the critical facilities and vulnerable populations on a worksheet and marking the location on the aerial map.

It should be noted that communities were allowed to list structures not located in their own community as a critical facility. Hardin County has several small, rural communities that do not contain all basic services like a grocery store, hardware store, or bank so they were allowed to identify critical facilities located in other communities that they depend on in the event of a disaster. Otherwise, the FEMA recognized definition of critical facility and vulnerable population were used in this exercise.

ii. Vulnerability assessment

The vulnerability assessment involves the identification of assets, critical facilities, and vulnerable populations, which was completed in the previous step. It also includes determining how vulnerable or open to damage jurisdictions are to each hazard. To make this determination, the Planning Team helped identify what hazards affect the entire county and what hazards affect only certain jurisdictions. This was used along with scores given to hazards during the ranking process. The sum of these scores is the score for vulnerability to determine whether a jurisdiction is at a high, medium, or low-risk for that particular hazard.

iii. Determine goals

Based on previous hazard research, information from the first countywide meeting, FEMA suggestions, and case studies, Region 6 identified four basic hazard mitigation goals for Hardin County. At the meeting, the county and each jurisdiction were able to accept the goals in the original form, modify them to fit their community, or create new goals.

Planning Team members were asked to record the resulting goals on a worksheet. The four basic goals provided are below:

1. Minimize losses to existing and future structures within hazard areas. Critical facilities and identified assets are high priority structures.
2. Protect the health and safety of Hardin County residents and visitors.
3. Educate Hardin County citizens about the dangers of hazards and how they can be prepared.
4. The continuity of local operations will not be significantly disrupted by disasters in Hardin County.

The county as a whole accepted these goals since they are broad enough to include each jurisdiction, unincorporated areas of Hardin County, and all hazards. Several jurisdictions chose certain goals and modified them to fit their unique community needs.

iv. Determine potential mitigation actions

Before the meeting, all of the mitigation ideas from the first countywide meeting were compiled by Region 6 into a document that separated the ideas by corresponding hazard and by the jurisdiction that proposed the idea. This document was provided to each Planning Team member to use when choosing potential mitigation projects for their community. The Planning Team could see not only their specific mitigation ideas but also other community's ideas, as well as those of other Region 6 Counties. This way, ideas were easily shared across the county. Refer to Appendix F for the full list.

To choose potential mitigation actions, Planning Team members were asked to narrow down their large list of mitigation ideas according to the hazard mitigation goals for their jurisdiction. The Planning Team members were informed of the mitigation action requirement: each jurisdiction needs at least one hazard mitigation action per goal while there must be a comprehensive, all-hazard inclusive set of actions for the entire county.

Region 6 encouraged each community to consider both large and small projects along with the five major projects suggested by FEMA. The suggested mitigation projects are below:

1. Construction of a safe room
2. Acquisition and elevation of structures
3. Add lift stations, detention basins, and culverts
4. Purchase generators
5. Elevate roads

Most jurisdictions included these mitigation projects along with others that fit their community's specific needs. A very broad and comprehensive range of projects were identified.

At the county level, since mitigation actions are required for each hazard, county representatives had to consider not just countywide goals but also the full list of hazards that may affect the county. Due to limited time, some jurisdictions and the county especially needed to finish this activity outside of the meeting.

v. Evaluate mitigation actions

After Planning Team members chose mitigation actions for their jurisdiction, Region 6 explained the need for a comprehensive evaluation of each mitigation action. The suggested FEMA designed evaluation method, STAPLEE, was used for this part of the plan process. The areas the evaluation covers are below:

1. Social
    a. Community acceptance
    b. Effect on segment of population
2. Technical
    a. Technical feasibility
    b. Long-term solution
    c. Secondary impacts
3. Administrative
    a. Staffing
    b. Funding allocated
    c. Maintenance/operations
4. Political
    a. Political support
    b. Local champion
    c. Public support
5. Legal
    d. State authority
    e. Existing local authority
    f. Potential legal challenge
6. Economic
    a. Benefit of action
    b. Cost of action
    c. Contributes to economic goals
    d. Outside funding required
7. Environmental
    a. Effect on land/water
    b. Effect on endangered species
    c. Effect on HAZMAT/waste
    d. Consistent with community environmental goals

Most Planning Team members had sufficient time to complete all of the evaluations for their jurisdiction's mitigation actions. Only the county finished outside of the meeting and mailed their paperwork back to Region 6. All related materials for this activity can be found in Appendix G.

C. Follow-up with the county and each jurisdiction

i. Finish determining goals, mitigation actions, and evaluations

Since some representatives did not have enough time at the meetings to finish determining the goals and mitigation actions for their jurisdiction, they took meeting materials with them to complete this part of the planning process on their own time. When representatives finished these tasks, they sent their completed materials back to Region 6 so they could be incorporated in the plan.

ii. Create work plans

The work plans for each mitigation action were largely created using the information collected in the section outlining each jurisdiction's capabilities and current regulations. Also, inherent knowledge of jurisdictions and consultation with many of the jurisdiction representatives was used to complete the work plans. The work plan for each mitigation project includes a plan for implementation and administration, lead agency, partners, potential funding, estimated total cost, benefits or loss avoided, and completion date.

iii. Prioritize mitigation actions based on evaluations and work plans

The STAPLEE evaluations that were completed for each mitigation action were used to prioritize the various projects for each jurisdiction. The projects were ranked in accordance with the score they received so the higher the score for the project the higher the priority it received. In the next five years, priorities may change due to new circumstances like loss of funding or a natural disaster, so prioritization is subject to change.

iv. Create implementation plan

The implementation plan was created through case study research and discussion with Planning Team members. Along with the knowledge of local conditions provided by Planning Team members, previously approved mitigation plans served as an invaluable resource in this planning effort.

3. Write the Plan

The plan was written primarily by Alyson Lutz and Alicia Rosman, who are both planners at the Region 6 Planning Commission. The plan was reviewed and edited by Alyson and another Region 6 staff member, Donna Sampson. The main resources used to create this plan include FEMA's plan guidance known as *The Blue Book*, FEMA's how-to guides (386-1,2,3,4), information learned in hazard mitigation planning workshops and personal meetings with FEMA technical assistance planners, previously approved hazard mitigation plans, and case studies like the Neosho County, MO plan.

Along with general hazard mitigation guidance, several data sources were used for specific hazard information. These sources are cited throughout the plan. Other sources of information used include existing plans, reports, technical information, and regulations. Some of these documents include code of ordinances, zoning ordinances, floodplain maps, outdated hazard mitigation plans, soil surveys, and other relevant documents that are cited.

Above all, the public and Planning Team input is the most important contribution to development of this plan. In any planning effort, the best information and ideas often come from the people who live and work in the community that is the subject of the plan. The information and ideas provided by the participants of the planning process are incorporated throughout the entire plan.

4. Community Comment Period

The comment period for this plan began on May 10, 2011 and ended June 10, 2011. The comment period is concurrent with plan review so public comments will be incorporated into this section once the comment period expires. A notice was published in the major newspapers of Hardin County so residents were aware of their ability to review and comment on the written plan. Copies of the plan were located at the Hardin County Auditor's Office in Eldora. An electronic copy of the plan was available by request. A copy of the notice along with public comments will be available in Appendix H once the affidavit of publications is received from each newspaper.

5. Submit Plan

The plan was submitted by email to the state plan review staff and the State Hazard Mitigation Officer on June 17, 2011. The plan must receive approval by January 20, 2012. This submittal date gives sufficient time for review and final edits before its approval deadline.

6. Plan Approval and Adoption

As mentioned in the Prerequisites section of this plan, the adoption of this plan is pending approval. Each jurisdiction will adopt this plan by resolution and the resolutions will be included in Appendix A. Information about revisions and plan approval will also be added to this section of the plan process.

7. Plan Implementation by Jurisdictions and County

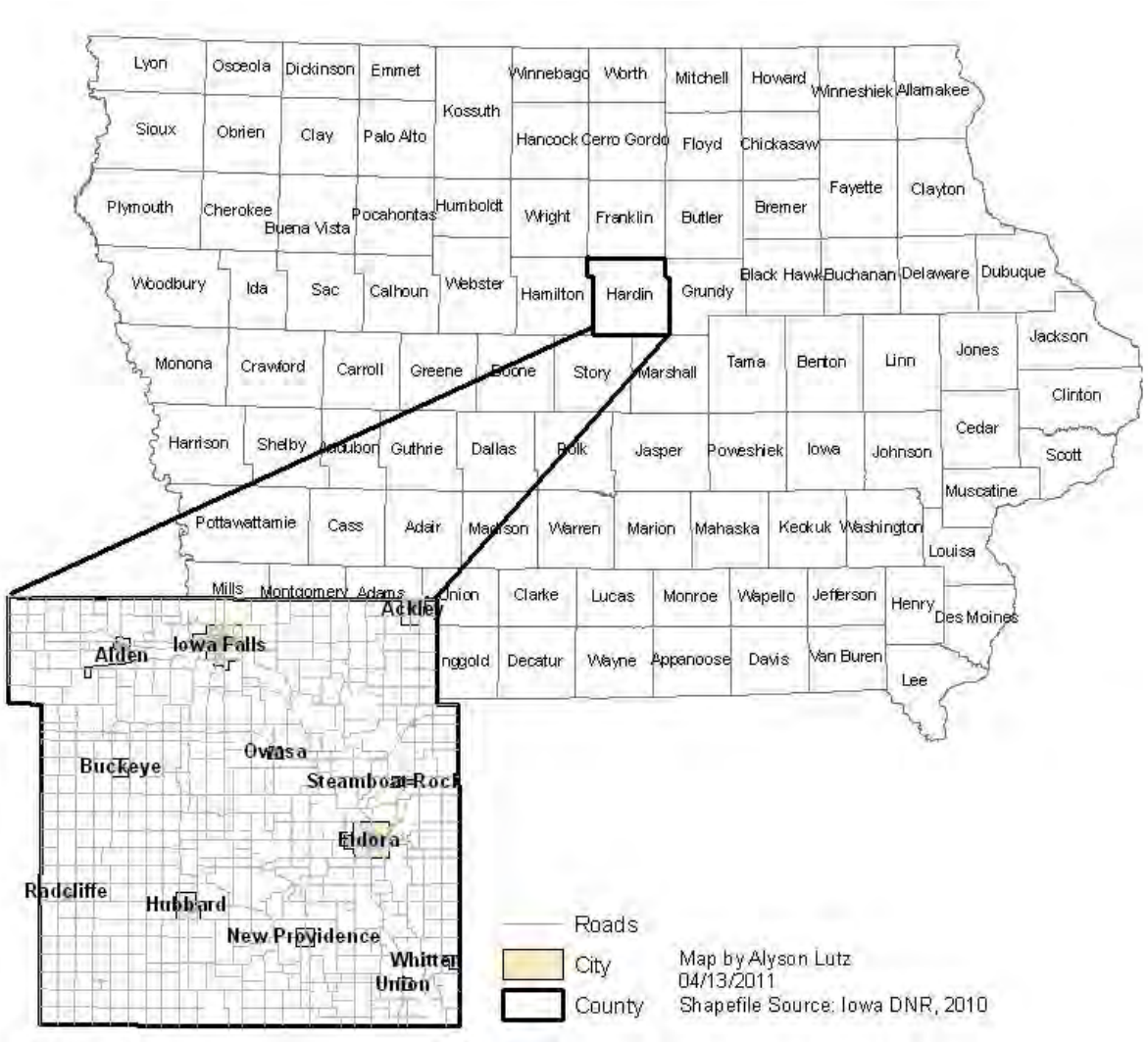
This part of the planning process is yet to be seen. In the next five years, the jurisdictions included in this plan will be expected to fulfill their goals and implement the projects they have identified to mitigate their hazards.

3.1 Planning Area Profile

Location and Size

Hardin County is a fourth tier county located in central Iowa. The county is bordered on its north side by Franklin County, Grundy County on the east, Story and Marshall Counties on the south side, and Hamilton County on the west side. In Figure 3.1.1, Hardin County is in bold to show its location in relation to all Iowa counties.

Figure 3.1.1: Iowa Counties



Geography, Topography, and Hydrology

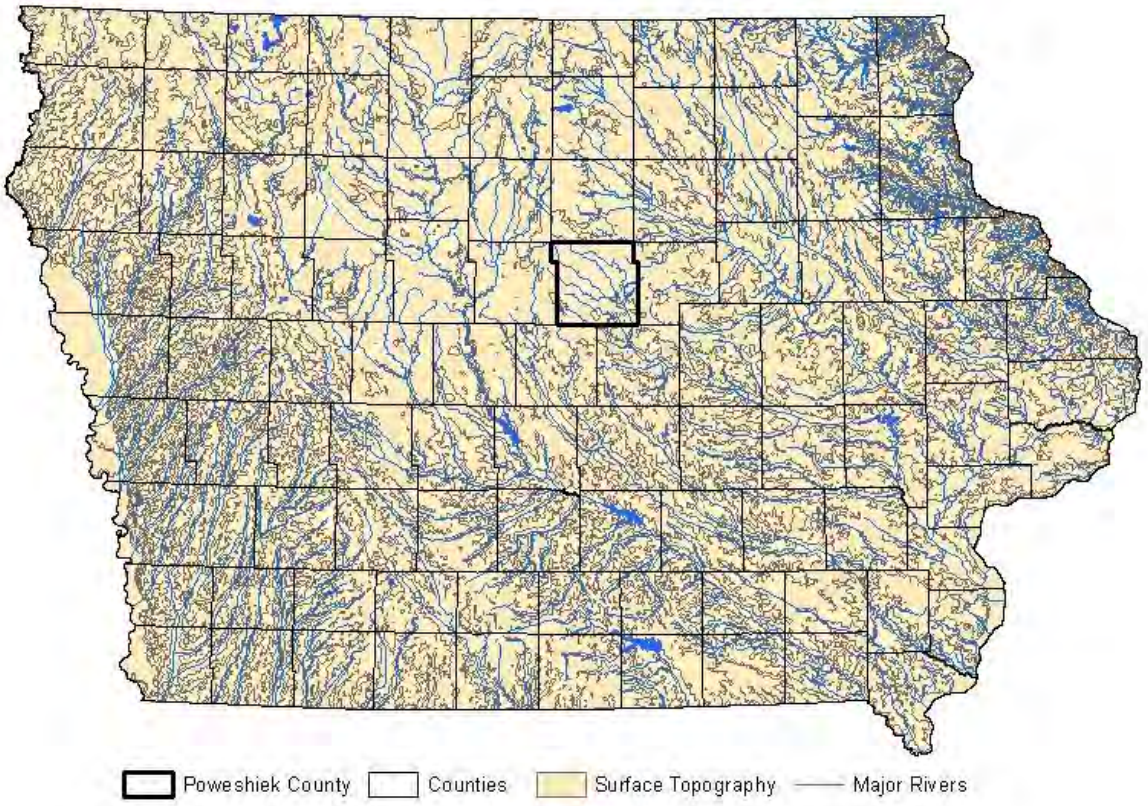
Hardin County has an area of 367,168 acres, or about 576 square miles. Most of the soils in the county are nearly level to gently sloping or moderately sloping. Those moderately slopping soils are mostly in the southeastern portion of the county.

The highest surface elevation in the county of 1226 feet is in the southeast quarter of Sherman Township, Section 32, south of Radcliffe. The lowest elevation of 858 feet is at the Gehrke Quarries between the unincorporated area of Gifford and the City of Union. This is at the corner of Co Hwy S62 and 290th St, in Union Township, Section 4.

Natural drainage of 90% of the county is provided by the Iowa River and its immediate tributaries, according to the 1981 Hardin County Soil Survey. Ten square miles in the southwest corner of the county is drained by a tributary of the Skunk River, and 30 square miles in northeast Hardin County are drained by Cedar River tributaries. Though 32% of the soils in the county are poorly to very poorly drained, they are drained enough for crop production. In other areas with insufficient underground and surface drainage, crops may be ruined by the pooling of the still water.

About 260,000 acres (71%) of Hardin County land is prime farmland, perfect for crops, mainly corn and soybeans. Some of this land, which would be ideally left for farming, has been converted into industrial and urban uses.

Figure 3.1.2: Topography and Waterways of Iowa



Map by Alyson Lutz, 04/13/2011, Shapefile Source: Iowa DNR

All of Iowa is shown in the map in Figure 3.1.2 in order to provide a reference for comparison. Hardin County is one of the flatter central to north central counties in Iowa.

Hardin has eight soil associations. The one soil that takes up the most (54%) of the county is, "Nearly level to strongly sloping, well drained, somewhat poorly drained, and poorly drained soils that formed in glacial drift; on uplands." (Hardin County Soil Survey, 1981) This soil is called Clarion-Nicollet-Webster.

The farming products that come from Clarion-Nicollet-Webster soil association are cultivated crops. Much of the land is suited for row crops like corn and beans, but only if drained. The soil is wet, naturally. There are many ways to alter the land to help drain the soil like ditches and tiling. All of these products and manipulations are used extensively in a heavy farming output state.

For more extensive information on the soils in Hardin County, refer to the Soil Survey of Hardin County, Iowa. This survey was completed in 1982 by the USDA and several Iowa government departments and institutions.

Land Use Regulation and Development

Development Patterns

Hardin County is settled primarily as a rural county with almost 75% (13,983 people) of its population living in rural areas. Of these rural residents, 10% live on farms. A majority of rural residents do not farm. According to the State Data Center, in 1990, less people (10,632) lived in Hardin County's rural areas, showing an increase of rural living. Today, the urban population, which is about 25% (4,829 people) of the county's total population, lives in urban clusters of the county. Refer to Table 3.1.1.

Table 3.1.1: Urban Vs. Rural Population in 2000

		Urban			Rural		
Area	Total Population*	Total	Inside Urbanized Areas	Inside Urban Clusters	Total	Farm	Nonfarm
State of Iowa	2,926,324	1,786,683	1,114,949	671,734	1,139,641	171,374	968,267
Hardin County	18,812	4,829	0	4,829	13,983	1,459	12,524
Ackley	1,827	0	0	0	1,827	15	1,812
Alden	887	0	0	0	887	14	873
Buckeye	95	0	0	0	95	0	95
Eldora	3,065	0	0	0	3,065	69	2,996
Hubbard	896	0	0	0	896	0	896
Iowa Falls	5,134	4,829	0	4,829	305	14	291
New Providence	234	0	0	0	234	9	225
Radcliffe	623	0	0	0	623	3	620
Steamboat Rock	329	0	0	0	329	6	323
Union	433	0	0	0	433	3	430
Whitten	158	0	0	0	158	0	158

Data from the State Data Center of Iowa, 2000

The only urban city in Hardin County is considered Iowa Falls (4,829 people). This city is located in the north central part of the county. Iowa Falls may have the only urban population due to the fact that Ellsworth Community College and the largest school district in the county (Iowa Falls Community School District) are present in the City. These two educational entities, combined, populate 12% of the county with a total of 2,201 students.

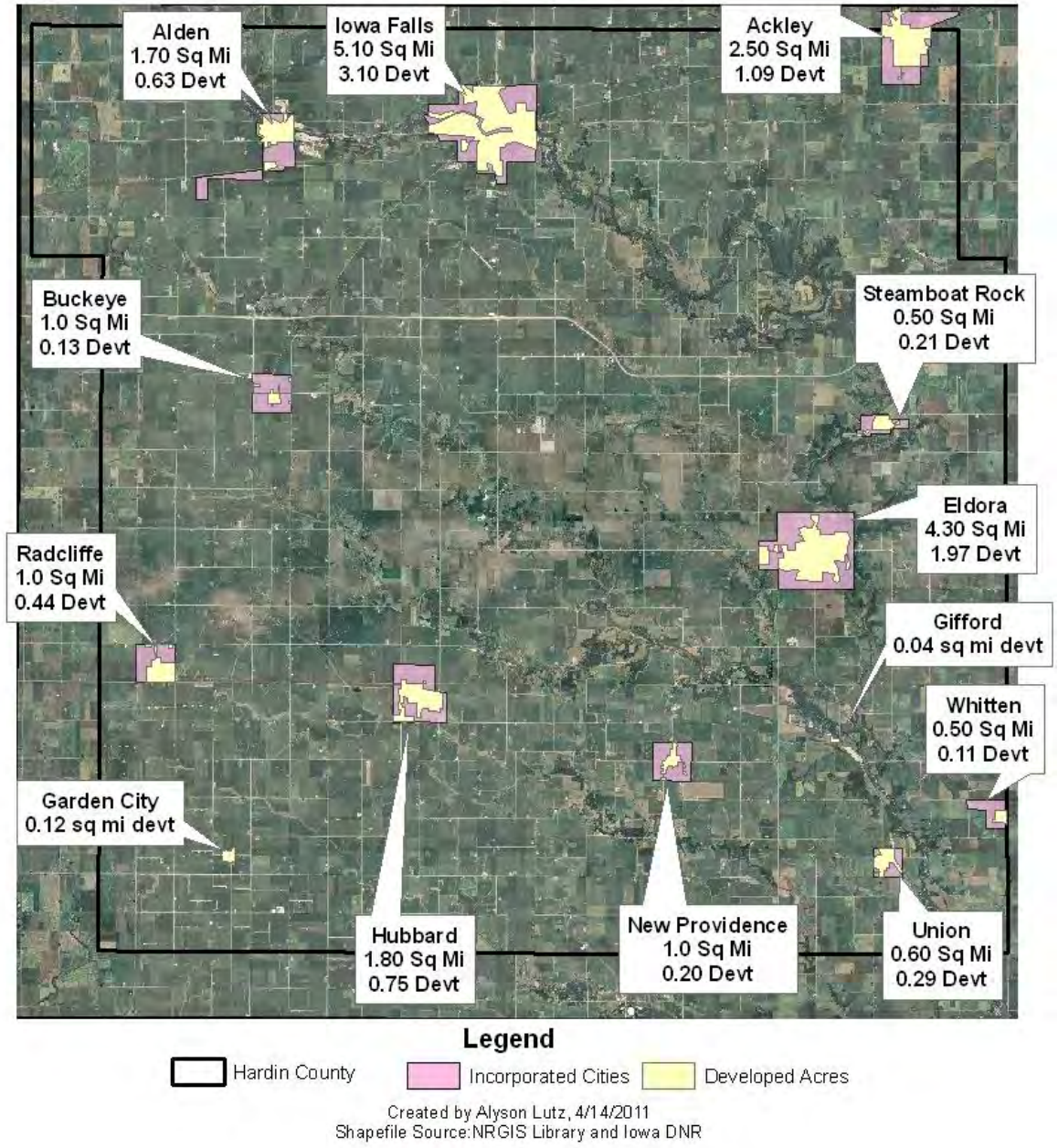
Keep in mind that this data is from 2000, and more accurate information can be provided once the 2010 Census data is released. Based on Hardin County's history, though, the county will remain more rural than urban in terms of human settlement patterns.

In the rural areas of the county, there are two unincorporated cities, Garden City and Gifford. Together, their area totals less than one square mile.

Figure 3.1.3: Garden City and Gifford

Overall, 1.6 percent (9.08 square miles) of Hardin County is developed land according to these calculations. The majority of the development, as seen in Figure 3.1.4, is located in the center of each incorporated city. Most of the cities have at less than half of their total land developed. The cities are scattered around the county. The two unincorporated areas of Gifford and Garden City are located in the southeast and southwest portions of the county, respectively, and are somewhat near incorporated cities, creating a getaway or alternate rural Iowa lifestyle for residents. The biggest cities in Hardin County, Eldora and Iowa Falls, are situated in the east and north central parts of the county near or on the routes of major Iowa and US highways.

Figure 3.1.4: Current Hardin County Land Development



Note: This map provides a rough estimate of the development acres in the county because exact calculations are currently unavailable.

Population and Demographics

Current and Past Trends

According to the State Data Center of Iowa, the population of Hardin County in 2009 was estimated at 17,144. Of this total, 12,512 people live in the incorporated cities of the County leaving the remaining 4,623 people in the unincorporated areas of Hardin County. Refer to Table 3.1.2. This means a 73% of the Hardin County population is under regulation by county government, and the remaining 27% is under the regulation of the jurisdiction in which they reside.

Table 3.1.2: Population Trend 2000 to 2009

				2000 to 2009	
Area	**2009 Estimate**	**2005 Estimate**	**2000 Estimate**	**Numeric change**	**Percent change**
State of Iowa	3,007,856	2,949,450	2,928,184	79,672	2.7%
Hardin County	17,144	17,768	18,816	-1,672	-8.9%
Ackley	1,648	1,711	1,815	-167	-9.2%
Alden	783	839	902	-119	-13%
Buckeye	94	99	110	-16	-14.5%
Eldora	2710	2821	3035	-325	-10.7%
Hubbard	805	836	885	-80	-9%
Iowa Falls	4893	5031	5194	-301	-5.8%
New Providence	210	218	228	-18	-7.9%
Radcliffe	555	567	607	-52	-8.6%
Steamboat Rock	310	323	337	-27	-8%
Union	381	397	427	-46	-10.8%
Whitten	132	138	160	-28	-17.5%

Data Source: State Data Center of Iowa, 2010

Out of all Hardin County jurisdictions, Iowa Falls is the largest city followed by Eldora and Ackley. The smallest city in Hardin County is Buckeye with a population of 94 people, in 2009.

In the past decade, Hardin County and all of its jurisdictions have experienced a population decrease. This population change does not coincide with the State of Iowa, which experienced a small, 2.7% population increase since 2000. The city with the largest population loss in terms of percentage is Whitten (-17.5%) while the other jurisdictions are all around -10.0%. The largest loss in number of people occurred in Eldora with a loss of 325 people between 2000 and 2009. These 325 people resulted in a 10.7% population decrease. Refer to Table 3.1.2 for the population changes in each jurisdiction. It should be noted that more accurate information will be available after the release of the 2010 U.S. Census information.

Age

As a whole, Hardin County is aging at a steady rate. Comparing the county's change in population composition from 2000 to 2009, the amount of people aged 25 to 29 has been redistributed into the 30 to 34 range showing that population has stayed within the county. An age group that has not changed is the 15 to 19 year old male population. They remain the largest percentage of population in the county over 9 years. By 2009 the female population, 85+, has noticeably increased. Refer to Figures 3.1.5-6.

Figure 3.1.5: Hardin County Population Pyramid 2000

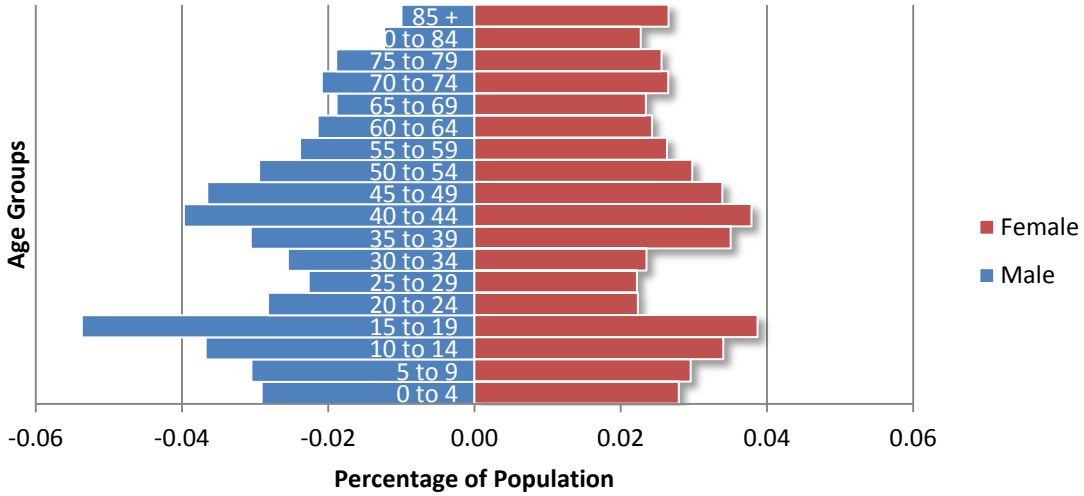
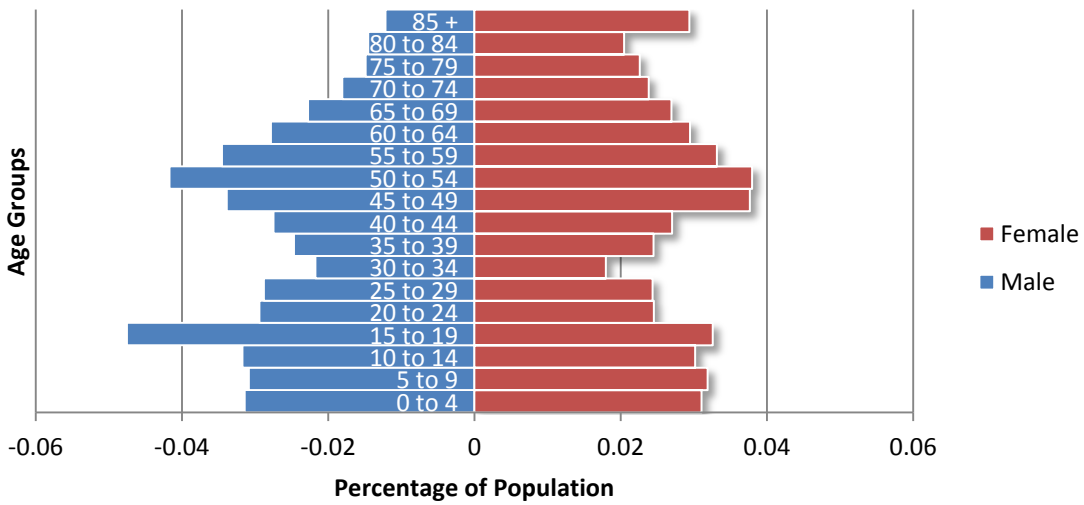


Figure 3.1.6: Hardin County Population Pyramid 2009



Data Source: State Data Center of Iowa, 2009

Like most counties in Iowa that are primarily rural, Hardin County's population distribution does not resemble the ideal pyramid shape. The main issue is retaining the young adult population. The population between the ages of 25 and 34 is small compared to the rest of the population. After graduating from high school, young adults often move away to attend college or find work elsewhere. Providing the lifestyle demanded by this segment of the population is often difficult and may need to be addressed in order to retain and attract the young adult population in Hardin County.

In 2000, Hardin County had a median age of 40.6 while the State of Iowa had a median age of 36.6. Compared to the state, the county has an older population. Refer to Table 3.1.3 for a breakdown of median age by city in Hardin County.

Table 3.1.3: Hardin County Median Age in 2000

City	Median Age
Ackley	44.1
Alden	37.6
Buckeye	35
Eldora	39.4
Hubbard	45.8
Iowa Falls	41.2
New Providence	37.5
Radcliffe	38.4
Steamboat Rock	40.5
Union	40.5
Whitten	36.5

Data Source: State Data Center of Iowa, 2011

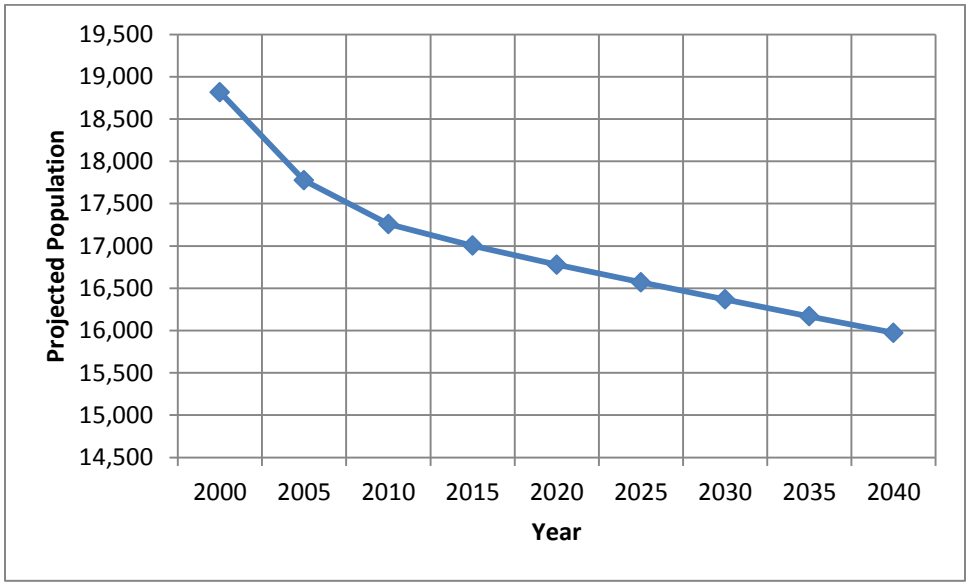
There is a range of 10.8 years in the median age in cities across Hardin County. Of all Hardin County cities, Hubbard has the highest median age of almost 46. Ackley is close with 44.1 as the median age of residents. The City of Buckeye is the youngest with a median age of 35 years. Whitten is the next youngest city in Hardin County with a median age of 36.5. These cities having the youngest population may be due to the small sizes of the cities themselves. Buckeye and Whitten are the smallest in the county with just 110 and 160 people, respectively.

As the county's population becomes older, more services oriented toward adults and seniors will be needed. Past planning efforts have mentioned providing more adult and senior services such as congregate meal sites and facilities for long-term care.

Population Projection

According to a population projection completed by Woods and Poole in 2009, Hardin County's population will steadily decrease as the year 2040 approaches. By 2040, Hardin County's population is predicted to be 15,972, which is a decrease of 2,844 people or 15%. Currently, this projection seems to be accurate, because Hardin County's 2009 population estimate is 17,144 people, and this coincides with the 40-year projection's population for 2010. Refer to Figure 3.1.7.

Figure 3.1.7: Hardin County Population Projection 2000-2040



Data Source: State Data Center of Iowa (Woods & Poole Economics, Inc), 2009

A 15% population decrease is a rather alarming population loss that may have a lasting effect throughout the County. An increase in population can increase the amount of federal and state funding the county will receive, which can support services and infrastructure investments, while a decrease may do the exact opposite. This predicted population decrease is most likely due to more young adults leaving the county for higher education and employment opportunities.

Looking at the population pyramids, there is a noticeable decrease from the brackets of individuals aged 20 to 24, 25-29, and 30 to 34 year olds in both the 2000 and 2009 pyramids. Though it is obvious that the brackets 40-49 stayed in the county, Hardin is still losing the population brackets just beyond school age, and through child bearing years. This has other implications besides direct population loss. Refer to Figures 3.1.5-6. A small or decreasing population aged 25 to 29 means that less population growth through birth will occur in Hardin County so the young age cohorts may also decrease, which affects school funding and the amount and quality of youth-oriented services and activities. Retaining the young adult population in Hardin County will be a challenge that must be addressed in order to maintain or increase the county's population.

Housing Characteristics

Amount and Occupancy

According to the State Data Center of Iowa, Hardin County had 5,688 owner-occupied housing units and approximately 1,940 rental housing units in 2000. Refer to Table 3.1.4 below for the total number of housing units in each jurisdiction.

Table 3.1.4: Number of Housing Units in Hardin County in 2000

Jurisdiction	Number of Housing Units
Hardin County	8,318
Ackley	817
Alden	372
Buckeye	50
Eldora	1,314
Hubbard	409
Iowa Falls	2,412
New Providence	107
Radcliffe	273
Steamboat Rock	158
Union	209
Whitten	63

Data Source: State Data Center of Iowa, 2011

Logically, the ranking for the highest to lowest number of housing units coincides with the population ranking for the cities. Iowa Falls has the largest population and the largest share of Hardin County's housing stock while Buckeye has the smallest population and smallest share of Hardin County's housing stock.

Out of all housing units in Hardin County, 8.2% were vacant in 2000. This is about the same as the state, which had 93% of its housing occupied. The homeowner vacancy rate, though, is higher in Hardin County than the entire State of Iowa so a higher share of Hardin County's housing units is vacant or for sale.

Table 3.1.5: Housing Occupancy in 2000

	Hardin County	State of Iowa
Percent Occupied Housing	91.7%	93%
Homeowner Vacancy Rate	2.2	1.7
Rental Housing Vacancy Rate	9.5	6.8

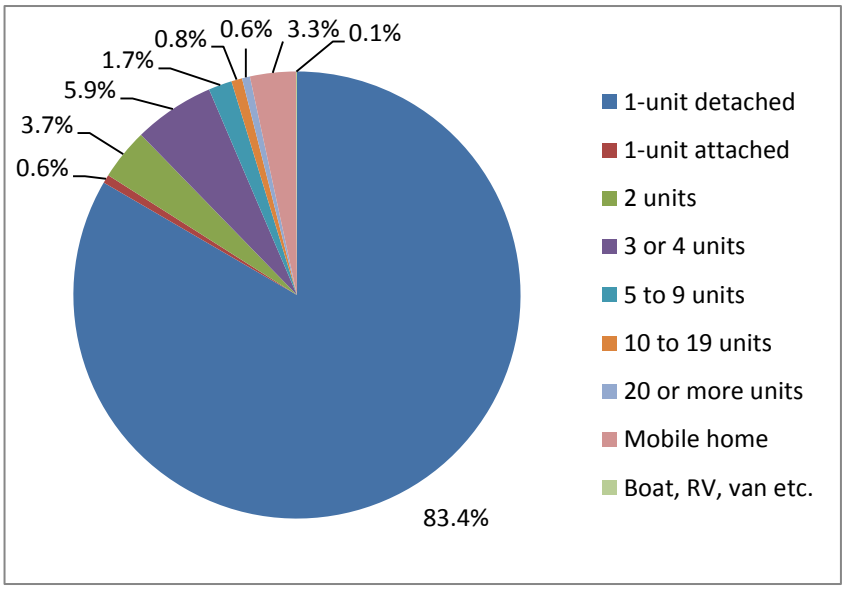
Data Source: State Data Center of Iowa, 2011

Please note that this data may not be representative of the current housing situation. The age of the data, increase in home foreclosures, and economic uncertainty makes accurate and representative data difficult to obtain. This data is only a historic view of Hardin County's housing.

Type of Housing Available

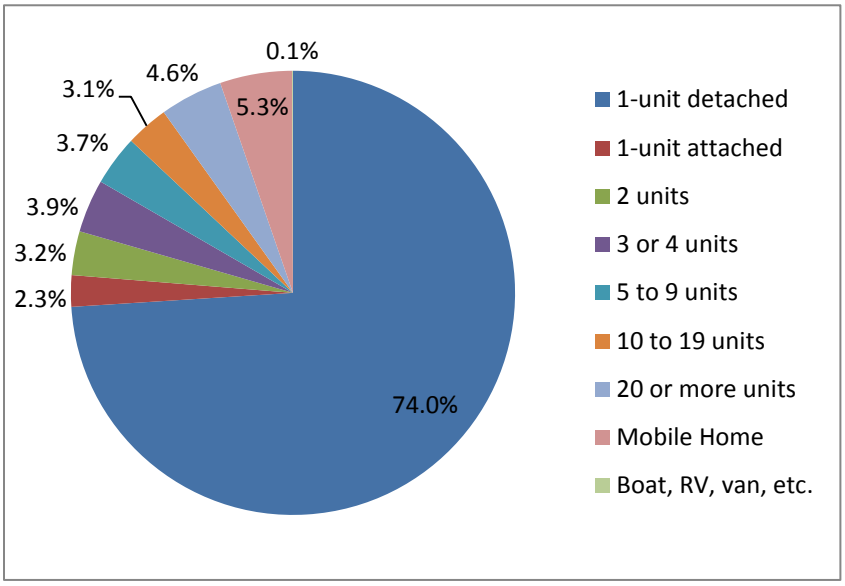
As shown in Figures 3.1.8, the type of housing in Hardin County is dominantly 1-unit detached homes (homes that do not share common walls) while mobile transportation like Boats, RVs, and Vans make up the smallest share of the county's housing.

Figure 3.1.8: Hardin County Housing by Type in 2000



Data Source: State Data Center of Iowa, 2011

Figure 3.1.9: Iowa Housing by Type in 2000



Data Source: State Data Center of Iowa, 2011

Hardin County has a larger share of 1-unit detached housing units than the State of Iowa. On the other hand, Hardin has 6% less multiple-unit housing structures than the state so Hardin County may lack affordable multiple-unit housing options.

Often times, young adults who cannot yet afford a home or senior citizens who no longer want to care for a large home, live in multi-unit housing like apartments, condominiums or duplexes. Providing housing for young adults may not be such an issue since this segment of the population is relatively small, but this type of housing may be needed for the larger, increasing adult and senior population in Hardin County.

Age and Condition

According to the State Data Center of Iowa, in 2000, the median year built for Iowa's housing stock was 1959 while Hardin County had 1947 as the median year built. Overall, Hardin County has an older housing stock.

Another indication of an aged housing stock is the percentage of housing units built in 1939 or earlier. Some Hardin County cities have an extremely high percentage of these aged units. Over 69% of the homes in Buckeye and 59% of homes in Whitten were built before 1940. New Providence also has a high percentage that accounts for almost half of the city's housing stock. Iowa Falls has the smallest percentage (34.3%) of older homes. Refer to Table 3.1.6.

Table 3.1.6: Hardin County Housing Units Built in 1939

Jurisdiction	Percentage
Hardin County	42.4
Ackley	44.3
Alden	44.8
Buckeye	69.4
Eldora	41.6
Hubbard	44.2
Iowa Falls	34.3
New Providence	48.2
Radcliffe	40.4
Steamboat Rock	43.6
Union	42.4
Whitten	58.9

Data Source: State Data Center of Iowa, 2011

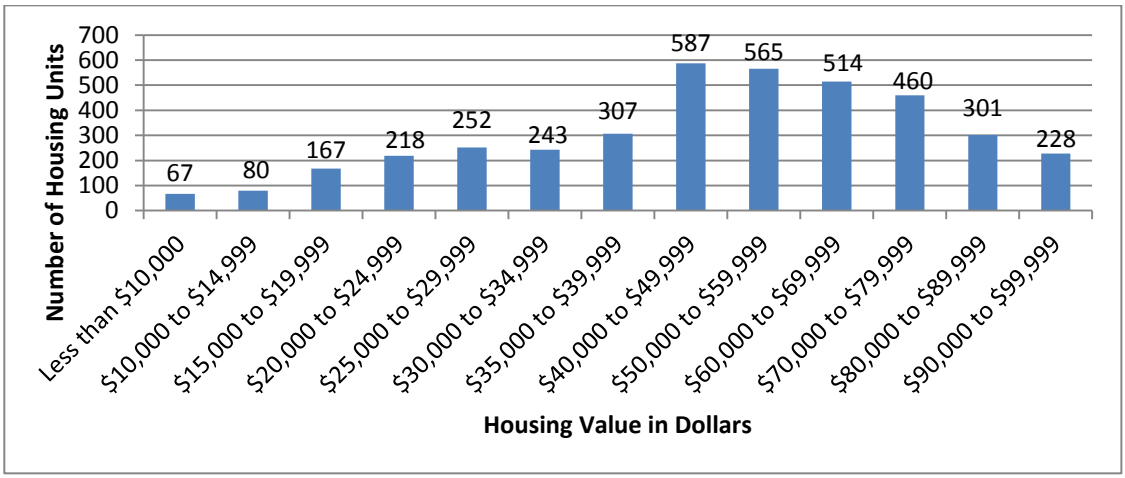
Since about 42% of all housing units in Hardin County have been built in 1939 or earlier, there is a possibility of some common issues associated with an older housing stock. Anything from electrical to structural issues could be a problem in homes across the county. In terms of hazard mitigation, some older housing may not be able to withstand natural hazards such as windstorms, tornados, or severe winter weather. Quality of construction and maintenance are a big factor in how much damage older housing will sustain during severe weather events.

The condition of housing throughout Hardin County varies tremendously. There is housing built recently in excellent condition but also older homes that are still in good condition considering their age. On the other end of the spectrum, there is abandoned or extremely dilapidated housing. The majority of the housing in Hardin County falls between these extremes. The housing in Hardin County is generally older but relatively well maintained.

Housing Values

There is a trend in housing value of owner occupied units in Hardin County. Of the 3,989 owner occupied housing units under $100,000, 67% have a housing value over $40,000 as illustrated in Figure 3.1.10. The range with the highest percent of housing units is the $40,000 - $49,999 range with 14.7% of the county's units.

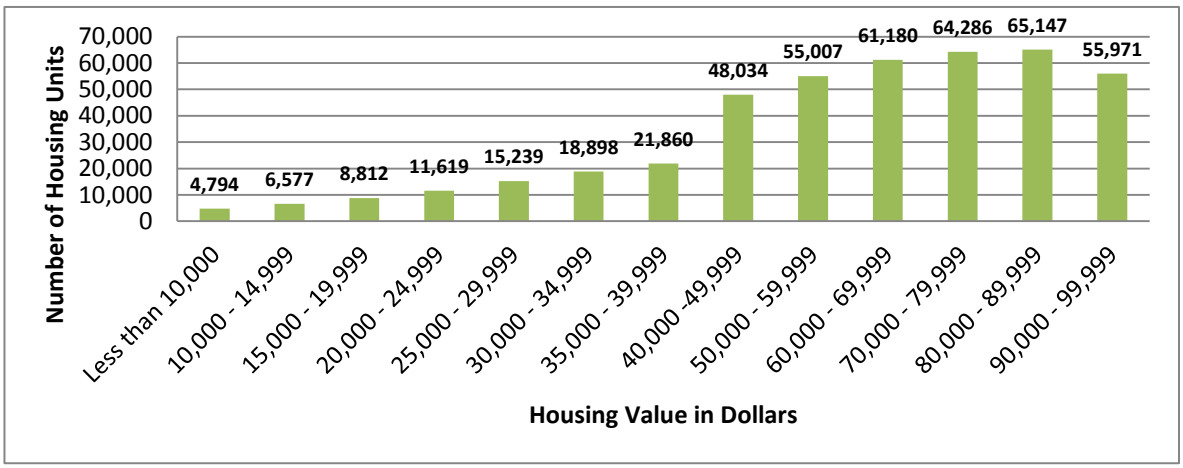
Figure 3.1.10: Hardin County Owner-occupied Housing Values in 2000



Data Source: State Data Center of Iowa, 2011

Compared to the state level (Figure 3.1.11), Hardin County has rather low majority housing value range ($40,000 - $49,999) comprising their biggest percent of owner occupied units. The state's highest percentage category is the $80,000 - $89,999 range with 9.94%.

Figure 3.1.11: Iowa Owner-occupied Housing Values in 2000



Data Source: State Data Center of Iowa, 2011

Comparing Hardin County to Iowa, the state shows a progressive upward trend from the 'Less than $10,000' range to its peak at $80,000 - $89,999. Hardin County, on the other hand, varies and peaks much earlier in the $40,000 - $49,999 range before decreasing to the $90,000 to $99,999 range.

When looking at the median value of owner-occupied housing in Hardin County, the value is somewhat low compared to Iowa, which had a median value at $82,500, according to the State Data Center of Iowa. A comparison to the lowest housing value in the county, the City of Buckeye, shows Iowa's median housing value is $6,000 higher than the housing in this jurisdiction. Refer to Table 3.1.7.

Table 3.1.7: Median Owner-occupied Housing Values and Gross Rent for Renter-occupied Housing in 2000

Jurisdiction	Median Housing Value	Median Gross Rent
Hardin County	$57,200	$403
Ackley	$48,700	$368
Alden	$47,300	$342
Buckeye	$22,500	$338
Eldora	$48,800	$385
Hubbard	$59,500	$327
Iowa Falls	$64,000	$435
New Providence	$50,400	$267
Radcliffe	$63,200	$417
Steamboat Rock	$34,000	$356
Union	$46,100	$400
Whitten	$34,400	$613

Data Source: State Data Center of Iowa, 2011

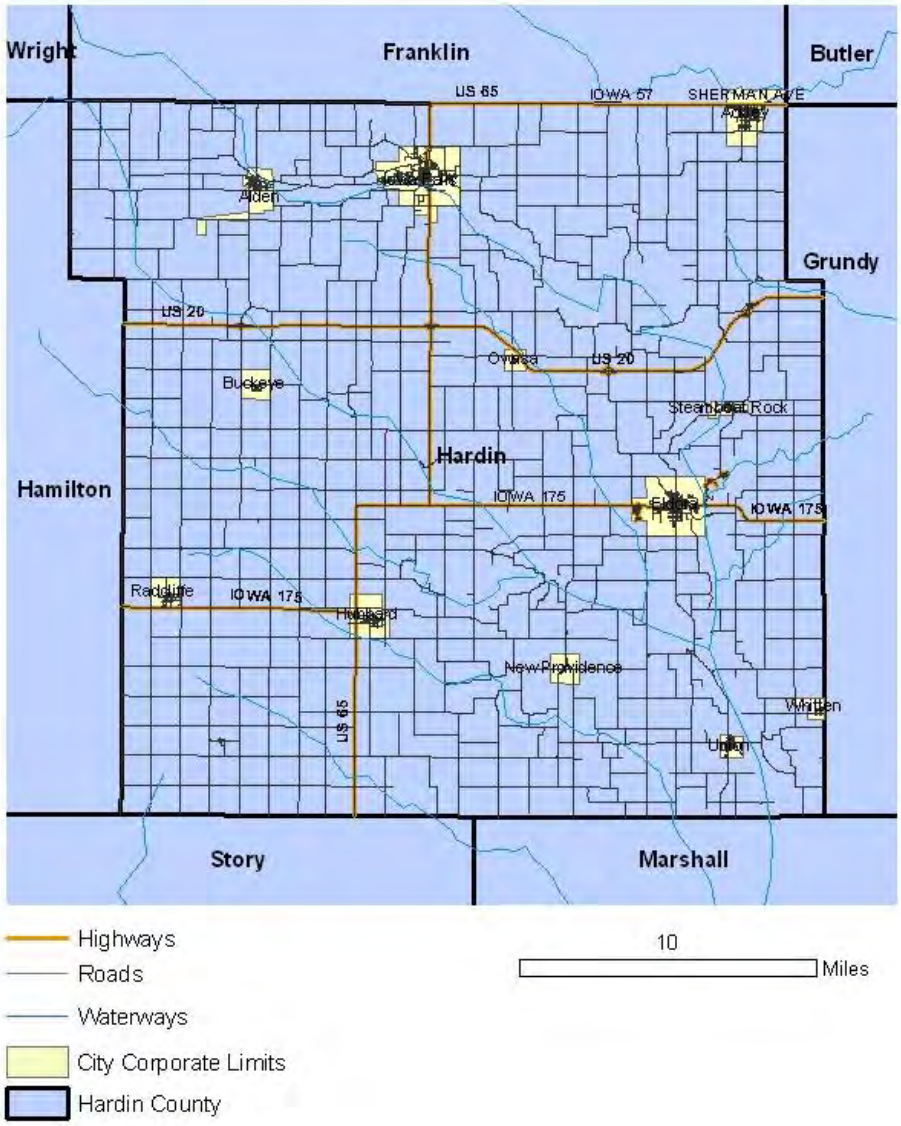
Iowa Falls, Radcliffe, and Hubbard (in this order) by far have the largest median housing values in Hardin County. The cities with the lowest housing values in Hardin County have just over 50% or less of the values found in Iowa Falls, Radcliffe, and Hubbard. This is a huge range of values across the county.

Looking at the median gross rent for tenants of rental properties in Hardin County, the lowest median rent can be found in New Providence ($267) while the highest rents can be found in Iowa Falls ($435) and Radcliffe ($417). This is interesting considering; New Providence has the fifth highest median housing value but the lowest median gross rent in the county. Compared to the state, Hardin County's rental market is less expensive. Iowa's median gross rent in 2000 was $470 according to the State Data Center of Iowa. Across Hardin County, there is over a $150 range in the median gross rent paid by tenants so there is somewhat of a substantial variation in rental costs across the county.

Transportation

The automobile is the main mode of transportation in Hardin County. U.S. Highway 20, which runs east and west, and U.S. Highway 65, which runs north and south, intersect five miles south of Iowa Falls. Iowa 175 runs east west through the county and joins with U.S. Highway 65 to make an elbow just north of Hubbard and west of Eldora. These routes are connected to all parts of the county by paved or crushed rock roads.

Figure 3.1.12: Hardin County Highways and Roads



Several Hardin County cities are located along main Union Pacific Railroad, Canadian National and Iowa River Railroad lines. Scheduled airline transportation is available at Cedar Rapids, Des Moines, and Waterloo, all of which are within 55 to 100 miles of the county seat of Eldora. Ackley, Eldora, and Iowa Falls each have small municipal airports. Charter and Coach Bus transportation is available on Interstate 35, running through Story and Hamilton Counties, which neighbor Hardin County. Bus connections for east-west routes are available in Des Moines.

Peoplerides, a transit service operated by the Region 6 Planning Commission, serves all of Hardin and three other Region 6 member counties with both regular routes and scheduled trips. Motor freight lines serve trading centers in the county. There are nine trucking companies that operate in Hardin County.

Another mode of transportation provided in some sections of the county is a trail system that goes from Eldora to Steamboat Rock and Hubbard, for walking, jogging, and bike riding. Hardin County Recreational Trails is working on its first phase of development in Iowa Falls. Although these sections of trail are mainly used for recreational purposes, a well-connected network of trails could serve both recreation and alternative transit needs in the county especially where cities are located within a reasonable biking distance.

A regional trail plan was completed by Region 6 Planning for Hardin, Marshall, Tama, and Hardin Counties. This plan includes a major extension of the recreation trails in Marshalltown that will run from the northeast corner of Marshalltown to the southeast corner of Tama County. This trail extension is planned for after the year 2012. At the local level, the Hardin County Recreational Trails Committee (HCRTC) was formed in 2006 to raise funds and develop trails in Hardin County, specifically. In just 2 years, they secured $700,000 of an estimated $3.5million for the Iowa Falls city-wide trail system.

Other transportation planning in the county includes the Passenger Transportation Plan, which is written and annually updated by the Region 6 Planning Commission. This plan covers the current public transportation services available in the region (Tama, Hardin, Marshall, and Hardin counties) along with the transportation needs that are not being fulfilled. The needs identified for the region include:

- Need affordable public transportation options
- Need transportation options for rural and long distance commuters
- Need attractive transportation options to reduce energy dependence
- Need transportation options for individuals who are no longer capable of driving safely
- Need affordable transportation options for evening and weekend services
- Need coordinated long distance education transportation options

These needs were identified through public meetings and a survey along with an analysis of current transportation services in relation to where grocery, medical clinics, and other essential services are located. Plans and potential projects for filling these needs are also addressed in the transportation plan.

Economic Conditions

Individual Economic Indicators

Some evidence of Hardin County's economic stability can be seen in its income, poverty status, crime rates and education. All of these factors can have a positive or negative effect on the county's economy, depending on where the statistics lie. The per capita income for Hardin County in 2008 was $46,240. This is $2,767 lower than the State's $49,007. In 2009, the Hardin County median income was again close in range to the state's median family income, with $44,705 versus $48,065, a $3,360 difference.

Poverty is an economic factor that has the potential to have a negative effect on people's perception of an area. According to the US Census Bureau, in 2008, 39.8 million people lived in poverty in the United States. This is a rate of 13.2%. The State Data Center of Iowa contributes that at the state level, Iowa has 331,057 people living in poverty out of its 3,002,555 residents. This is a rate of 11%. Hardin County makes up only 0.6% of the state's population in poverty with 1,961 people. Hardin County has a population of 17,144. With 1,961 people living in poverty, this means that 11% of the county is in poverty.

Crime rates have an effect on an area's economic value because people want to live and work in a place they feel will be safe for their loved ones. Hardin County has relatively low violent crime with 3 forcible rapes and 5 aggravated assaults in 2008. (Federal Bureau of Investigation, 2008) Property crimes including burglary, larceny theft, motor vehicle theft, and arson totaled 92 in 2008. Compared to the state of Iowa as a whole, Hardin accounts for .09% of violent crimes and .13% of property crimes. If each of Iowa's 99 counties had an equal share of crime, their percentage would each be 1.01%. This is not the case in Iowa because there are metropolitan and non-metropolitan counties in which urban centers may experience a great amount of crime while rural areas will experience significantly less and perhaps none at all.

Educational attainment in Hardin County can be found in the one private Catholic school, six community school districts as well as the Iowa Valley Community College and Ellsworth Community College. The 3 state universities are all located two hours or less from Eldora, the county seat of Hardin County. A total of 3,504 children were enrolled in the AGWSR, Alden, BCLUW, Eldora-New Providence, Hubbard-Radcliffe, and Iowa Falls Community School Districts in the 2010-2011 school year. (Iowa Department of Education, 2011) Of the Hardin County population that is 25 years or older, 37% have a high school degree or its equivalent. From this group, 17.1% received a bachelor's degree or higher education.

Economy

According to the Mid Iowa Growth Partnership, of the largest employers in the county, there is one major government employer, the Eldora-New Providence Community School District, and nine major non-government employers. Refer to Table 3.1.8 for all major employers in the county.

Table 3.1.8: Major Employers in Hardin County

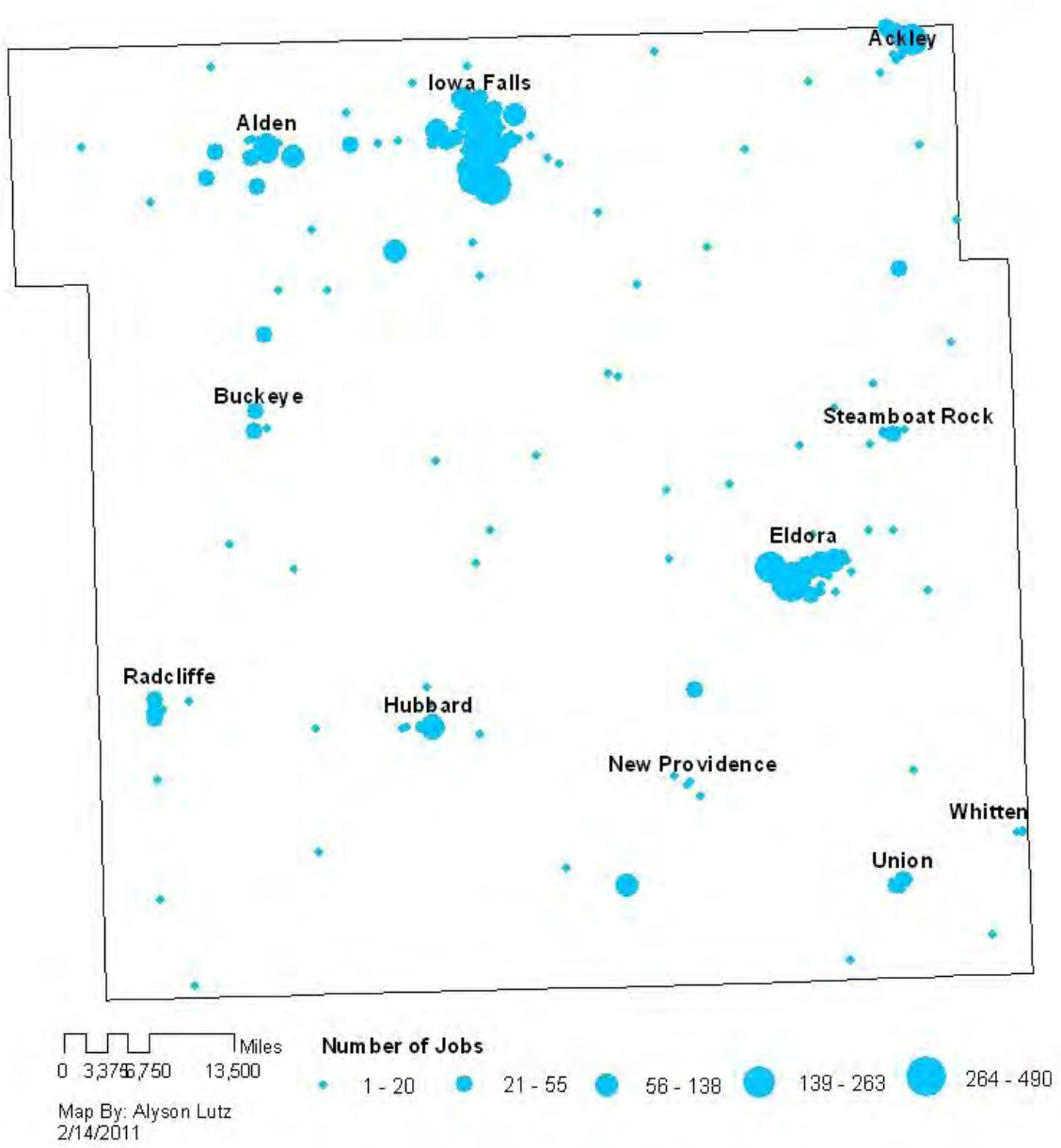
Major Government Employers	Employees
Eldora-New providence Community School District	98
Major Employers	
Ellsworth Community College	85
Ellsworth Municipal Hospital	250
Presbyterian Village	130
Quakerdale	35
Quality Products	100
Scenic Manor	139
State Training School	169
United Suppliers Inc	135
Wal-Mart	93

Data Source: Mid Iowa Growth Partnership, 2011

In Hardin County, non-governmental organizations provide the most jobs. Refer to Figure 3.1.13 on the next page for a visual distribution of jobs in Hardin County.

It should be mentioned that employment in Hardin County is not limited to just county residents. A recent labor shed study (2011) by Iowa Workforce Development, found that Hardin County attracts employees from outside the county as far north as Shefield, as far south as Ames, as far east as Cedar Falls, and as far west as Fort Dodge. The study also found that those who are willing to change employment in the Hardin County labor shed area are willing to commute an average of 24 miles one way for employment. So the number of employees for the county's major employers may not include just Hardin County residents but also people from the neighboring counties.

Figure 3.1.13: Job Distribution in Hardin County in 2008



Data Source: U.S. Census Bureau, On the Map tool, 2011

The job distribution map confirms that the larger cities in Hardin County are also the major employment centers of the county. Eldora, Iowa Falls and Ackley are the cities with the highest concentrations of employment.

Economic Development

Hardin County is fortunate to have an organization devoted strictly to the county's economic development success, the Hardin County Development Alliance. This organization is made up of the 3 Hardin County Supervisors and the Economic Development Directors of Ackley, Eldora, and Iowa Falls. As the Hardin County economic development group, they partner with the Mid-Iowa Growth Partnership which is a nine county regional collaborative. Their mission is as stated, "To consolidate assets and facilitate a collaborative effort for economic growth and vitality in the nine county region." (MIGP, 2011)

Another economic development effort in Hardin County is spearheaded by the Region 6 Planning Commission. The Comprehensive Economic Development Strategy (CEDS Plan), which includes Tama, Hardin, Marshall, and Hardin counties, is written and maintained by Region 6 along with several programs for assisting economic development in the county. The CEDS cites ten major economic goals:

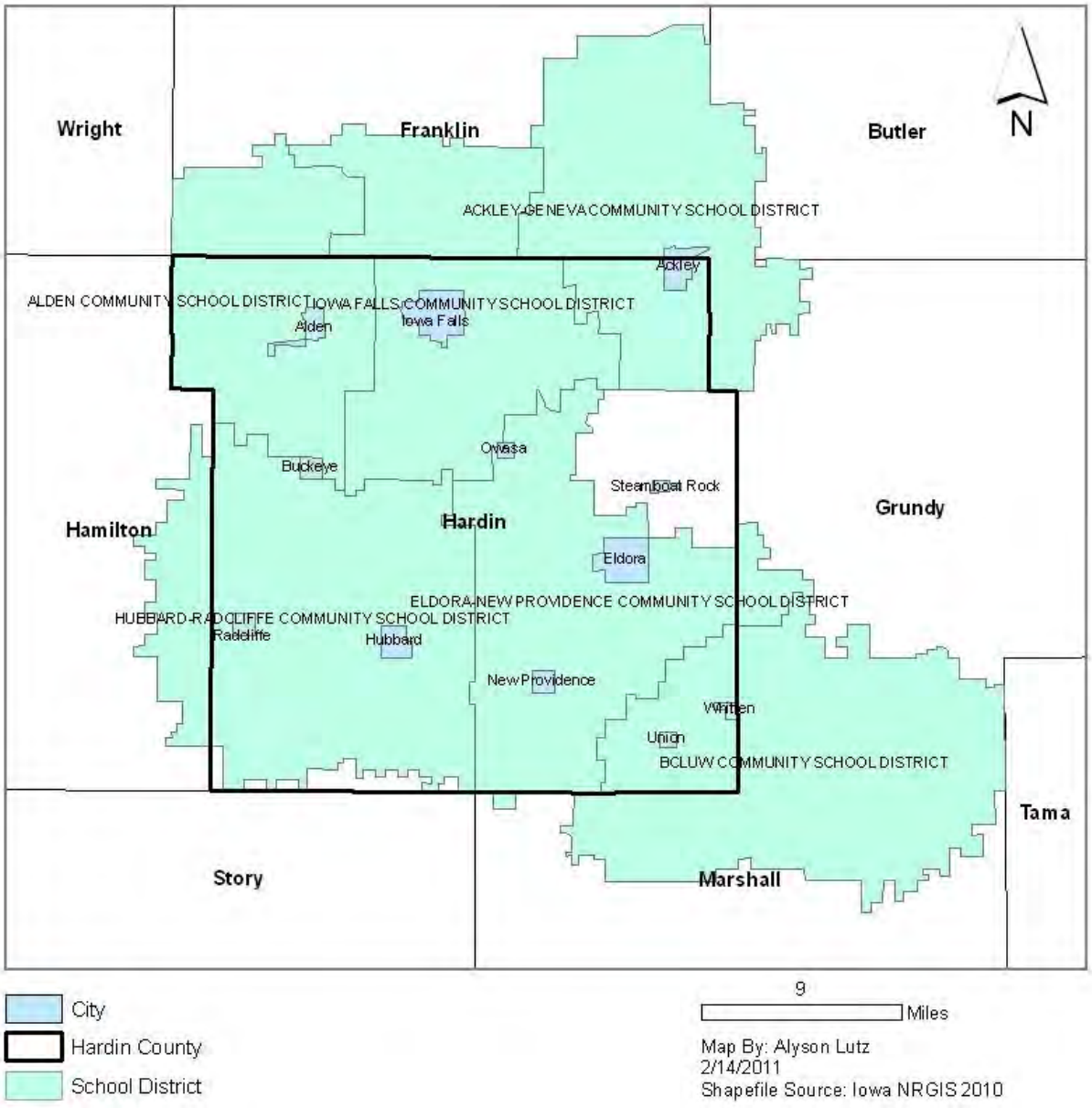
1. Preservation and restoration of natural environment
2. Create healthy, active lifestyles supported by "walkable" communities
3. Develop attractive, safe, and efficient "world class" multi-modal regional transportation system (i.e. highway, rail, pedestrian, and recreation)
4. Reduce blight and improve the appearance of communities
5. Support local food systems
6. Develop fun, vibrant, and welcoming communities
7. Assist cities and counties with "smart growth" plans, policies, and trainings
8. Promote an energy efficient region
9. Develop regional renewable clean energy sources
10. Support existing businesses, develop new businesses, and attract businesses from the outside area

Many of these goals can be tied to hazard mitigation like preservation and restoration of the natural environment, reducing blight, and supporting existing and new businesses.

Educational Opportunities

There are six public school districts in Hardin County: AGWSR, Alden, BCLUW, Eldora-New Providence, Hubbard-Radcliffe, and Iowa Falls Community School District. Refer to Figure 3.1.14.

Figure 3.1.14: Hardin County School Districts



Along with general education, college level and continuing education courses can be taken through Ellsworth Community College and Iowa Valley Community College. Online classes are also available from any college or university. Iowa's major universities are all 2 hours or less from Hardin County.

Cultural Resources

Outdoor Recreation

Many parks have been established throughout the county. Besides numerous parks and recreational facilities, Hardin County has 13 wildlife areas, 7 water access points, and 3 wetland/preserve/prairie areas. Rivers and creeks in rural areas of the county provide opportunities for outdoor recreational activities, such as hunting, fishing, and primitive camping.

The mission of Hardin County Conservation is to provide safe and healthful recreational opportunities, to protect and enhance county natural resources and to offer opportunities for residents to participate in conservation education.

Some history of Hardin County Conservation as stated on their website :

"The first meeting of the Hardin County Conservation Board was held on July 8, 1958. On August 12, 1958, the first parcel of property was given to Hardin County Conservation Board and is now known as Bigelow Park. On October 5, 1960, Homer Calkins was hired as the first executive director. Over the years the Hardin County Conservation Board had acquired 63 areas and manages over 2,798 acres of timber, prairie, wetlands, parks, campgrounds and the Calkins Nature Area. Hardin County has a rich history in many aspects. The Iowa River Greenbelt has been an attraction for people since prehistoric times. One reason for this is the three geological surfaces found in Hardin County, consisting of the Iowan Erosion Surface east of the Iowa River, the Des Moines Lobe west of the Iowa River and the Southern Iowa Drift Plain in the southern part of the county." (Hardin County Conservation, 2011)

For more information, visit the website at http://www.hardincountyconservation.com.

The County's recreation areas and basic information are listed below in Table 3.1.9.

Table 3.1.9: Outdoor Recreation Areas in Hardin County

Legend
Hardin County Conservation Board

Rest Room: F - Flush, V - Vault
Camping: E - Electric, P - Primitive
Fishing: L - Lake, S - Stream

	Map Location	Acres	Shelter	Picnic	Water	Shower	Restroom	Playground	Camping	Dump Station	Primitive Area	Hiking	River Access	Fishing	Rifle Range	Hunting	Timber	Wetland	Prairie	State Preserve	Nature Center	Museum	Wildlife Exhibit	Historical Site
1 Alden River Access	G-3	1											●	S										
2 Anders Wildlife Area	P-6	229									●			S		●	●		●					
3 Beau Addition to Hardin City Woodland	T-8	3										●				●	●							●
4 Bessman-Kemp Park	F-2	64		●	●		V						●	S			●							
5 Bigelow Park	F-1	10												S		●	●							
6 Bob & Eleanor Welden Wildlife	M-4	6									●			S		●	●							
7 Bob & Joell deNeui Wilderness	T-6	80																						
8 Boddy-Hunt Wildlife Area	M-12	50														●	●	●						
9 Brekke Memorial Park	Y-23	7	●	●			V										●							
10 Brewster Area	O-5	10									●					●	●							
11 Calkins Nature Area	I-4	76		●	●		F					●		S			●	●	●		●	●	●	
12 Charles F. Long Memorial Woods	W-20	20									●					●	●							
13 Charles F. Long Wildlife Woods	X-21	4									●					●	●							
14 Cross' Ford River Area	P-6	4											●	S										
15 Daisy Long Memorial Park / Bates Addition	X-22	34	●	●	●	●	F	●	EP	●			●	S										●
16 Daryl deNeui Memorial	T-6	80																						
17 David Bates Memorial Park	X-21	34		●	●		V		P				●	S		●	●							
18 Eagle City Addition	S-5	101									●					●	●							
19 Eagle City Park	R-6	172	●	●	●		V		P			●	●	S		●	●							
20 Fallen Rock State Preserve	V-11	122									●			S		●	●			●				
21 Fallen Rock Wildlife Area	U-12	82									●			S		●	●		●					
22 Flowing Well Park	G-8	6		●	●							●		S		●	●							
23 Gehrke Wildlife Area	J-11	6									●			S		●	●							
24 Girl Scout Area	K-3	10																						
25 Hansen Wetland	K-4	12									●							●						
26 Hardin City River Access	T-8	0.5											●											
27 Hardin City Woodland	U-8	25									●			S		●	●			●				
28 Headquarters Segment	T-6	245									●	●		S		●	●		●					
29 Hilker Farm	M-24	152																						
30 Hubbard Prairie	I-18	43									●	●				●			●					
31 Iowa Falls River Access	N-4	7											●	S										
32 Ira Nichols Outdoor Classroom	L-3	16									●						●							
33 John Gruis Park	X-6	3		●																				
34 Lepley Park	W-20	9		●			V										●							
35 Leverton Timber	V-8	205									●			S		●	●		●					
36 Logsdon Park	M-12	14	●	●			V							S					●					●
37 Mann Wilderness Area	V-7	107									●			S		●	●			●				
38 McCoy School House	G-18	1																						●
39 Meier Wildlife Refuge	I-18	23												L					●					
40 Nichols Timber	U-6	35									●					●	●							
41 Ox-Bow Lake Area	U-8	20									●			S		●	●							
42 Parlina Pierce Wildlife Area	S-7	131									●			S		●	●		●					
43 Pine Ridge Addition	W-10	152																						
44 Pine Ridge Park	W-10	131	●	●	●	●	F	●	EP			●	●	LS	●	●	●		●					
45 Reece Memorial Park	Q-21	70	●	●	●		V	●	P			●		S		●	●							
46 Ruby Wildlife Area	X-11	60																						
47 Ruby Woodland	V-8	22									●			S										
48 Ruempers Trail	D-17	0.5										●												
49 Sac & Fox Overlook	X-10	132	●				V				●	●		S		●	●	●	●					
50 Sand Springs Wildlife Area	W-9	131									●			S		●	●							
51 Setchell Area	W-8	40									●					●	●							
52 Steamboat Rock River Access	W-11	1											●	S										
53 Sylvan Hill	U-8	34									●			S		●	●							
54 Tower Rock	W-11	19		●			V		P			●		S		●	●							
55 Twin Elms	H-8	4									●					●	●							
56 Walter Max Long Addition	X-22	10																						
57 Welden Wildlife Area	N-5	83									●			S		●	●							
58 Wildcat Trail	V-13	46									●	●		S		●	●		●					
59 Wilkinson Wildlife Area	T-6	40									●					●	●							
60 Ziesman Wildlife Area	N-13	10									●					●	●							

Source: Hardin County Conservation, 2011

All of these outdoor recreation areas are considered in this plan regardless of what institution maintains the area, because they are located within the boundaries of Hardin County and emergency response from the County may be needed should a disaster occur. The two major issues in outdoor recreation areas is the park's ability to provide shelter during hazard events and how to prevent damage to property within the park and also the park's natural assets.

The most important issue in outdoor recreation areas throughout Hardin County is shelter for park visitors during hazard events like windstorms, hail, and tornadoes. In most parks, the only refuges provided are open picnic shelters or none at all. This is not sufficient during severe weather. Shelters engineered for high winds and flying debris need to be included in park facilities to ensure the safety of park visitors.

A regional trail plan was completed by Region 6 Planning for Poweshiek, Marshall, Tama, and Hardin Counties. This plan includes a major extension of the recreation trails that will run from the northwest portion of Hardin County to the southeast corner of Tama County. This trail extension is planned for after the year 2012.

The Hardin County Recreational Trails Committee (HCRTC) was formed in 2006 to raise funds and develop trails in Hardin County, specifically. In just 2 years, they have secured $700,000 of an estimated $3.5million for the Iowa Falls city-wide trail system. A map depicting the layout for this trail system can be seen in Figure 3.1.15

Figure 3.1.15: Iowa Falls Trail Development Map

Trails will be a combination of hard surface, off-street trails and shared roadways with painted bike lanes. For more information, visit their website at http://www.hardincountytrails.org/.

A featured park in Hardin County is the Calkins Nature Area, a 76 area parcel of land, named after Homer and Ruth Calkins. Homer was the Hardin County Conservation director for 18 years. The nature area has three native habitats including woodlands, prairies, wetlands, and is bordered by the Iowa River. There are over 30 different species of wildlife in the live animal display. This is accompanied by a natural history museum.

There is some opportunity for recreation in the form of two miles of trail system along the Iowa River Green Belt. Other special features of this nature area are the Shirley Welden Butterfly House, and a new Amphitheater that seats over 120 people, surrounded by native prairie plants.

Calkins Nature Area (Left), Homer Calkins (Right), Photos by Hardin County Conservation

The Calkins Nature Area provides so much more than displays and beautiful wildlife. Two full time naturalists offer Environment Education Programs to a wide array of people and ages groups throughout the county. There are also opportunities for field trips at Calkins Nature Area and Interpretive Center, Visiting classrooms and schools, Mobile Nature Trunks, and Scenic City Empress tours. Calkins Nature Area believes that education is the "key to ensuring a sustainable environment" and encourage this through their programs.

Besides the bounty of county parks in Hardin County, one state park resides near Eldora and Steamboat Rock. The Pine Lake State Park is comprised of 585 acres and two lakes. Combined to be 119 acres of water, the 50 acre Lower Pine Lake and 69 acre Upper Pine Lake are open to the public for water activities such as beach fun, boating, and fishing. Other amenities at the State park include; 5 picnic areas, camping, cabin rentals and trails. For more information visit http://www.iowadnr.gov/parks/state_park_list/pine_lake.html.

Stone and Timber Cabins (Left), Upper and Lower Pine Lakes (Right), Photos by Iowa DNR

Historic Sites

Hardin County is a Certified Local Government with a Historic Preservation Commission appointed by the County Board of Supervisors and certified by the State Historic Preservation Office. It is the mission of the county and its historic preservation commission to preserve historic structures in Hardin County and allow them to apply for grants.

Besides outdoor recreation, Hardin County Iowa has many more cultural offerings in the form of historic sites. A few sites in the Hardin County jurisdiction have been listed on the National Register of Historic Places website at http://www.nationalregisterofhistoricplaces.com/. These include:

- Alden Bridge in Alden over the Iowa River, added 1998. This was a significant architecture/Engineering structure between 1925 and 1949 functioning in transportation and continuing that use today.
- Alden Public Library in Alden added 1981. This was a significant social history building between 1900 and 1924, functioning still, as an educational library.
- Carnegie-Ellsworth Public Library in Iowa Falls, added 1983. This was a significant architectural building between 1900 and 1924, still functioning as an educational library.
- Coal Bank Hill Bridge in Eldora over the Iowa River, added 1998. This engineering /architecturally noteworthy structure was significant between 1875 - 1899, and 1900-1924, functioning in road related transportation. It is vacant at present day.
- Edgewood School of Domestic Arts, aka Edgewood Community Center in Iowa Falls, added 1979. This building was a significant for Eva Harrington Simplot as an education facility (school) for domestic arts between 1990-1924. Today it functions as a community center with a multiple dwelling sub-function.
- Eldora Public Library in Eldora, added 1983. This renaissance building was significant in the period of 1900-1924 for its architecture and use as an educational library which it continues to function as today.
- Ellsworth-Jones Building in Iowa Falls, added 1993. This Classic Revival style building was a significant architectural structure in 1902 as a commerce/trade financial institution run by Eugene S. Ellsworth. Today it is still a private business.
- Estes Park Band Shell in Iowa Falls, added 1993. This Mission/Spanish Revival style building was significant from 1925 to 1949 as a recreation and culture music facility; it is still used as such today.
- First Congregational Church, aka United Church of Christ in Eldora, added 1996. This Romanesque style building was significant in the period of 1875-1899 as a church, which it continues to function as today.

- First National Bank, aka Iowa Falls State Bank in Iowa Falls, added 1993. This Classic Revival style building was significant, architecturally, from 1900 to 1924 as a bank and specialty store. Today it is used as a bank.
- Hardin County Courthouse in Eldora, added 1981. This Romanesque style building was significant between 1875 and 1899 functioning as the county courthouse which it continues to function as today.
- Honey Creek Friends' Meeting house in New Providence, added 1980. This architecturally significant bungalow/craftsman style building was important from 1900 to 1924 as a religious structure, and continues in that function presently.
- Illinois Central Combination Depot in Ackley, added 1990. This architecturally significant Prairie School/Tudor Revival style building was important from 1925 to 1949 as a railroad depot. It is not in use today.
- Iowa Falls Bridge over the Iowa River in Iowa Falls was added in 1998. This structure was significant between 1925 and 1949 as a road related transportation bridge which it continues as today.
- Iowa Falls Union Depot in Iowa Falls, aka Iowa Falls Depot; Illinois Central Passenger Depot, added 1990. This Late 19th And 20th Century Revivals/Renaissance style building was significant from 1900 to 1924 as a passenger depot which is presently vacant.
- McClanahan Block in Iowa Falls, added 1993. This Late 19th And Early 20th Century American Movements building was significant between 1900 and 1924 as a commerce/trade specialty store which it continues as today.
- Metropolitan Opera House, aka MET Theater in Iowa Falls, added 1975. This Renaissance style building was significant as a Theater in the time periods of 1875-1899, and 1900-1924. It continues as a theater today.
- Mills Tower Historic District in Iowa Falls, added 1990. This architecturally significant district was noteworthy between 1900 and 1924 as a rail-related transportation district.
- New Providence School Gymnasium, aka New Providence Roadhouse in New Providence, added 1996. This was a significant modern style gymnasium between 1925 and 1949. Today the building is used as a Recreation And Culture Sport Facility.
- Princess Sweet Shop in Iowa Falls, added 1993. This Art Deco style building was significant between 1925 and 1949 as a restaurant which it continues as today.
- River Street Bridge, over Iowa River in Iowa Falls, added 1998. This building was significant, architecturally from 1900 to 1924 as a road related transportation bridge; it is still used as such.

- Sentinel Block in Iowa Falls, added 1993. This was a significant architecture/Engineering building (Late 19th And 20th Century Revival style) between 1900 and 1924 functioning as a commerce/trade business and continuing that use today.
- Slayton Farms-Round Barn in Iowa Falls added 1999. This was an agriculturally significant building between 1900 and 1924, as an outbuilding. It is vacant today.
- St. Matthew's by the Bridge Episcopal Church in Iowa Falls, added 1993. This Tudor Revival style building was architecturally significant between 1900 and 1924, and still functions as a church.
- Steamboat Rock Consolidated Schools Building, aka Steamboat Rock Community School, in Steamboat Rock, added 2004. This Modern Movement style building was significant in the periods of 1925-1949, and 1950-1974, functioning as a school. It has many uses at present day.
- US Post Office, aka Federal Building in Iowa Falls, added 1994. This building was significant as post office between 1990-1924, and continues as such today.
- Union Cemetery Gardener's Cottage in Eldora, added 2002. This bungalow/craftsman building was significant in the periods of 1900-1924, 1925-1949, and 1950-1974 for its architecture and social history. It was and is still used as part of the cemetery.
- W.R.C. Hall, aka American Legion Hall, in Iowa Falls, added 1993. This Late Victorian style building was a significant architectural structure in the periods of 1875-1899, 1900-1924 as a social meeting hall, which it continues to function as today.
- Washington Avenue Bridge in Iowa Falls, added 1998. This significant engineering structure was noteworthy from 1925 to 1949 with a road related transportation use ; it is still used as such today.

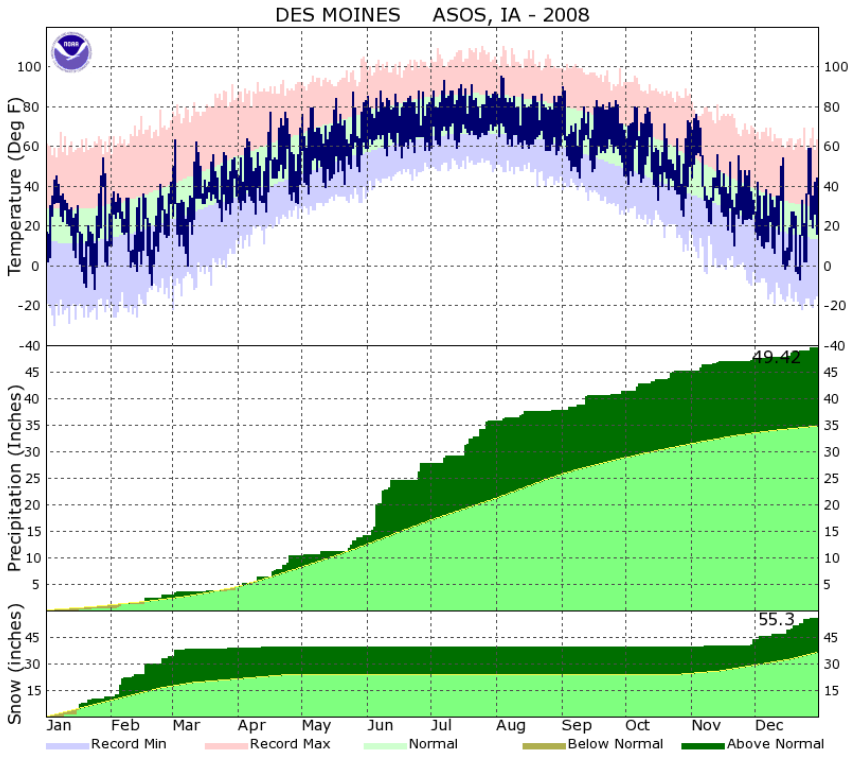
Climate

Hardin County is cold in winter, with an average temp of 19 degrees and average lows of 10 degrees. It is moderately hot with occasional cool spells in summer, with an average 71 degrees and average highs of 82 degrees. Precipitation during the winter frequently occurs in snowstorms. During the warm months, it is chiefly showers, which often are heavy with an average of 32.8 inches annually, and occur when warm, moist air moves in from the south. The total annual rainfall is normally adequate for corn, soybeans, and small grain.

The chart in Figure 3.1.16 graphically depicts monthly and yearly observed maximum, minimum, and precipitation recorded by the automated surface observing station (ASOS) located at the Des Moines International Airport. Additionally, it also depicts normal and record temperature only.

In 2008, the highest temperatures for the area occurred in July and August. No new record temperatures were recorded for this year. The most precipitation and largest amount of snow was received in December, and these levels exceeded what is normal for this time of year. Snow reached a level of 55.3 inches, and overall precipitation reached almost 50 inches.

Figure 3.1.16: Des Moines International Airport ASOS in 2008



Data Source: National Oceanic and Atmospheric Association, 2008

Hardin County frequently experiences severe weather events throughout all the seasons. In the winter, the county experiences severe winter storms while weather events like severe thunderstorms, hail, and lightning affect the county in the spring. In the summer season, tornados and extremely high temperatures prove to be dangerous while more storms and early snow can affect the county in the fall.

Agriculture

The National Agricultural Statistics Service as a part of the United States Department of Agriculture conducts "The Census of Agriculture" every five years. This survey covers practically every aspect of U.S. agriculture. Some examples include: production and supplies of food and fiber, prices paid and received by farmers, farm labor and wages, farm finances, chemical use, and changes in the demographics of U.S. producers.

In 2007, the Census of Agriculture counted 2,204,792 farms in the United States. Hardin County had 943 farms which lie on 339,001 acres of land; this accounts for 93 percent of the surface land in the county and is one percent of the 92,856 farms in the State of Iowa. Farms on average are larger in Hardin County, at 359 acres, than the statewide average of 311 acres. For the most part, hogs and pigs are the largest number of any animal sold on Hardin County farms with 1,542,442 hogs and pigs across 144 farms. On the crop side, corn for grain is the biggest seller with 34,250,780 bushels coming off of 203,297 acres from 580 farms. Average sales per farm of agricultural products in Hardin County were $ 402,514 in 2007.

According ISU Extension, the total ag contribution to the Hardin County economy is 3,006 jobs, representing 29.40% of Hardin County's total economic activity workforce of 10,224. These ag-related jobs are in the fields of crop and livestock production, ag processing, and ag support.

3.2 Jurisdiction Descriptions and Capabilities

Unincorporated Hardin County

Government

The county seat for Hardin County is the City of Eldora, which is located in the east central portion of the county. The Hardin County Board of Supervisors has three positions; there is a chairman, and two members, all of whom serve the county at large. The county is not divided up into specific districts based on location. Regular Board of Supervisors meetings are held every Wednesday morning in the Hardin County Courthouse.

The county government comprises several individual positions, departments, and organizations. These include both elected and appointed positions. Some of the elected positions in the county include: the Board of Supervisors, Auditor, EMA, and Recorder. Other department directors and staff are by appointment including Animal Control Officer, Board of Health Members, Building and Grounds Director, Community Services Director/CPC, Condemnation Commission Members, Compensation Board Members, Conservation Director, Conservation Board Members, County Engineer, IT Director (Information Technology), GIS Coordinator (Geographic Information Systems, Medical Examiner, Planning and Zoning Director and Commission Members, Veterans Affairs Director and Commission Members, Weed Commissioner, Zoning Board of Adjustment Members, Judicial Magistrate Commission Member, and Civil Service Commission Member. The Hardin County website— http://www.co.hardin.ia.us/ —lists the current individuals filling positions as well as important notifications, events, and meeting minutes.

Hardin County Courthouse in Eldora

Image Source: Hardin County, 2010

Land Use and Planning

A comprehensive land use plan was written and adopted by the Planning and Zoning Commission and Board of Adjustments of Hardin County, but has since become out of date. The Comprehensive Plan for Hardin County contains Economic Base and Population Data, General land Use Plans, Zoning Regulations, Parks and Recreation Information, Major Transportation Corridors, Subdivision Regulations and Capital Improvement Programs. The basic objective of the plan is the attainment of the best possible social, physical, and economic environment for the citizens of Hardin County.

Much of the general planning work is contracted out to the Region 6 Planning Commission or other organizations. A new Hardin County Comprehensive Plan is being contracted between Hardin County and the Region 6 Planning Commission as a part of the recent 2010 Smart Planning Legislation of Iowa.

Zoning

Iowa Code, 335.2 states that agricultural uses are not subject to zoning unless located in the floodplain. Consequently, state agricultural interests are protected but special considerations must be taken if the agricultural use is located in the floodplain. Special requirements may need to be enforced in order to prevent crop and livestock loss, erosion, increased chemical run-off, or other events that may result due to being located in the floodplain.

Flood prone areas in the unincorporated portions of the county may present an issue. Areas not identified as a floodplain but are prone to flooding events are not subject to zoning so little control can be exercised in regulating the use of this land.

It is also important to note that county zoning *only* applies to the unincorporated areas of Hardin County, which excludes incorporated cities and school districts. This is stated in Iowa Code 335.3.

Furthermore, Iowa Code Chapter 335 states that the objective of zoning regulation should encompass not just protecting the health and general welfare of the public, but also "securing safety from fire, flood, panic, and other dangers" (Iowa Code 335.5). This section of the Iowa Code is important, because it requires the county to take hazards both natural and man-made into consideration when creating and enforcing zoning regulations.

To review Iowa Code Chapter 335 and all other chapters, the Code can be accessed online at http://www.legis.state.ia.us/IowaLaw.html.

Hardin County has zoning ordinance maps for all 15 townships in the county as well as ones for specific unincorporated areas such as Cleves, Gifford, Lawn Hill and Robertson. To view these, go to the county planning and zoning page, http://www.co.hardin.ia.us/pages/Zoning_Forms.

Subdivision Regulation

Another land use regulation tool in Hardin County is the Land Subdivision Ordinance, which is an ordinance that provides rules, regulations, and standards to guide land subdivision in the County's unincorporated areas. Considerations for hazard mitigation in this ordinance relate to street geometrics, easements, and erosion control. An example of this can be found in the following statement from Hardin County's subdivision ordinance:

> When water courses cross the lines of any proposed street, provisions shall be made to provide for natural drainage with culverts or bridges of adequate size and design fifty (50) year flood standards required, with a minimum size of twenty-four inches (24"). (Hardin County Planning and Zoning, 1980)

Building Codes

Currently the county does not enforce any county specific building codes. Only the standard State of Iowa buildings codes are enforced. The State's building code can be found on the Iowa Department of Public Safety website (http://www.dps.state.ia.us/). Certain jurisdictions do have their own building codes, while other communities choose not to enforce building codes. These will be discussed in each jurisdiction's section to follow.

With the relatively recent (March 1, 2009) state requirement of electrical permits, there will be more oversight in building quality in Hardin County. A permit is required in unincorporated areas for new electrical installations in residential, commercial, and industrial properties. This requirement is a major step in enforcing and maintaining building quality in Hardin County.

Floodplain Management

There are very few floodplains in Hardin County. Of 11 jurisdictions in the planning boundary, 4 are completely mapped, 3 are half mapped, and 4 are not mapped, including Buckeye, New Providence, Radcliffe, and Whitten. The portions of jurisdictions located in a flood hazard area are very small. The Iowa DNR is creating new, comprehensive, accurate floodplain maps for the entire state, starting in 2011. The maps can't be used for flood insurance purposes, but they will show the boundaries of flooded areas for the 1% annual chance and 0.2% annual chance floods.

Four out of eleven Region 6 member jurisdictions, including Alden, Eldora, Iowa Falls and Union, are participating in NFIP. Amongst them, there are 15 policies with a total of $2,335,800 worth of insurance in force, as of 05/31/2009. There have been 5 total paid losses worth $1,613, total.

Other Mitigation Activities

Other hazard mitigation activities include the CodeRED system, which is a high-speed emergency notification system that sends warning messages to certain areas in Hardin County or the entire county through telephone. Officials are able to deliver hazard warnings or public safety messages. Hardin County residents can choose to participate in this system by registering their land line or cell phone through the link provided on the Hardin County Sheriff's Office website. Hardin County's system has been up and running for two years. Its license expired in May, 2011 and the county is debating renewing due to little use by county jurisdictions.

Another hazard mitigation activity completed in 2010 by the Northeast Iowa Response Group for Hardin County was a ground transportation commodity flow study. This report helped to determine the types of hazardous materials being transported through the county and its major intersections. The persons gathering the information were located at the intersections for 72 hours in 12 hour shifts. The number of trucks was captured by class from 1 to 9. A copy of the study can be seen in Appendix I.

Utilities and Services in Unincorporated Hardin County

All essential and basic services are available to those who live in unincorporated Hardin County. A wide variety of public but mostly private organizations provide these services. Below, all of the services and providers are listed.

- **Electricity:** Alliant Energy, MidAmerican Energy
- **Natural Gas:** Alliant Energy, Black Hills Energy, individual LP's
- **Water:** Hardin Rural Water, Ackley Water, Alden Water, Eldora Water, Hubbard Water, Iowa Falls Water, New Providence Water, Radcliffe Water, Steamboat Rock Water, Union Water, and Central Iowa Water Association
- **Phone Service:** Qwest, Windstream, Iowa Telecom, Heart of Iowa, Radcliffe Telephone, and Cooperative Telephone (Hubbard)
- **Cable/Internet Provider:** Iowa Telecom/Woolstock Mutual Telephone Co, Windstream, Mediacom, Heart of Iowa, Hubbard Cooperative Telephone, and Radcliffe Telephone
- **Emergency Medical Service:** Depending on where the medical emergency occurs, a predetermined emergency medical response department will respond to the emergency. Ackley Ambulance Service, City of Alden, AMR from Iowa Falls, Local First Responders, Eldora Ambulance, Hubbard Ambulance, and Union Ambulance
- **Law Enforcement:** Hardin County Sheriff's Office, Ackley/Eldora Police/Iowa Falls Police
- **Fire Protection:** Ackley Fire Department, Alden Fire Department, Buckeye Fire Department, Eldora Fire Department, Hubbard Fire Department, Iowa Falls Fire Department, New Providence Fire Department, Radcliffe Fire Department, and Steamboat Rock Fire Department, Union Fire Department, Whitten Fire Department
- **Hazardous Materials Assistance:** Northeast Iowa Response Group in Waterloo
- **Fuel:** Casey's/Kum & Go/Prairie Land in Ackley, Coop and FS in Alden, Card Pumps in Buckeye, FS/ Kum and Go/ Casey's in Eldora, Casey's and Prairie Land Coop in Hubbard, 2 Casey's/ Kum & Go/HandiStop/Rock C in Iowa Falls, Comart in Radcliffe, Rock Stop in Steamboat Rock, and Ginger Snap/Coop in Union
- **Grocery Store:** Ackley Super Food, Hy-Vee/ Fareway in Alden, Eldora, and Iowa Falls, Hometown Grocery in Hubbard, Comart in Radcliffe, Rock Stop in Steamboat Rock, and Ginger Snap/Coop in Union
- **Solid Waste Removal:** McDowell's, Knight Sanitation, Stone Sanitation, Moler Sanitation, Hardin County Solid Waste, City of Iowa Falls, and City of Steamboat Rock
- **Landfill:** Hardin County Landfill and Solid Waste, Rural Iowa Waste, Knight Sanitation
- **Recycling:** Moler Sanitation, and Hardin County Solid Waste
- **Public Transit:** Peoplerides (this can only be used by para-transit approved individuals)

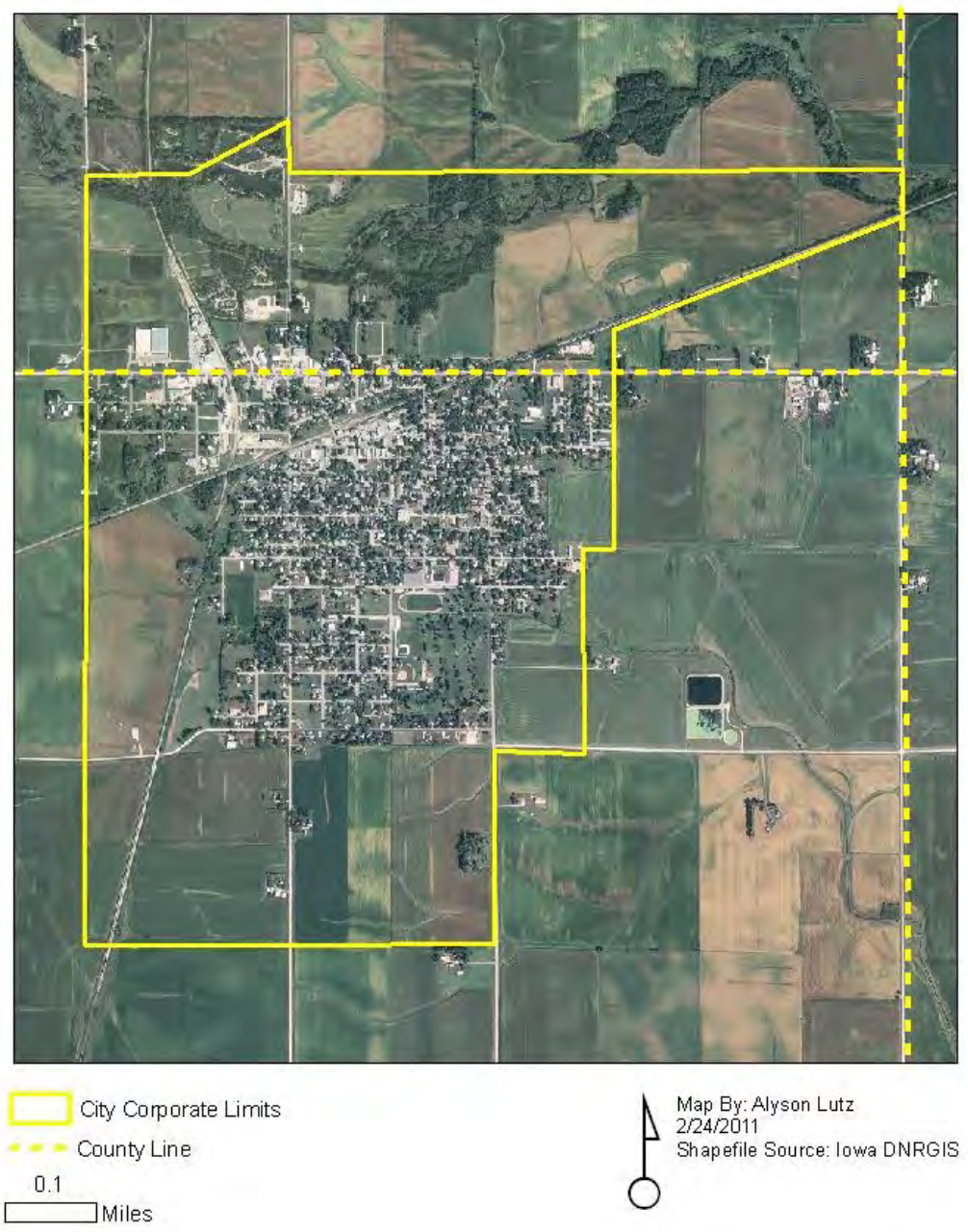
As indicated in the service list above, some services are provided to unincorporated areas by nearby cities. This is true for mainly fire protection and emergency medical services.

City of Ackley

Overview

The City of Ackley is located in the northwestern corner of Hardin County, and partially in Franklin County. Iowa 57 and County Highway S56 merge at the county line between Hardin and Franklin, going east/west. Ackley is also located 7.5 miles from US Highway 65.

Figure 3.2.1: Ackley, Iowa



In 1852 immigrants began purchasing farms and settling in the north Hardin County area, the first being L.H. Artedge. According to the Ackley Heritage Center, Ackley, Iowa was settled by Germans from Ostfriesland, Germany. They were attracted to the lush lands in North Central Iowa . Later in the 1850's the Dubuque and Pacific Railroad Company received a charter from the State of Iowa to build a railroad. William Ackley purchased the land for the railroad and wanted to found a town. Ackley and three other land developers purchased the land, which is now the town, for $25.00 an acre. They then sold sites for developing the town. In 1857 the town of Ackley was staked out. The plan was signed December 12, 1857. Ackley never lived here but he gave the town his name.

Starting in October, 1865 when the railroad reached Ackley, the town began to boom with several services like elevators for grain storage and shipment, lumber yards, grocery stores, hardware stores, restaurants and saloons being established. Other personal services like doctors and lawyers offices came to the town, and finally a post office.

In the mid 1860's the town of Ackley was incorporated and William A. Francis became the first mayor.

Utilities and Services in Ackley

All basic services are available in Ackley. Water, law enforcement, fire protection and a library are provided by the City while all others are contracted to private companies or the County. Services and providers are listed below in Table 3.2.1.

Table 3.2.1: Ackley Utilities and Services

Service	Provider
Electricity	Mid American Energy
Gas	Black Hills Energy
Water	City of Ackley
Phone Services	Qwest
Cable/Internet Provider	Mediacom
Emergency Medical Service	Ackley Ambulance
Law Enforcement	City of Ackley
Fire Protection	City of Ackley
Warning System	Siren without backup, set off by Sherriff's Office
HazMat Assistance	Northeast Iowa Response Group - Waterloo
Fuel Station	Casey's/Kum & Go/Prairie Land
Grocery/Convenience Store	Ackley Super Food
Solid Waste Removal	McDowell's
Landfill	Hardin County Landfill
Library	City of Ackley
Recycling	Hardin County Solid Waste
Public Transit	Peoplerides
Medical Clinic	Ackley Community (Ellsworth)

There are no fire departments in Hardin County with the capability of dealing with major hazardous materials incidents. This service is provided by the Northeast Iowa Response Group (NIRG), in Waterloo, because that fire department has the needed training and equipment. The local fire department must decide whether or not to contact Waterloo's Fire Department for assistance.

City Government and Regulation

The city is governed by a mayor and 5-member city council that maintains and enforces the city's code of ordinances. Regular council meetings are held the second Wednesday of every month.

The city does not enforce building codes beyond the standard Iowa building codes in order to attract development. By not enforcing the strict building codes, new development in the community is more affordable than in other communities. The city does, however, have a formal zoning ordinance to enforce land use aside from floodplain management.

A very popular city regulation related to hazard mitigation involves maintaining a floodplain management ordinance, which allows city residents to participate in the National Flood Insurance Program (NFIP). The floodplain management ordinance applies to the areas identified in city's floodplain map as having a 1% chance of flooding each year. Currently, Ackley is not a member of the NFIP.

Technical and Fiscal Resources

The City of Ackley operates like many small cities in Iowa. The city manager, mayor, council, city clerk, and part-time maintenance staff handle the city's daily and long-term operations. Short-term and long-term planning needs like grant writing and management and plan preparation are handled by the local council of governments, the Region 6 Planning Commission. The City of Ackley is a member of the Commission and uses their services and expertise regularly.

There are multiple ways the City of Ackley could finance a hazard mitigation project. This city in particular maintains its own water system so fees for this services are available to finance projects. Other resources available to the City of Ackley are below.

- Grants
- General obligation bonds (up to 5% of City's valuation)
- Revenue bonds through publicly secured sources (paid back using road use tax, local option sales tax in accordance with approved referendum, revenue from certain enterprises, and tax increment financing)
- Capital improvements fund
- Special assessment taxes

Finance tools like impact fees cannot be used to fund projects because they are considered unconstitutional in the State of Iowa. For most projects in Ackley, grants would need to be the main funding source in order for the project to be feasible.

Other Mitigation Activities

In the past several years, Ackley has been granted money from the USDA through CDGB for sewer improvements. A wetlands project was also completed with I-Jobs money.

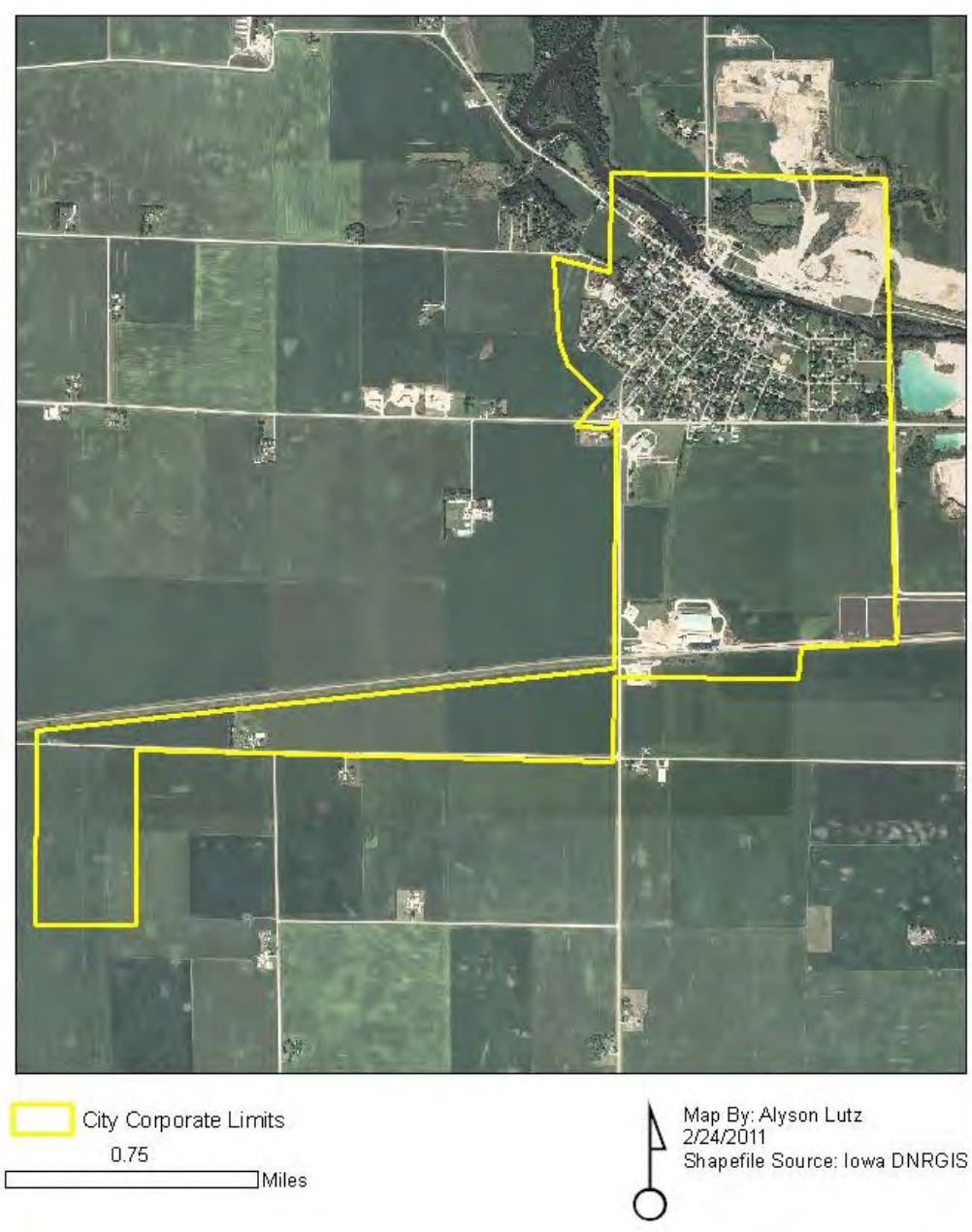
Ackley does not participate in Hardin County's CodeRED system. With participation in the system, Ackley residents are notified of emergency situations in their area or across the entire county through messages by telephone. Both land lines and cell phones can be registered. Hardin County's system has been up and running for two years. Its license expired in May, 2011 and the county is debating renewing due to little use by county jurisdictions.

City of Alden

Overview

Alden is located in the northwestern portion of Hardin County. The intersection of County Roads D20 and S27 is just south of town. Alden is 3.5 miles west of U.S. Highway 65, ten miles east of Interstate 35, and 5 miles north of U.S. Highway 20.

Figure 3.2.2: Alden, Iowa



According to the City of Alden's website;

In late 1855 and 1856, Henry Alden laid out what is known as the original town of Alden; later the township also took his name. The town of Alden was incorporated in 1879, with a voting result of 61 in favor and 14 opposed.

In 1869, the Dubuque and Sioux City Railroad (now the Illinois Central) came through to Webster City which helped delivery of needed staple items. The Chicago, Iowa and Dakota Railroad (now the Chicago Northwestern) came into Alden from Eldora in 1884. Now that transportation of perishable products in refrigerator cars was assured, a creamery was erected.

Many other successful businesses were also present such as: Rummel Wagon Works, Chet Wood's (manufacturer of dirt-loading equipment, manure spreaders and excavator and road builder), Hale-Roberts Stone Co. (now Iowa Limestone Company), ice houses, several hotels, elevator, lumberyard, etc.

In regards to education, the first schoolhouse in Alden was built in 1856. Ten years later a new one was built on a hill farther east. Another school, a part of the present one, was completed in 1924.

From 1854 to 1880, Alden had built several churches: The Congregational, First Methodist Episcopal, Immanuel-Evangelical and Reformed, and the German Society of the Methodist Episcopal. St. Paul's Lutheran (Missouri Synod) was established in 1908.

The first post office was established in 1855. The present post office was dedicated in 1969.

The Alden Hall or Lyceum was the main entertainment center for the town from early days until 1920's. There were programs there every Saturday Night from November to March. Besides local and area talent, there also was talent from other parts of the state, nation and even foreign countries. The Lyceum drew 100-400 people regularly. In those days Alden was called "The Athens of the West."

Many businesses thrived and people traded in Alden for miles around. A couple of the favorite ones were Spencer's Department Store, located where the Clover Farm Grocery Store was, and Furry's Department Store, located in the Shamrock Café Building.

In 1868 the Iowa Falls and Sioux City Railroad was completed to Alden. During the winter of 1868-1869, a depot building was erected. The first regular agent was J. M. Fisher, who took charge of the office September 1, 1869.

The old ball park, located at the County highway building, served baseball teams from the founding of the town. From 1886 to the 1940's, Egg Day and the 4th of July were well attended by Alden. Now the Lion's Club has an annual celebration in June or July. (City of Alden, 2011)

Utilities and Services

All basic services are available in the City of Alden except a medical clinic. The city provides water, emergency medical service, and a library so all other services are provided by either the County or private companies.

Table 3.2.2: Alden Utilities and Services

Service	Provider
Electricity	Alliant Energy
Gas	Alliant Energy
Water	City of Alden
Phone Services	Iowa Telecom
Cable/Internet Provider	Iowa Telecom/Woolstock Mutual Telephone Co
Emergency Medical Service	City of Alden and AMR
Law Enforcement	Hardin County Sheriff
Fire Protection	Volunteer Fire Department
Warning System	Siren set off by Hardin County or local fire dept
HazMat Assistance	Northeast Iowa Response Group - Waterloo
Fuel Station	Coop and FS
Grocery/Convenience	Hy-vee and Fareway
Solid Waste Removal	McDowell
Landfill	Hardin County Landfill
Library	City of Alden
Recycling	Hardin County
Public Transit	Peoplerides
Medical Clinic	None – use Iowa Falls

There are no fire departments in Hardin County with the capability of dealing with major hazardous materials incidents. This service is provided by the Northeast Iowa Response Group, in Waterloo, because that fire department has the needed training and equipment. The local fire department must decide whether or not to contact Waterloo's Fire Department for assistance.

City Government and Regulation

The City of Alden is governed by a mayor and five-member city council that holds regular meetings on the third Monday of the month. To attract development, as a hazard mitigation related regulation, the city only enforces building codes for blighted buildings downtown, but other than that, nothing beyond the standard Iowa building codes. By not enforcing the strict building codes, new development in the community is more affordable than in other communities. The city does have a formal zoning ordinance to enforce land use aside from floodplain management. According to Iowa Homeland Security information, Alden is participating in the NFIP and has 4 policies in place, as of 05/31/2009, with $618,600 of insurance in force.

Technical and Fiscal Resources

The City of Alden operates like many small cities in Iowa. The mayor, council, city clerk, and maintenance staff handle the city's daily and long-term operations. Short-term and long-term planning needs like grant writing and management and plan preparation are usually handled by the local council of governments.

There are multiple ways the City of Alden could finance a hazard mitigation project. This city in particular maintains its own water system so fees for this service are available to finance projects. The financing resources available to the City of Alden are below.

- Grants
- General obligation bonds (up to 5% of City's valuation)
- Revenue bonds through publicly secured sources (paid back using sewer fees, water fees, road use tax, local option sales tax in accordance with approved referendum, revenue from certain enterprises, and tax increment financing)
- Capital improvements fund
- Special assessment taxes

Finance tools like impact fees cannot be used to fund projects because they are considered unconstitutional in the State of Iowa. For most projects in Alden, grants would need to be the main funding source in order for the project to be feasible.

Other Mitigation Activities

Alden has received money in the past few years for sewer improvements, equipment purchasing, and loss of property.

Alden participates in Hardin County's CodeRED system. With participation in the system, Alden residents are notified of emergency situations in their area or across the entire county through messages by telephone. Both land lines and cell phones can be registered. Hardin County's system has been up and running for two years. Its license expired in May, 2011 and the county is debating renewing due to little use by county jurisdictions.

City of Buckeye

Overview

The City of Buckeye is located in the west central portion of Hardin County. County Road S27 runs along its west side while U.S. Highway 20 is 1 mile north and U.S. Highway 65 is 7.5 miles east of town.

Figure 3.2.3: Buckeye, Iowa

Buckeye is the smallest town in Hardin County with a population of 110 people and a total area of 1.0 square mile. There are no major businesses, social groups, or events, located in Buckeye.

Utilities and Services in Buckeye

All basic services are available in Ackley. Water, law enforcement, fire protection and a library are provided by the City while all others are contracted to private companies or the County. Services and providers are listed below in Table 3.2.3.

Table 3.2.3: Buckeye Utilities and Services

Service	Provider
Electricity	Alliant Energy
Gas	LP Only
Water	Private companies
Phone Services	Windstream
Cable/Internet Provider	Windstream
Emergency Medical Service	Local first responders and AMC from Iowa Falls
Law Enforcement	Hardin County Sheriff
Fire Protection	Volunteer Fire Department
Warning System	Siren without backup, set off by Sherriff's Office
HazMat Assistance	Northeast Iowa Response Group - Waterloo
Fuel Station	Card Pumps
Grocery/Convenience Store	None
Solid Waste Removal	Knight Sanitation
Landfill	Hardin County Landfill
Library	None
Recycling	Hardin County Solid Waste
Public Transit	Peoplerides
Medical Clinic	None, use Iowa Falls

There are no fire departments in Hardin County with the capability of dealing with major hazardous materials incidents. This service is provided by the Northeast Iowa Response Group (NIRG), in Waterloo, because that fire department has the needed training and equipment. The local fire department must decide whether or not to contact Waterloo's Fire Department for assistance.

City Government and Regulation

The city is governed by a mayor and 5-member city council that maintains and enforces the city's code of ordinances. Regular council meetings are held the second Monday of every month.

The city does enforce building codes beyond the standard Iowa building codes. The city also has a formal zoning ordinance to enforce land use aside from floodplain management.

A very popular city regulation related to hazard mitigation involves maintaining a floodplain management ordinance, which allows city residents to participate in the National Flood Insurance Program (NFIP). The floodplain management ordinance applies to the areas identified in city's floodplain map as having a 1% chance of flooding each year. Currently, Buckeye is not participating in the NFIP.

Technical and Fiscal Resources

The City of Buckeye operates like many small cities in Iowa. The mayor, council, city clerk, and part-time maintenance staff handle the city's daily and long-term operations. Short-term and long-term planning needs like grant writing and management and plan preparation are handled by the local council of government, the Region 6 Planning Commission. The City of Buckeye is a member of the Commission and uses their services and expertise regularly.

There are multiple ways the City of Buckeye could finance a hazard mitigation project. This city does not maintain any of its own utilities so fees for these services are not available to finance projects. Resources available to the City of Buckeye are below.

- Grants
- General obligation bonds (up to 5% of City's valuation)
- Revenue bonds through publicly secured sources (paid back using road use tax, local option sales tax in accordance with approved referendum, revenue from certain enterprises, and tax increment financing)
- Capital improvements fund
- Special assessment taxes

Finance tools like impact fees cannot be used to fund projects because they are considered unconstitutional in the State of Iowa. For most projects in Buckeye, grants would need to be the main funding source in order for the project to be feasible.

Other Mitigation Activities

In the past several years, Buckeye has not been granted any Federal or State money for projects.

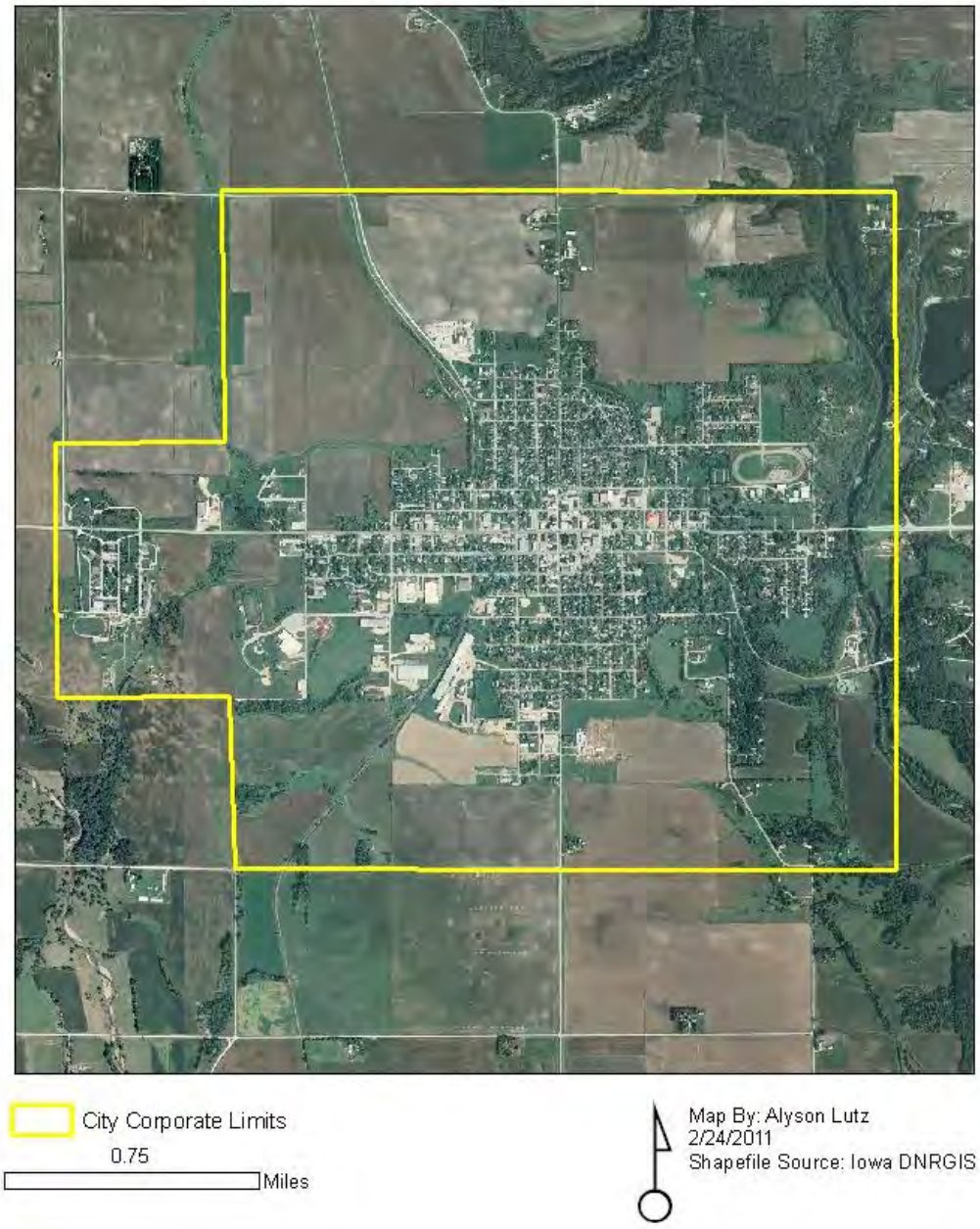
Buckeye does not participate in Hardin County's CodeRED system. With participation in the system, Buckeye residents are notified of emergency situations in their area or across the entire county through messages by telephone. Both land lines and cell phones can be registered. Hardin County's system has been up and running for two years. Its license expired in May, 2011 and the county is debating renewing due to little use by county jurisdictions.

City of Eldora

Overview

Eldora is the county seat of Hardin and is located in east central portion of the county. Iowa 175 goes through the middle of town east/west. U.S. Highway 20 is 6.5 miles north.

Figure 3.2.4: Eldora, Iowa



Hardin County was organized in 1852 and Judge William McKay appointed two men to locate a suitable site for a county seat. In spring of 1853, they selected a site which is now known as the City of Eldora. The town was named by Mrs. S. R. Edgington after the name of her child who had just died. Edgington Avenue runs east/west through the center of town today.

Eldora has been the County seat since 1853. This location has been challenged several times in court cases and voting to decide the outcome. In 1892 Iowa Falls citizens offered the county $32,000 towards the building of a new courthouse if it were built in Iowa Falls. The Eldora citizens countered with an offer of $40,000 if the courthouse stayed in Eldora. (Iowa Genealogy, 2011)

Utilities and Services

All basic services are available in Eldora, except a medical clinic. However, all emergency services are provided by the City, which is not the case in many Hardin County cities.

Table 3.2.4: Eldora Utilities and Services

Service	Provider
Electricity	Alliant Energy
Gas	Alliant Energy
Water	City of Eldora
Phone Services	Heart of Iowa
Cable/Internet Provider	Mediacom, Heart of Iowa
Emergency Medical Service	Eldora Ambulance
Law Enforcement	Eldora Police, Hardin Co Sheriff
Fire Protection	Eldora Fire Department
Warning System	Pagers & Sirens w/backup, set off by County Sherriff
HazMat Assistance	Northeast Iowa Response Group - Waterloo
Fuel Station	FS, Kum and Go, Casey's
Grocery/Convenience	Fareway, Hy-Vee
Solid Waste Removal	Knight, Stone
Landfill	Hardin County Waste Management
Library	Eldora Public Library
Recycling	Hardin County Waste Management
Public Transit	Peoplerides
Medical Clinic	Eldora Clinic (McFarland Clinic, Greenbelt Homecare, Eldora Nursing Service)

There are no fire departments in Hardin County with the capability of dealing with major hazardous materials incidents. This service is provided by the Northeast Iowa Response Group (NIRG), in Waterloo, because that fire department has the needed training and equipment. The local fire department must decide whether or not to contact Waterloo's Fire Department for assistance.

City Government and Regulation

The City of Eldora is governed by a mayor and five-member city council that holds regular meetings the first Monday of each month. The City maintains and enforces a code of ordinances.

The zoning districts and requirements in Eldora are traditional and regulate use, location, density, site development, and appearance. Eldora also enforces building codes beyond the standard Iowa building codes. Eldora is participating in the National Flood Insurance Program with one policy as of 05/31/2009, with $210,000 of insurance in force.

Technical and Fiscal Resources

The city manager, mayor, council, city clerk, and maintenance staff handle the city's daily and long-term operations. Also, many people in the Eldora community are active in organizations, city projects, and various initiatives. Eldora is also a member of the Region 6 Planning Commission and uses their services and expertise for certain projects.

There are multiple ways the City of Eldora could finance a hazard mitigation project. This city in particular provides its own water utility so it has those fees to use for projects. The other financing resources available to the City of Eldora are below.

- Grants
- General obligation bonds (up to 5% of City's valuation)
- Revenue bonds through publicly secured sources (paid back using sewer fees, water fees, road use tax, local option sales tax in accordance with approved referendum, revenue from certain enterprises, and tax increment financing)
- Capital improvements fund
- Special assessment taxes

Finance tools like impact fees cannot be used to fund projects because they are considered unconstitutional in the State of Iowa. For most projects in Eldora, grants would need to be the main funding source in order for the project to be feasible.

Other Mitigation Activities

In the past several years, Eldora has been granted money from the US HUD Neighborhood Stabilization Program for demolition of dilapidated buildings.

Eldora does not participate in Hardin County's CodeRED system. With participation in the system, Eldora residents are notified of emergency situations in their area or across the entire county through messages by telephone. Both land lines and cell phones can be registered. Hardin County's system has been up and running for two years. Its license expired in May, 2011 and the county is debating renewing due to little use by county jurisdictions.

City of Hubbard

Overview

The City of Hubbard is located in south-central Hardin County. Hubbard is just .5 miles east of U.S. Highway 65 and Iowa 175.

Figure 3.2.5: Hubbard, Iowa

Hubbard, Iowa was named for Judge Nathaniel M. Hubbard, railroad attorney. Hubbard is one of the larger communities in the planning boundary with 885 people.

Utilities and Services

Several utilities and basic services are available in Hubbard. Utilities are not provided by the City, but safety services including fire protection and emergency response are provided. All other services are provided by private companies or Hardin County.

Table 3.2.5: Hubbard Utilities and Services

Service	Provider
Electricity	Alliant
Gas	Alliant
Water	City of Hubbard
Phone Services	Hubbard Cooperative Telephone
Cable/Internet Provider	Hubbard Cooperative Telephone
Emergency Medical Service	Hubbard Ambulance
Law Enforcement	Hardin County Sheriff
Fire Protection	Hubbard Fire Department
Warning System	Warning siren, no backup power, City set off
HazMat Assistance	Northeast Iowa Response Group - Waterloo
Fuel Station	Casey's, Prairie Land Coop
Grocery/Convenience	Hometown Grocery, Casey's
Solid Waste Removal	McDowell's
Landfill	Hardin County Solid Waste Company
Library	Hubbard City Library
Recycling	Hardin County Solid Waste Company
Public Transit	Peoplerides
Medical Clinic	Hubbard Medical Clinic

There are no fire departments in Hardin County with the capability of dealing with major hazardous materials incidents. This service is provided by the Northeast Iowa Response Group (NIRG), in Waterloo, because that fire department has the needed training and equipment. The local fire department must decide whether or not to contact Waterloo's Fire Department for assistance.

Government and Regulation

Hubbard is governed by a mayor and five-member city council that holds regular meetings on the second Monday of the month.

To attract development as a hazard mitigation related regulation, the city does not enforce building codes beyond the standard Iowa building codes. By not enforcing the strict building codes, new development in the community is more affordable than in other communities. The city does have a formal zoning ordinance to enforce land use aside from floodplain management.

According to Iowa Homeland Security information, Hubbard is not participating in the National Flood Insurance Program.

Technical and Fiscal Resources

The City of Hubbard operates like many small cities in Iowa. The mayor, council and city clerk handle the city's daily and long-term operations. Short-term and long-term planning needs like grant writing and management and plan preparation are usually handled by the local council of government, the Region 6 Planning Commission. The City of Hubbard is a member of the Commission and uses their services and expertise.

There are multiple ways the City of Hubbard could finance a hazard mitigation project. This city in particular does not maintain its own utilities besides a water system, telephone and cable/internet so there are not many fees from these services available to finance projects. The resources available to the City of Hubbard are below:

- Grants
- General obligation bonds (up to 5% of City's valuation)
- Revenue bonds through publicly secured sources (paid back using road use tax, local option sales tax in accordance with approved referendum, revenue from certain enterprises, and tax increment financing)
- Capital improvements fund
- Special assessment taxes

Finance tools like impact fees cannot be used to fund projects because they are considered unconstitutional in the State of Iowa. For most projects in Hubbard, grants would need to be the main funding source in order for the project to be feasible.

Other Mitigation Activities

In 2008, Hubbard was granted Iowa Finance Authority money for water treatment projects.

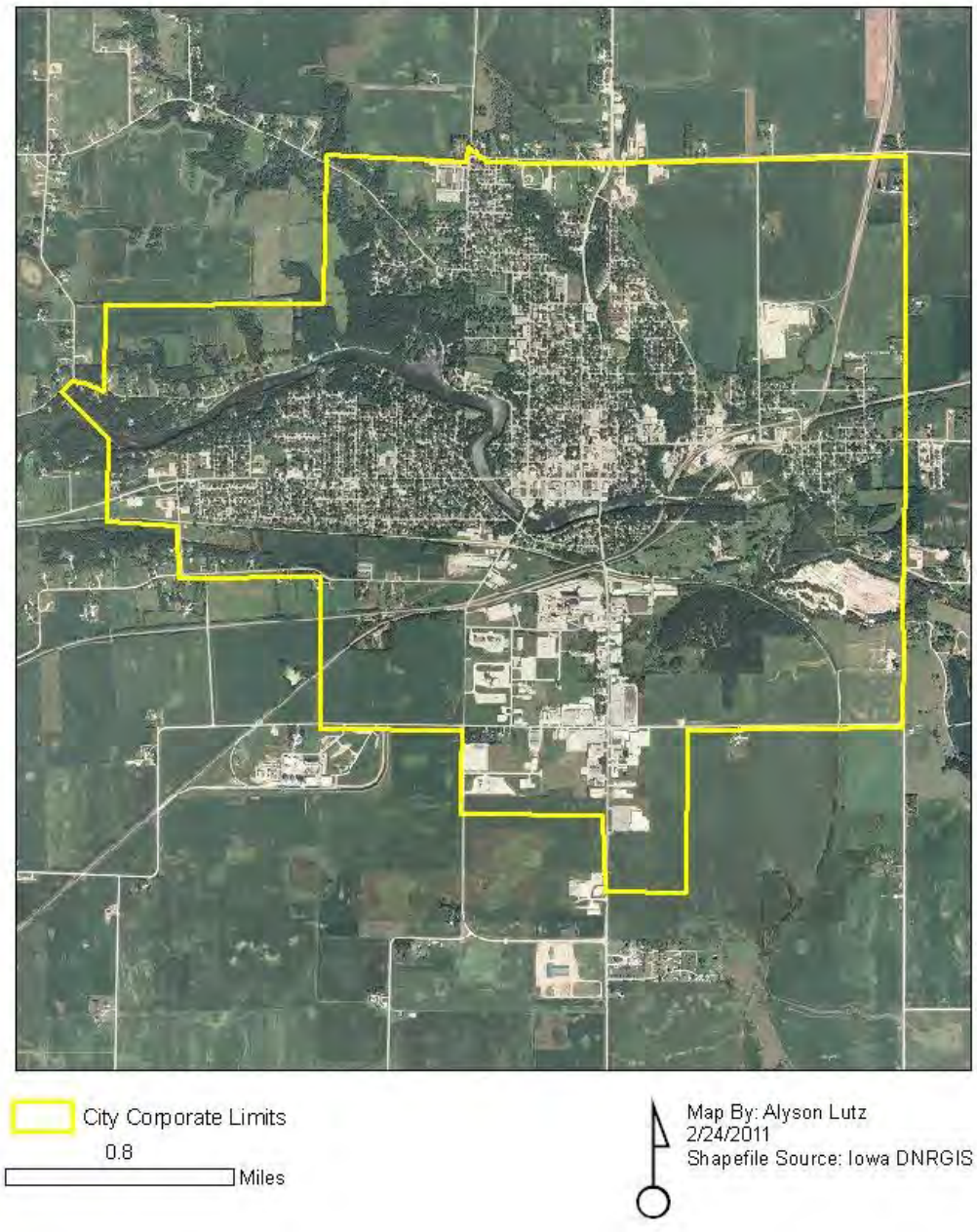
Hubbard does not participate in Hardin County's CodeRED system. With participation in the system, Hubbard residents are notified of emergency situations in their area or across the entire county through messages by telephone. Both land lines and cell phones can be registered. Hardin County's system has been up and running for two years. Its license expired in May, 2011 and the county is debating renewing due to little use by county jurisdictions.

City of Iowa Falls

Overview

The City of Iowa Falls is located in the north central portion of the county. U.S. Highway 65 runs north-south through the city and U.S. Highway 20 is 5 miles south of town.

Figure 3.2.6: Iowa Falls, Iowa



According to the City's website, "Iowa Falls is located in Hardin County, Iowa, along the Iowa River. The parks and cliffs along the river have given Iowa Falls the nickname, 'The Scenic City.' A landmark in the city is its movie theater. Built as the Metropolitan Opera House in 1899, it presented plays, operas, and vaudeville in the town during the first half of the twentieth century, and today is listed on the National Register of Historic Places."

Utilities and Services

Though Iowa Falls is the largest city in Hardin County, all services, including two grocery stores, are available to residents. Only water utilities are maintained by the City while all other utilities are through private companies. Safety services are provided by the City and Hardin County.

Table 3.2.6: Iowa Falls Utilities and Services

Service	Provider
Electricity	Alliant
Gas	Alliant
Water	City of Iowa Falls
Phone Services	Qwest
Cable/Internet Provider	Mediacom
Emergency Medical Service	AMR Ambulance
Law Enforcement	City of Iowa Falls
Fire Protection	City of Iowa Falls
Warning System	Warning siren set off by Police
HazMat Assistance	Northeast Iowa Response Group - Waterloo
Fuel Station	2 Casey's, Kum & Go, HandiStop, Rock C
Grocery/Convenience	Fareway, HyVee
Solid Waste Removal	City of Iowa Falls
Landfill	Rural Iowa Waste
Library	City of Iowa Falls
Recycling	Hardin County Solid Waste
Public Transit	Peoplerides
Medical Clinic	McFarland, Iowa Falls Clinic

There are no fire departments in Hardin County with the capability of dealing with major hazardous materials incidents. This service is provided by the Northeast Iowa Response Group (NIRG), in Waterloo, because that fire department has the needed training and equipment. The local fire department must decide whether or not to contact Waterloo's Fire Department for assistance.

City Government and Regulation

Iowa Falls is governed by a mayor and five-member city council that holds meetings on the third Monday of the month. The city code includes 101 chapters, one of which is the code of ordinances.

The City enforces building codes beyond State of Iowa building code requirements. The City also enforces a zoning code.

According to Iowa Homeland Security information, Iowa Falls is participating in the National Flood Insurance Program. As of 05/31/2009, the City has 4 policies in place with $878,600 worth of insurance in force.

Technical and Fiscal Resources

The City of Iowa Falls operates like many small cities in Iowa. The city manager, mayor, council, city clerk, and maintenance staff handle the city's daily and long-term operations. The City of Iowa Falls is a member of the Region 6 Planning Commission and uses their services.

There are multiple ways the City of Iowa Falls could finance a hazard mitigation project. This city in particular does not maintain its own energy utilities so fees for these services are not available to finance projects, but the City does maintain the city's water system. The financing resources available to the City of Iowa Falls are below.

- Grants
- General obligation bonds (up to 5% of City's valuation)
- Revenue bonds through publicly secured sources (paid back using sewer fees, water fees, road use tax, local option sales tax in accordance with approved referendum, revenue from certain enterprises, and tax increment financing)
- Capital improvements fund
- Special assessment taxes

Finance tools like impact fees cannot be used to fund projects because they are considered unconstitutional in the State of Iowa. For most projects in Iowa Falls, grants would need to be the main funding source in order for the project to be feasible.

Other Mitigation Activities

In the past several years, Iowa Falls has been granted money for Airport projects and CDBG Housing rehab projects.

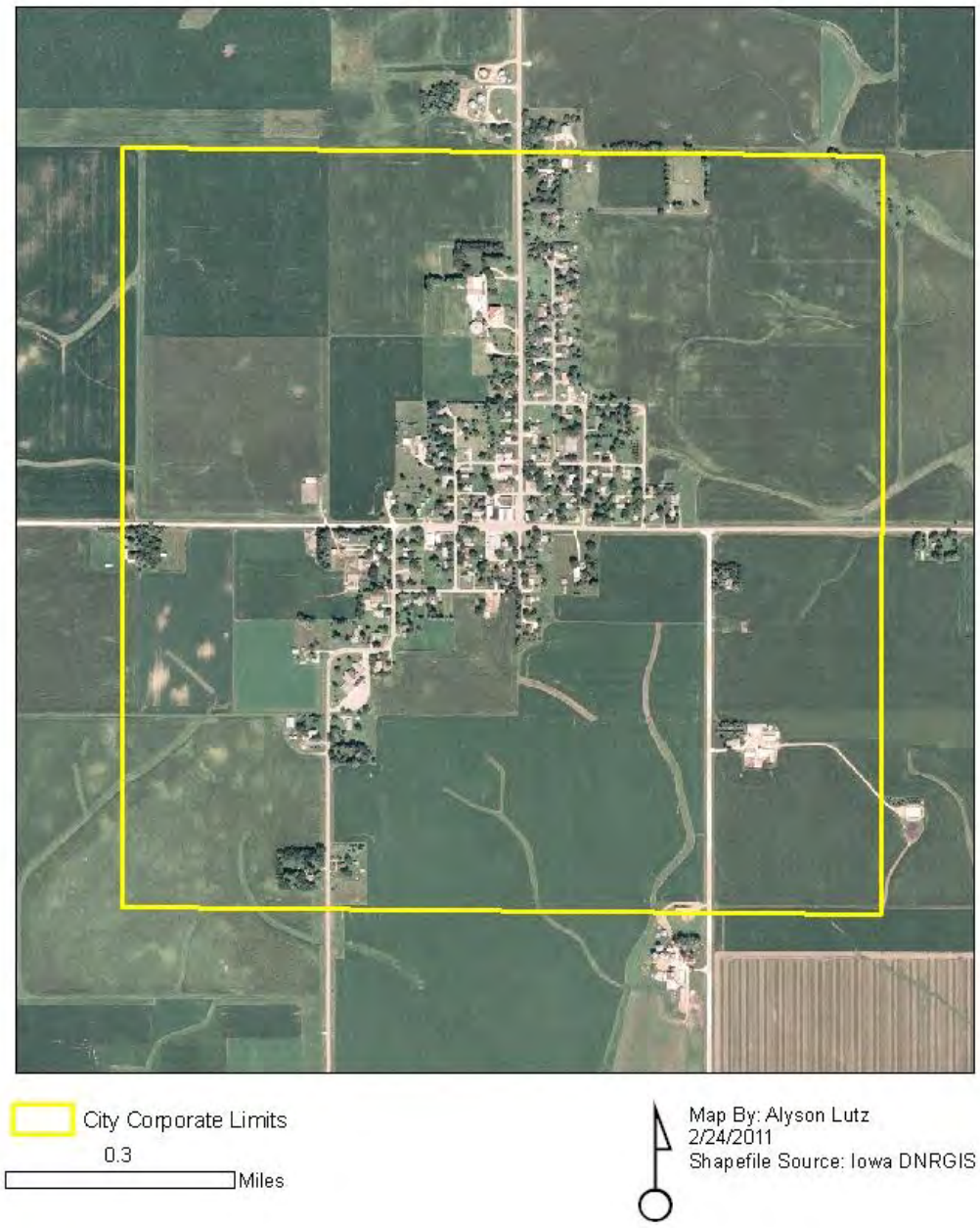
Iowa Falls does not participate in Hardin County's CodeRED system. With participation in the system, Iowa Falls residents are notified of emergency situations in their area or across the entire county through messages by telephone. Both land lines and cell phones can be registered. Hardin County's system has been up and running for two years. Its license expired in May, 2011 and the county is debating renewing due to little use by county jurisdictions.

City of New Providence

Overview

New Providence is located at the intersection of County Roads S55 and D55. New Providence is just 8 miles east of U.S. Interstate 35.

Figure 3.2.7: City of New Providence



Some history of the town of New Providence can be found on The Teresa Miller Genealogy Page; "Honey Creek Friends Cemetery is the beautifully maintained resting place of many old time Quaker members of the Honey Creek Friends meeting near New Providence, Hardin County, Iowa. Across the road from the cemetery is the wonderful old brick Honey Creek Friends Church built in 1916 on the site of previous Quaker churches dating to 1852. The Honey Creek Friends Church is a National Historic Site."

Utilities and Services

New Providence provides all utilities while solid waste/landfill/recycling are provided by private companies or the county, and safety services are provided by the City and Hardin County. All basic services are available to New Providence residents except grocery, fuel and medical clinic.

Table 3.2.7: New Providence Utilities and Services

Service	Provider
Electricity	Alliant
Gas	Alliant
Water	City of New Providence
Phone Services	Heart of Iowa
Cable/Internet Provider	None
Emergency Medical Service	None
Law Enforcement	Hardin County Sheriff's Office
Fire Protection	New Providence Fire Department
Warning System	Warning siren, set off by City Maintenance
HazMat Assistance	Northeast Iowa Response Group - Waterloo
Fuel Station	None
Grocery/Convenience	None
Solid Waste Removal	Private contracts/ Hardin County Solid Waste
Landfill	Hardin County Landfill
Library	None
Recycling	Private contracts/Hardin County Solid Waste
Public Transit	Peoplerides
Medical Clinic	None

There are no fire departments in Hardin County with the capability of dealing with major hazardous materials incidents. This service is provided by the Northeast Iowa Response Group (NIRG), in Waterloo, because that fire department has the needed training and equipment. The local fire department must decide whether or not to contact Waterloo's Fire Department for assistance.

City Government and Regulation

New Providence is governed by a mayor and 5-member city council that maintains the city's Code of Ordinances. The mayor and council hold regular meetings on the third Monday of the month. The City enforces several formal land use controls like building and zoning codes.

According to information from Iowa Homeland Security, the City is not participating in the National Flood Insurance Program.

Technical and Fiscal Resources

The City of New Providence operates like many small cities in Iowa. The mayor, council, city clerk, and maintenance staff handle the city's daily and long-term operations. The City of New Providence is a member of the Region 6 Planning Commission and uses their services and expertise for certain activities like grant and plan writing.

There are multiple ways the City of New Providence could finance a hazard mitigation project. This city in particular does not maintain any of its utilities except a water system so there are not many fees from these services available for finance projects. The financing resources available to the City of New Providence are below.

- Grants
- General obligation bonds (up to 5% of City's valuation)
- Revenue bonds through publicly secured sources (road use tax, local option sales tax in accordance with approved referendum, revenue from certain enterprises, and tax increment financing)
- Capital improvements fund
- Special assessment taxes

Finance tools like impact fees cannot be used to fund projects because they are considered unconstitutional in the State of Iowa. For most projects in New Providence, grants would need to be the main funding source in order for the project to be feasible.

Other Mitigation Activities

In the past few years, the city has not received any Federal or State money for mitigation projects.

New Providence does not participate in Hardin County's CodeRED system. With participation in the system, New Providence residents are notified of emergency situations in their area or across the entire county through messages by telephone. Both land lines and cell phones can be registered. Hardin County's system has been up and running for two years. Its license expired in May, 2011 and the county is debating renewing due to little use by county jurisdictions.

City of Radcliffe

Overview

Radcliffe is located at the intersection of Iowa 175 and County Road S27. It is situated very close to the Hardin/Hamilton County border, in southwestern Hardin County. It is approximately 7 miles east of Interstate 35.

Figure 3.2.8: City of Radcliffe

Some history of Radcliffe, Iowa can be found in the Radcliffe Community Folks and Facts Illustrated website; "[this book] includes folks that lived in Radcliffe, Sherman and Garden City. It also included farm families that lived in Lincoln Township in Hamilton County, Concord Township in Hardin County and Sherman Township in Hardin County. These farm families shopped in these towns and later retired to the same communities. As my Great-Aunt Ella Britson Hinderaker said, 'We could get most anything that we needed in Radcliffe. In fact, We could probably purchase more in Radcliffe when I was a girl then they can now.' (Now being 1975)"

Utilities and Services

The City of Radcliffe provides both phone and cable/internet to Radcliffe residents. Safety services are also provided by the City except law enforcement, which is provided by Hardin County. Radcliffe has a fuel station/convenience store, but no grocery or medical clinic.

Table 3.2.8: Radcliffe Utilities and Services

Service	Provider
Electricity	Alliant
Gas	Alliant
Water	City of Radcliffe
Phone Services	Radcliffe Telephone
Cable/Internet Provider	Radcliffe Telephone
Emergency Medical Service	Local Volunteers
Law Enforcement	Hardin County Sheriff
Fire Protection	Radcliffe Volunteer Fire Dept
Warning System	Warning siren set off by first responders and Hardin County
HazMat Assistance	Northeast Iowa Response Group - Waterloo
Fuel Station	Comart
Grocery/Convenience	Comart
Solid Waste Removal	Hardin County Solid Waste
Landfill	Hardin County Solid Waste
Library	Radcliffe Public Library
Recycling	Hardin County
Public Transit	Peoplerides
Medical Clinic	None

There are no fire departments in Hardin County with the capability of dealing with major hazardous materials incidents. This service is provided by the Northeast Iowa Response Group (NIRG), in Waterloo, because that fire department has the needed training and equipment. The local fire department must decide whether or not to contact Waterloo's Fire Department for assistance.

City Government and Regulation

Radcliffe is governed by a mayor and 5-member city council that maintains and enforces the City's Code of Ordinances. On the second Monday of each month, the mayor and council hold a meeting. Radcliffe's Code includes building and zoning codes. Radcliffe does not participate in the NFIP according to information from Iowa Homeland Security.

Technical and Fiscal Resources

The City of Radcliffe operates like many small cities in Iowa. The mayor, council, city clerk, and maintenance staff handle the city's daily and long-term operations. Short-term and long-term planning needs like grant writing and management and plan preparation are usually handled by the local council of government, the Region 6 Planning Commission. The City of Radcliffe is a member of the Commission.

There are multiple ways the City of Radcliffe could finance a hazard mitigation project. Radcliffe purchases phone and cable/internet wholesale and distributes to residents along with maintain the city's water system so fees from these services can be used toward debt incurred for projects. The financing resources available to the City of Radcliffe are below.

- Grants
- General obligation bonds (up to 5% of City's valuation)
- Revenue bonds through publicly secured sources (utility fees, road use tax, local option sales tax in accordance with approved referendum, revenue from certain enterprises, and tax increment financing)
- Capital improvements fund
- Special assessment taxes

Finance tools like impact fees cannot be used to fund projects because they are considered unconstitutional in the State of Iowa. For most projects in Radcliffe, grants would need to be the main funding source in order for the project to be feasible.

Other Mitigation Activities

Radcliffe has not received any Federal or State funding in the past couple years for mitigation projects.

Radcliffe does not participate in Hardin County's CodeRED system. With participation in the system, Radcliffe residents are notified of emergency situations in their area or across the entire county through messages by telephone. Both land lines and cell phones can be registered. Hardin County's system has been up and running for two years. Its license expired in May, 2011 and the county is debating renewing due to little use by county jurisdictions.

City of Steamboat Rock

Overview

Steamboat Rock is located at the intersection of County Road D35 and S56, in east central Hardin County. It is approximately a half mile to U.S. Highway, going north.

Figure 3.2.9: City of Steamboat Rock

The City of Steamboat Rock has had two names in its history – that of "Lithopolis," and "Steamboat Rock.", according to *Steamboat Rock Anchored in History*, compiled by Terry L. Folkerts.

> Lithopolis may have been the name given, when the town was platted, or it was taken from the name of the postal station that was established in 1856. There is also evidence that there were those who wanted it to remain as the name of the town.
>
> Around the time the town was platted, some of the first citizens organized a Literary Society, which met during the winter of 1856-57. These early settlers from the east are thought to have "officially" given the town the name "Lithopolis" (Stone-City) on January 6, 1857 thinking that the Latin name was most appropriate for the intellectual status of the citizenry.
>
> Others have speculated that the name meaning stone city, came because many of the original houses and buildings were built of stone. On June 6, 1870, the name was changed to Steamboat Rock, and made official five years prior to the town's incorporation.
>
> An explanation of the name Steamboat Rock comes from A.S. Root who located there in January 1857 and built and managed the hotel for 28 years: 'There is…inside the corporate limits, a point where a creek flows into the river. At this place… the current of the stream strikes the bank almost square. With the creek washing along there, the water had wore that bank so for a distance of 300 feet, that it looked like the side of a steamboat. As a result Mr. Lesh, so he told me, suggested Steamboat Rock as a name for the town. There was a projection like a wheel house and a pine tree stood on top. Since then lightening struck the tree and the wheel house projection dropped off so that the place does not retain so distinct an appearance like a steamboat…' (Steamboat Rock Historical Society)

Utilities and Services

The City of Steamboat Rock provides water and solid waste removal to Steamboat Rock residents. Safety services are also provided by the City except law enforcement, which is provided by Hardin County, and ambulance which is contracted out of Eldora. Steamboat Rock does have a fuel station/convenience store but no grocery or medical clinic. Residents must travel to Eldora for these services.

Table 3.2.9: Steamboat Rock Utilities and Services

Service	Provider
Electricity	Alliant
Gas	Alliant
Water	City of Steamboat Rock
Phone Services	Heart of Iowa
Cable/Internet Provider	Heart of Iowa
Emergency Medical Service	First Responders and Eldora Ambulance
Law Enforcement	Hardin County Sheriff
Fire Protection	Steamboat Rock Volunteer Fire Dept
Warning System	Warning siren with backup, set off by Sherriff
HazMat Assistance	Northeast Iowa Response Group - Waterloo
Fuel Station	Rock Stop
Grocery/Convenience	Rock Stop
Solid Waste Removal	City of Steamboat Rock
Landfill	Hardin County
Library	Steamboat Rock Public Library
Recycling	Hardin County
Public Transit	Peoplerides
Medical Clinic	None

There are no fire departments in Hardin County with the capability of dealing with major hazardous materials incidents. This service is provided by the Northeast Iowa Response Group (NIRG), in Waterloo, because that fire department has the needed training and equipment. The local fire department must decide whether or not to contact Waterloo's Fire Department for assistance.

City Government and Regulation

Steamboat Rock is governed by a mayor and 5-member city council that maintains and enforces the City's Code of Ordinances. On the first Monday of each month, the mayor and council hold a meeting. Steamboat Rock's Code include building codes but no zoning code.

The Steamboat Rock does not participate in the NFIP according to information from Iowa Homeland Security.

Technical and Fiscal Resources

The City of Steamboat Rock operates like many small cities in Iowa. The mayor, council, city clerk, and maintenance staff handle the city's daily and long-term operations. Short-term and long-term planning needs like grant writing and management and plan preparation are usually handled by the local council of government, the Region 6 Planning Commission. The City of Steamboat Rock is a member of the Commission.

There are multiple ways the City of Steamboat Rock could finance a hazard mitigation project. Steamboat Rock only maintains the city's water system so fees from utilities are not plentiful but can be used toward debt incurred for projects. The financing resources available to the City of Steamboat Rock are below.

- Grants
- General obligation bonds (up to 5% of City's valuation)
- Revenue bonds through publicly secured sources (utility fees, road use tax, local option sales tax in accordance with approved referendum, revenue from certain enterprises, and tax increment financing)
- Capital improvements fund
- Special assessment taxes

Finance tools like impact fees cannot be used to fund projects because they are considered unconstitutional in the State of Iowa. For most projects in Steamboat Rock, grants would need to be the main funding source in order for the project to be feasible.

Other Mitigation Activities

In the past several years, Steamboat Rock has been granted money for sewer improvements.

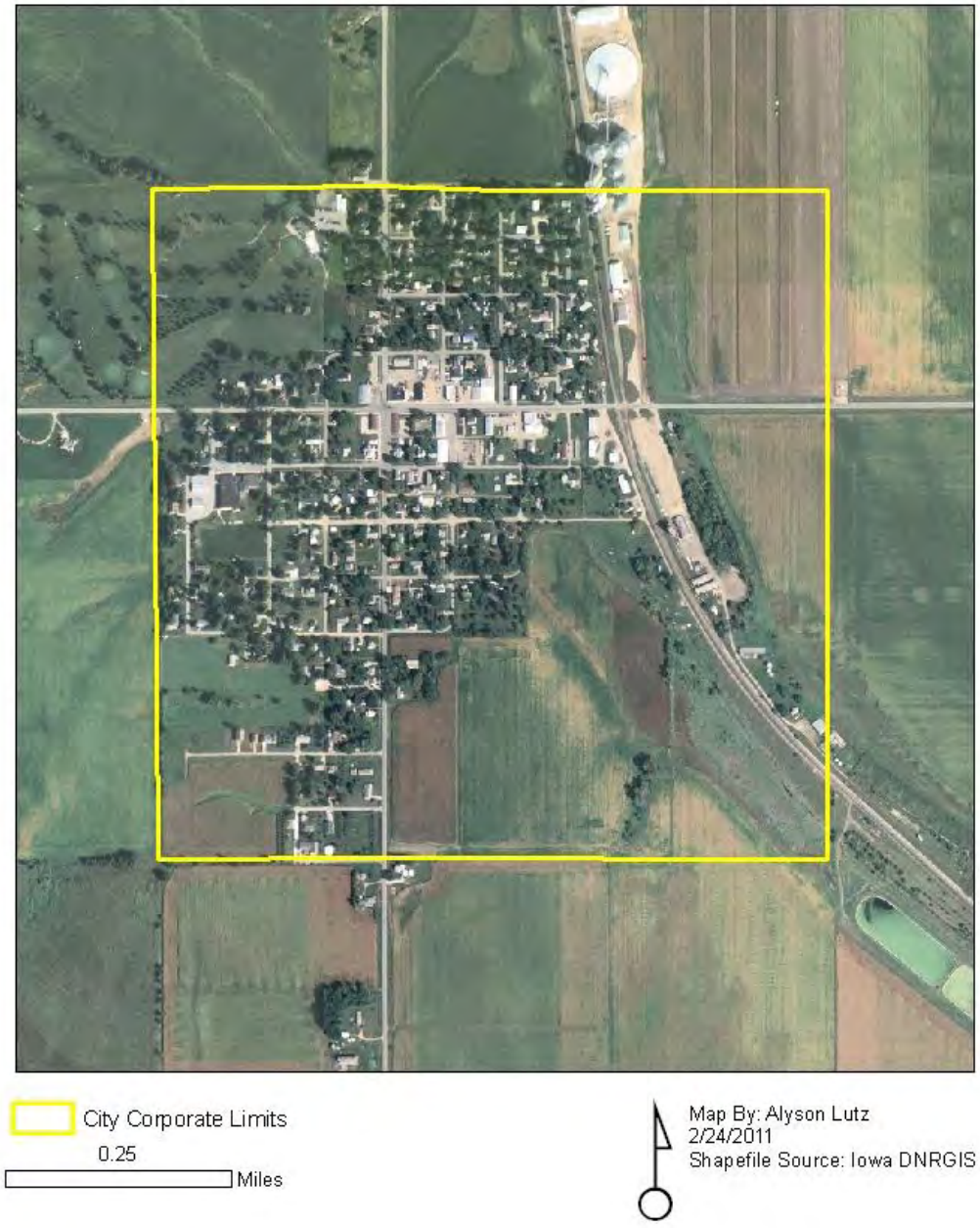
Steamboat Rock does not participate in Hardin County's CodeRED system. With participation in the system, Steamboat Rock residents are notified of emergency situations in their area or across the entire county through messages by telephone. Both land lines and cell phones can be registered. Hardin County's system has been up and running for two years. Its license expired in May, 2011 and the county is debating renewing due to little use by county jurisdictions.

City of Union

Overview

Union is located very close to the Hardin/Grundy County border, in southeastern Hardin County at the point where County Road S62 and D65 intersect.

Figure 3.2.10: City of Union



Some history of the City of Union can be found on their website;

> Union is a small rural village built on the bluffs of the Iowa River. Union was the first community in Hardin County. Greenberry Haggin and his family entered this land in 1849, as the only white persons residing in Hardin County. The early settlers were mostly Quakers from North Carolina. Ethnic groups were primarily English and Irish with a few Germans. Almost all were farmers or had farm related interests. Union's Annual Tar Heel Days is named in honor of those early settlers from North Carolina, the "Tar Heel" state.
>
> The main attraction for settlers was the prime farm land. The Iowa River provided water for saw mills and flour mills. There was timberland along the Iowa River for hunting small game, house building and firewood. Coal was mined north of Union.
>
> Today, the principal industry is still agriculture. The factors that have made farming more efficient in terms of labor, such as research in plant breeding, veterinary medicine, and crop production , have also influenced population trends in the area. The town of Union, with strong support from its citizens, is striving to grow with the times while maintaining its valuable small town characteristics. (City of Union, 2011)

Utilities and Services

The City of Union provides water utilities to Union residents. Safety services are also provided by the City except law enforcement, which is provided by Hardin County. Union has a fuel station, grocery/convenience store, but no medical clinic. Residents must travel to other cities for these services.

Table 3.2.10: Union Utilities and Services

Service	Provider
Electricity	Alliant
Gas	Alliant
Water	City of Union
Phone Services	Heart of Iowa
Cable/Internet Provider	Heart of Iowa
Emergency Medical Service	Union Ambulance
Law Enforcement	Hardin County Sheriff
Fire Protection	Union Volunteer Fire Dept
Warning System	Warning Siren with backup, set off by Eldora
HazMat Assistance	Northeast Iowa Response Group - Waterloo
Fuel Station	Ginger Snap and Coop
Grocery/Convenience	Gingersnap and Coop
Solid Waste Removal	Knight Sanitation
Landfill	Knight Sanitation
Library	Union Public Library
Recycling	Moler Sanitation
Public Transit	Peoplerides
Medical Clinic	None

There are no fire departments in Hardin County with the capability of dealing with major hazardous materials incidents. This service is provided by the Northeast Iowa Response Group (NIRG), in Waterloo, because that fire department has the needed training and equipment. The local fire department must decide whether or not to contact Waterloo's Fire Department for assistance.

City Government and Regulation

Union is governed by a mayor and 5-member city council that maintains and enforces the City's Code of Ordinances. On the first Monday of each month, the mayor and council hold a meeting. Union's Code includes building codes but no zoning code.

The City of Union is a participant in the NFIP according to information from Iowa Homeland Security. As of 05/31/2009, the community has 6 policies in place with $628,600 worth of insurance in force. There have been 4 paid losses worth $1,613.51.

Technical and Fiscal Resources

The City of Union operates like many small cities in Iowa. The mayor, council, city clerk, and maintenance staff handle the city's daily and long-term operations. Short-term and long-term planning needs like grant writing and management and plan preparation are usually handled by the

local council of government, the Region 6 Planning Commission. The City of Union is a member of the Commission.

There are multiple ways the City of Union could finance a hazard mitigation project. Union maintains the city's water system so fees from that utility can be used toward debt incurred for projects. The financing resources available to the City of Union are below.

- Grants
- General obligation bonds (up to 5% of City's valuation)
- Revenue bonds through publicly secured sources (utility fees, road use tax, local option sales tax in accordance with approved referendum, revenue from certain enterprises, and tax increment financing)
- Capital improvements fund
- Special assessment taxes

Finance tools like impact fees cannot be used to fund projects because they are considered unconstitutional in the State of Iowa. For most projects in Union, grants would need to be the main funding source in order for the project to be feasible.

Other Mitigation Activities

Union has not received any Federal or State funding for mitigation projects in the past few years.

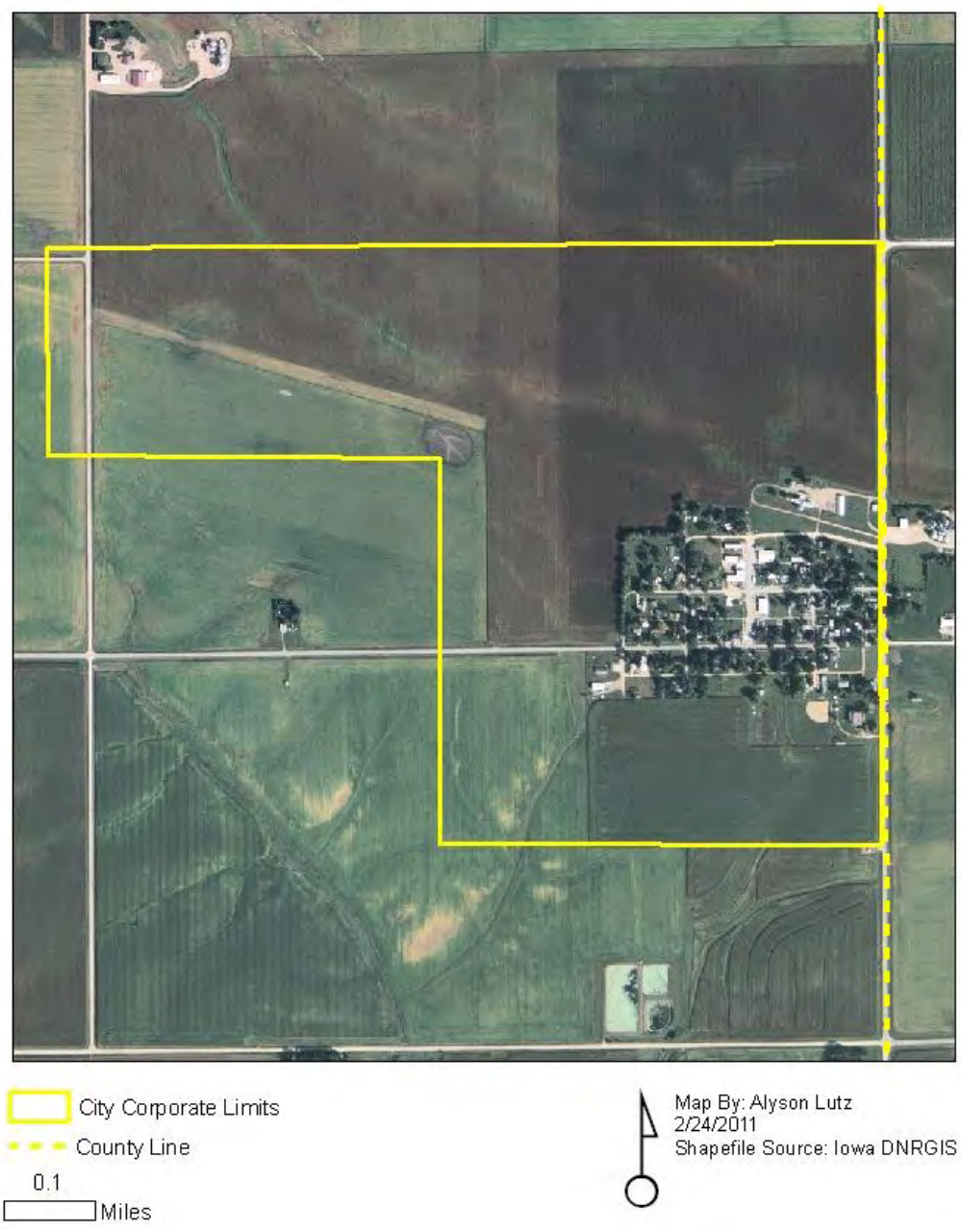
Union does not participate in Hardin County's CodeRED system. With participation in the system, Union residents are notified of emergency situations in their area or across the entire county through messages by telephone. Both land lines and cell phones can be registered. Hardin County's system has been up and running for two years. Its license expired in May, 2011 and the county is debating renewing due to little use by county jurisdictions.

City of Whitten

Overview

Whitten is located on the Hardin/Grundy County border, in southeastern Hardin County at the point where County Road D65 intersects B Ave (the county line).

Figure 3.2.11: City of Whitten



The City of Whitten was named for C.C. Whitten, who helped get the railroad built in Hardin County. Whitten is one of the smallest cities in the county located in Union Township.

Utilities and Services

The City of Whitten does not provide any utilities to the residents. All those services are contracted to public and private companies. Safety services are provided by the City except law enforcement, which is provided by Hardin County, and ambulance. As for other services, Whitten does not have a fuel station, grocery/convenience store, or a medical clinic. Residents must travel to Eldora or Grundy County for those services.

Table 3.2.11: Whitten Utilities and Services

Service	Provider
Electricity	Alliant
Gas	Alliant
Water	Central Iowa Water Association
Phone Services	Heart of Iowa
Cable/Internet Provider	Heart of Iowa
Emergency Medical Service	None
Law Enforcement	Hardin County Sheriff
Fire Protection	Whitten Volunteer Fire Dept
Warning System	Warning sire with backup, set off by fire chief
HazMat Assistance	Northeast Iowa Response Group - Waterloo
Fuel Station	None
Grocery/Convenience	None
Solid Waste Removal	Moler Sanitation
Landfill	Hardin County Landfill
Library	None
Recycling	Moler Sanitation
Public Transit	Peoplerides
Medical Clinic	None

There are no fire departments in Hardin County with the capability of dealing with major hazardous materials incidents. This service is provided by the Northeast Iowa Response Group (NIRG), in Waterloo, because that fire department has the needed training and equipment. The local fire department must decide whether or not to contact Waterloo's Fire Department for assistance.

City Government and Regulation

Whitten is governed by a mayor and 5-member city council that maintains and enforces the City's Code of Ordinances. On the first Tuesday of each month, the mayor and council hold a meeting. Whitten's Code does not include building codes or a zoning code. The City of Whitten does not participate in the NFIP according to information from Iowa Homeland Security.

Technical and Fiscal Resources

The City of Whitten operates like many small cities in Iowa. The mayor, council, city clerk, and maintenance staff handle the city's daily and long-term operations. Short-term and long-term planning needs like grant writing and management and plan preparation are usually handled by the local council of government, the Region 6 Planning Commission. The City of Whitten is a member of the Commission.

There are multiple ways the City of Whitten could finance a hazard mitigation project. Whitten does not provide any utility services so no fees from utilities can be used toward debt incurred for projects. The financing resources available to the City of Whitten are below.

- Grants
- General obligation bonds (up to 5% of City's valuation)
- Revenue bonds through publicly secured sources (utility fees, road use tax, local option sales tax in accordance with approved referendum, revenue from certain enterprises, and tax increment financing)
- Capital improvements fund
- Special assessment taxes

Finance tools like impact fees cannot be used to fund projects because they are considered unconstitutional in the State of Iowa. For most projects in Whitten, grants would need to be the main funding source in order for the project to be feasible.

Other Mitigation Activities

Whitten has not been granted any Federal or State funding for mitigation projects in the past few years.

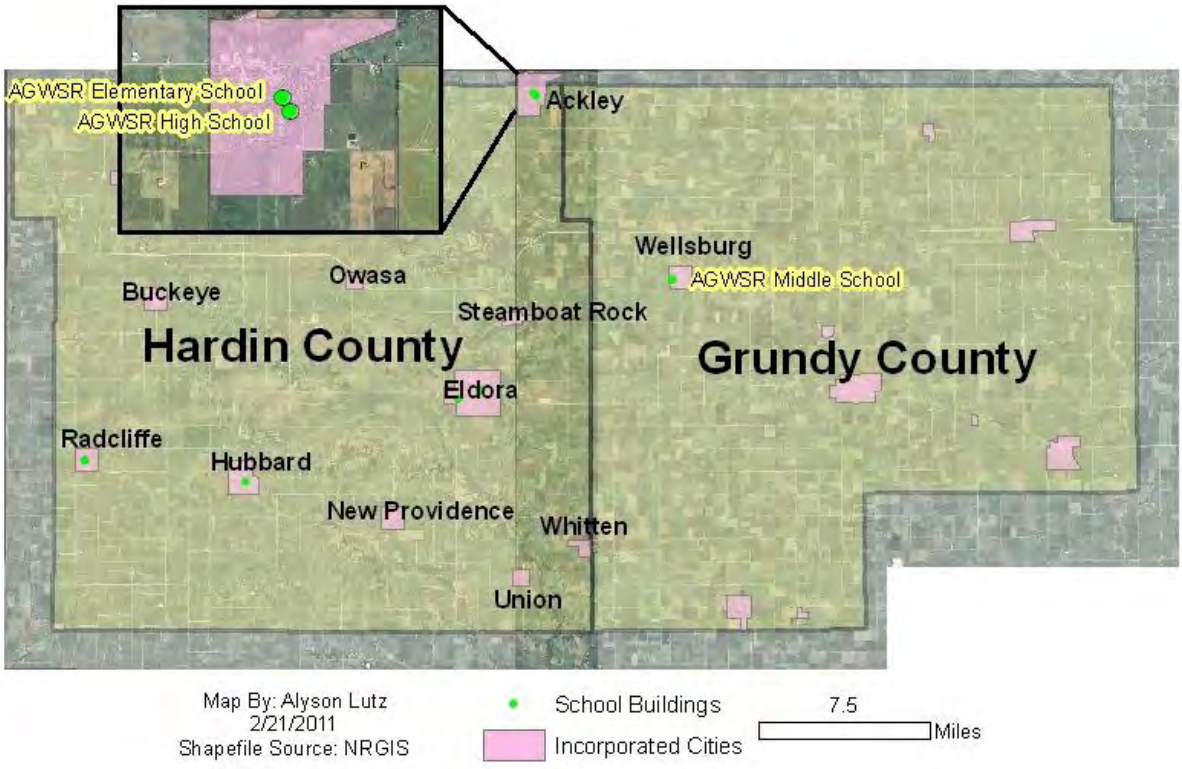
Whitten does not participate in Hardin County's CodeRED system. With participation in the system, Whitten residents are notified of emergency situations in their area or across the entire county through messages by telephone. Both land lines and cell phones can be registered. Hardin County's system has been up and running for two years. Its license expired in May, 2011 and the county is debating renewing due to little use by county jurisdictions.

Hardin County School Districts

AGWSR Community School District

The AGWSR Community School District is located in Ackley, Iowa, a town in the very northeast corner of Hardin County, and Wellsburg, Iowa, located in west central Grundy County. There are 16 miles between the 2 towns. AGWSR serves the communities of Ackley, Geneva, Steamboat Rock, and Wellsburg which are scattered in the 4 counties of Butler, Franklin, Grundy, and Hardin. These towns are each located within 17 miles of the high school and middle school, in Ackley. This district contains the AGWSR Elementary, Middle and High Schools with enrollments of 142, 201, and 206, respectively for the 2010-2011 school year. For more information, visit their website at http://www.ackley.k12.ia.us/.

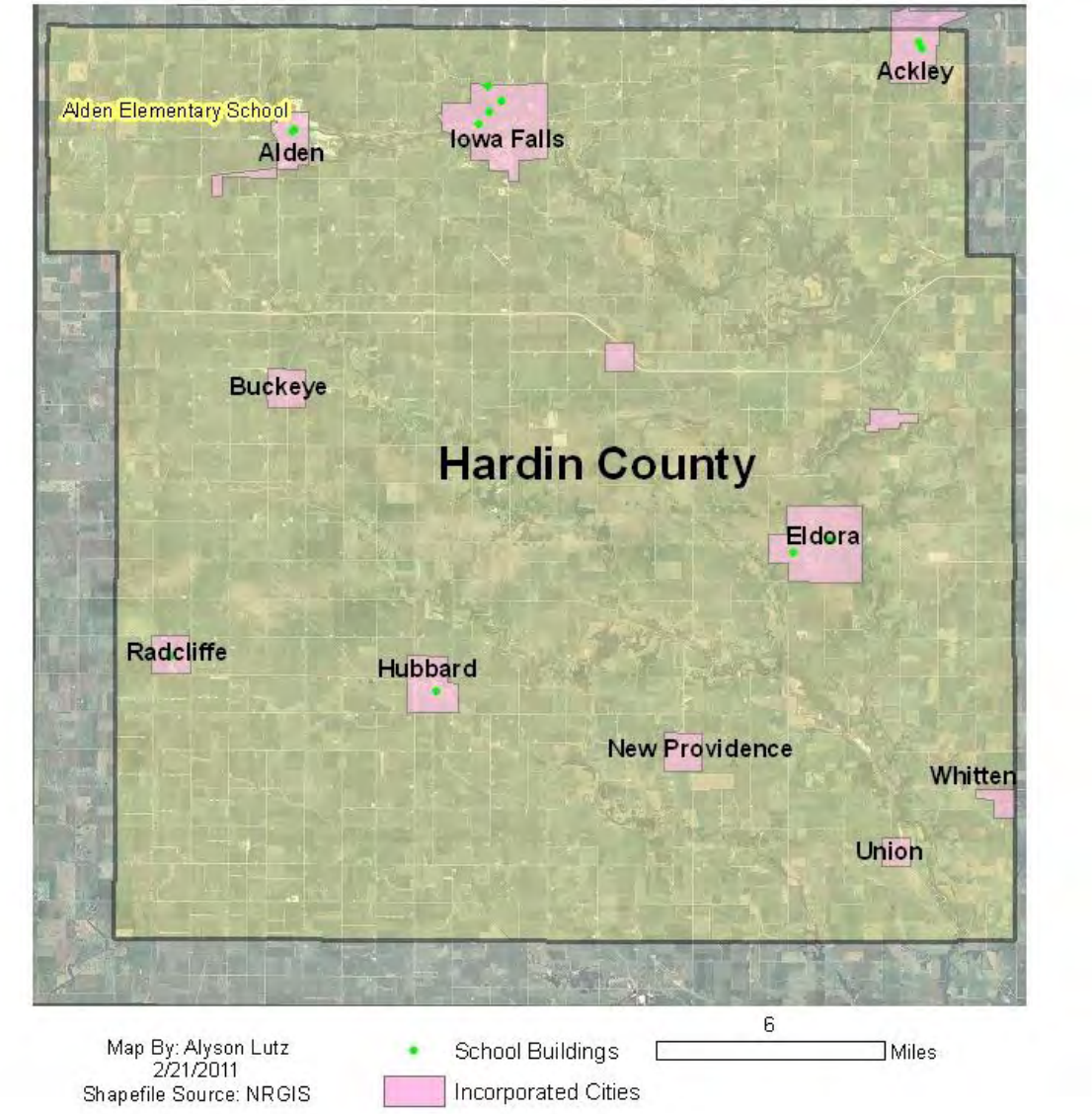
Figure 3.2.12: AGWSR Community School District Buildings



Alden Community School District

The Alden Community School District is located in Alden, Iowa. This school district only has one school, the Alden Elementary School. All children feed into the Iowa Falls School District after elementary school. Though the district shares a superintendent with Iowa Falls CSD, they are two separate districts with two separate boards of education. With a 259 student enrollment for the 2009-2010 school year, the Alden Community School District is the smallest in Hardin County. For more information, visit their website at http://www.alden.k12.ia.us.

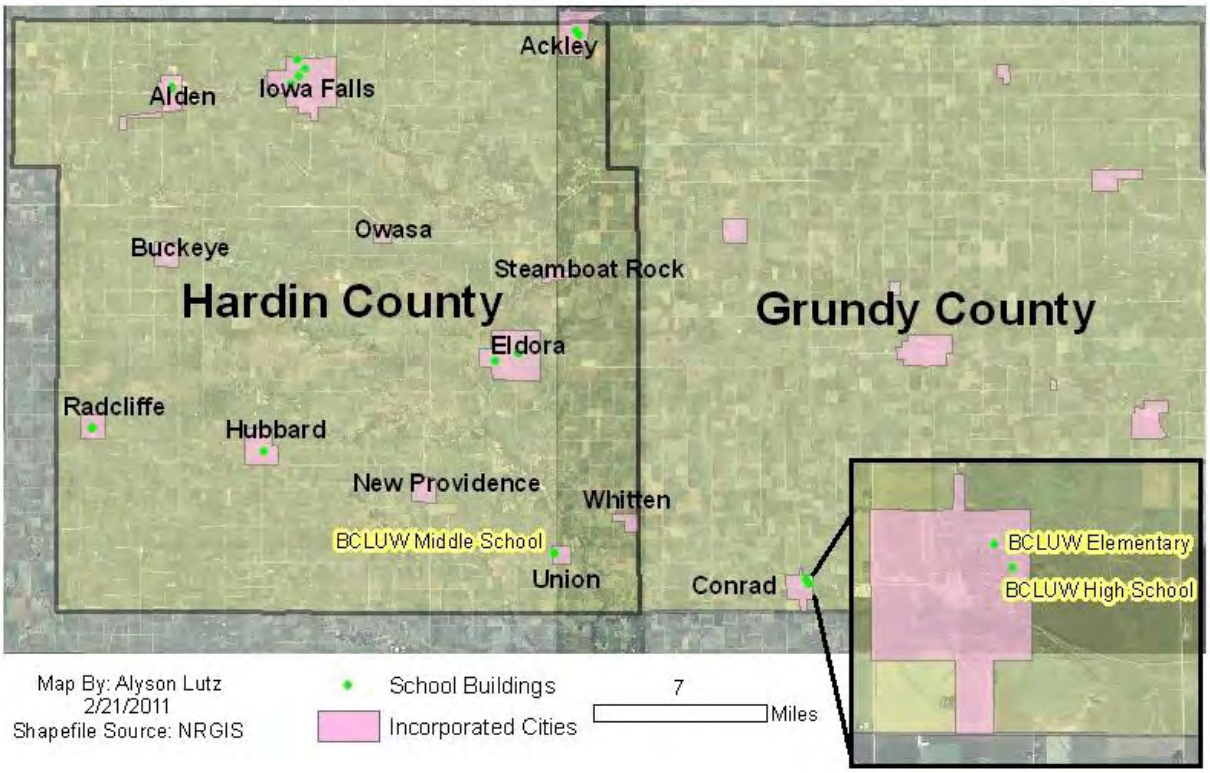
Figure 3.2.13: Alden Community School District Buildings



BCLUW Community School District

The BCLUW Community School District serves the communities of Beaman, Conrad, Liscomb, Union, and Whitten. This district is unique in that its jurisdiction stretches across a county boundary line. This district's offices are located in Conrad which is in the south west portion of Grundy County. The school buildings are split between the two cities of Union (located in the south east portion of Hardin County) and Conrad which are about 10 miles apart. Enrollment for this school district is split between the high school, middle school, and elementary school with 225, 184, and 217, respectively for the 2010-2011 school year. This is a total of 626, for the district. For more information, visit their website at http://www.bcluw.k12.ia.us.

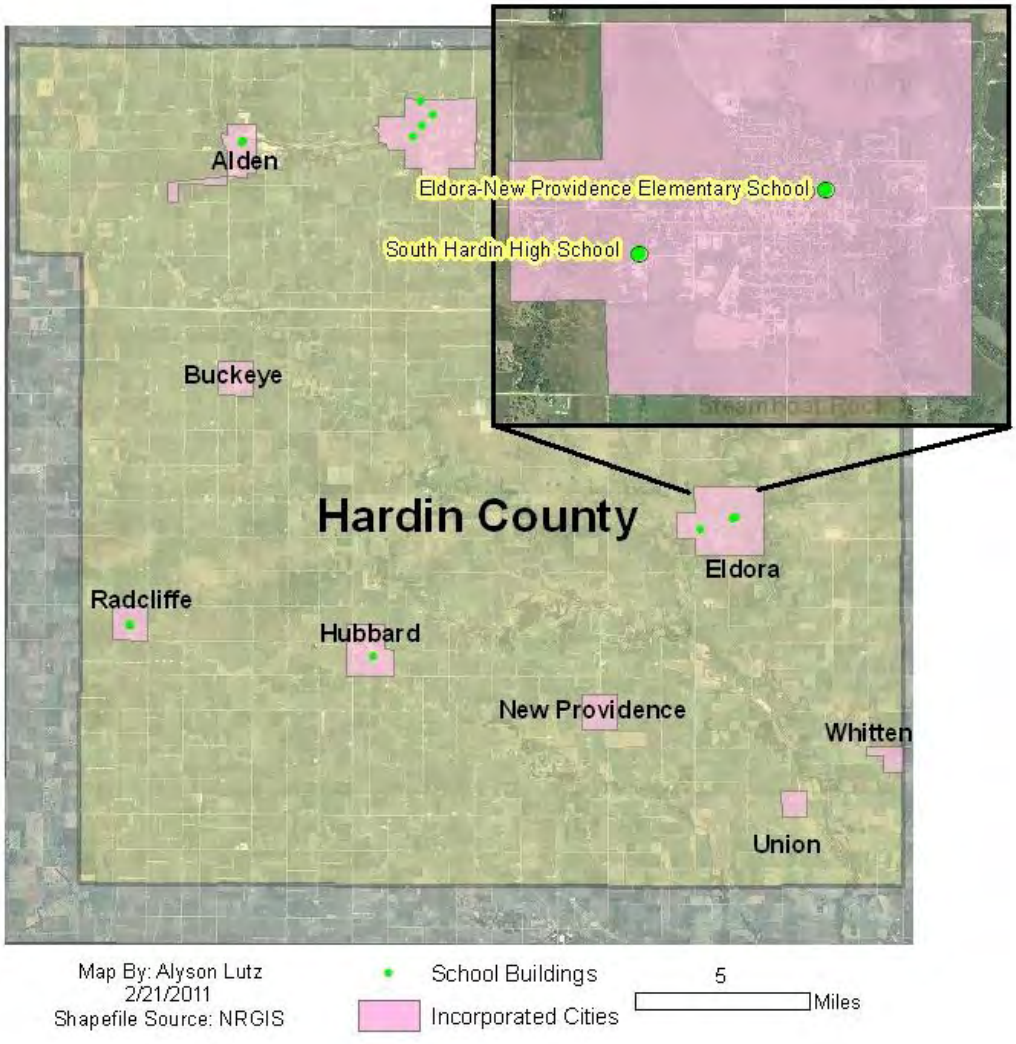
Figure 3.2.14: BCLUW Community School District Buildings



Eldora-New Providence Community School District

The Eldora-New Providence Community School District is located in Eldora, Iowa the county seat of Hardin County. Eldora is located in the east central portion of the county. This district contains the South Hardin High School and Eldora-New Providence Elementary School with 293 and 297 students (a total of 580) enrolled for the 2010-2011 school year. For more information, visit their website at http://www.eldora-np.k12.ia.us.

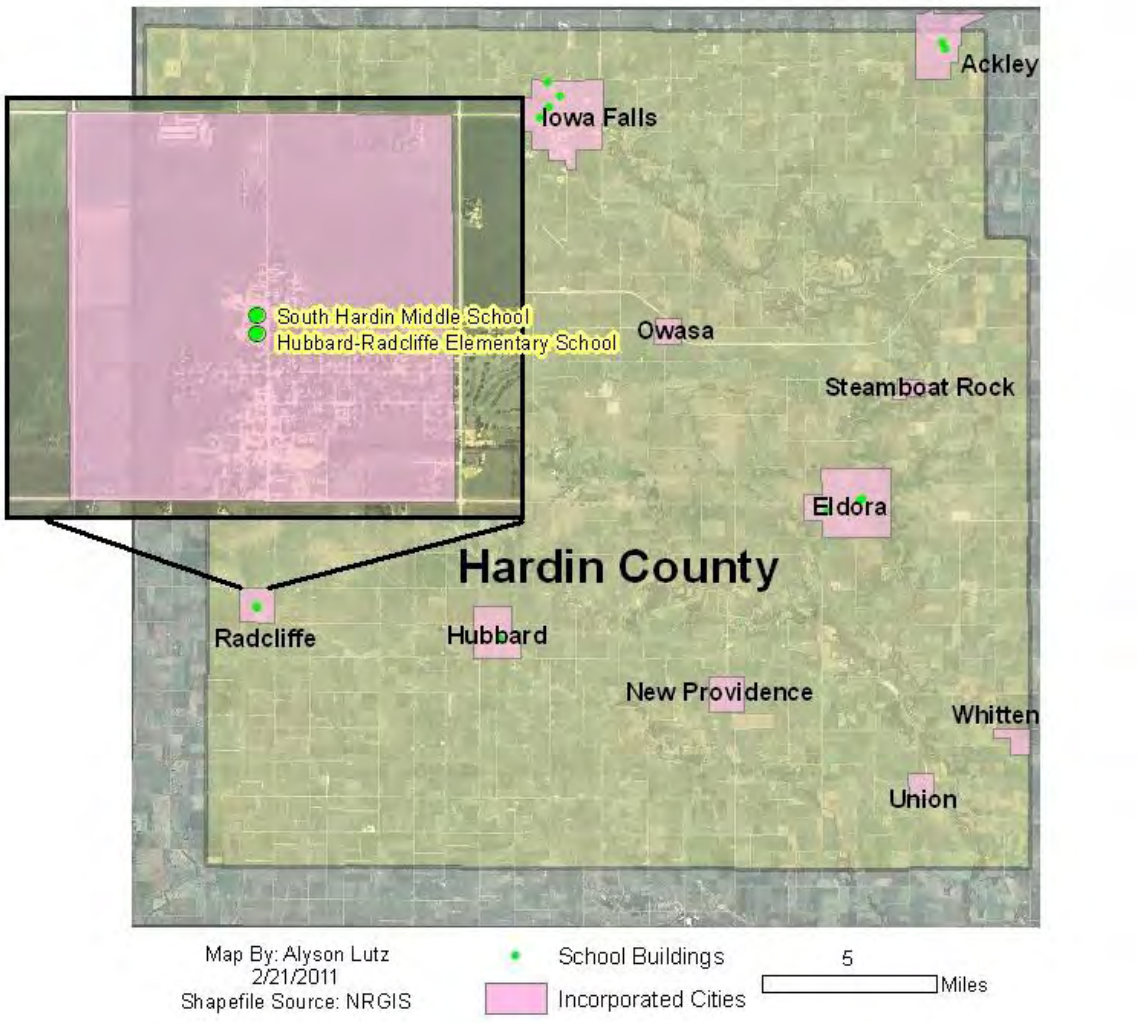
Figure 3.2.15: Eldora-New Providence Community School District Buildings



Hubbard-Radcliffe Community School District

The Hubbard-Radcliffe Community School District is located in Radcliffe, Iowa but also serves the City of Hubbard. Both communities are located in the west central portion of the county. This district contains the South Hardin Middle School with a 201 student enrollment, and Hubbard-Radcliffe Elementary School with a 170 student enrollment for the 2009-2010 school year. These schools feed into the South Hardin High School in Eldora. For more information, visit their website at http://www.hubbard.k12.ia.us.

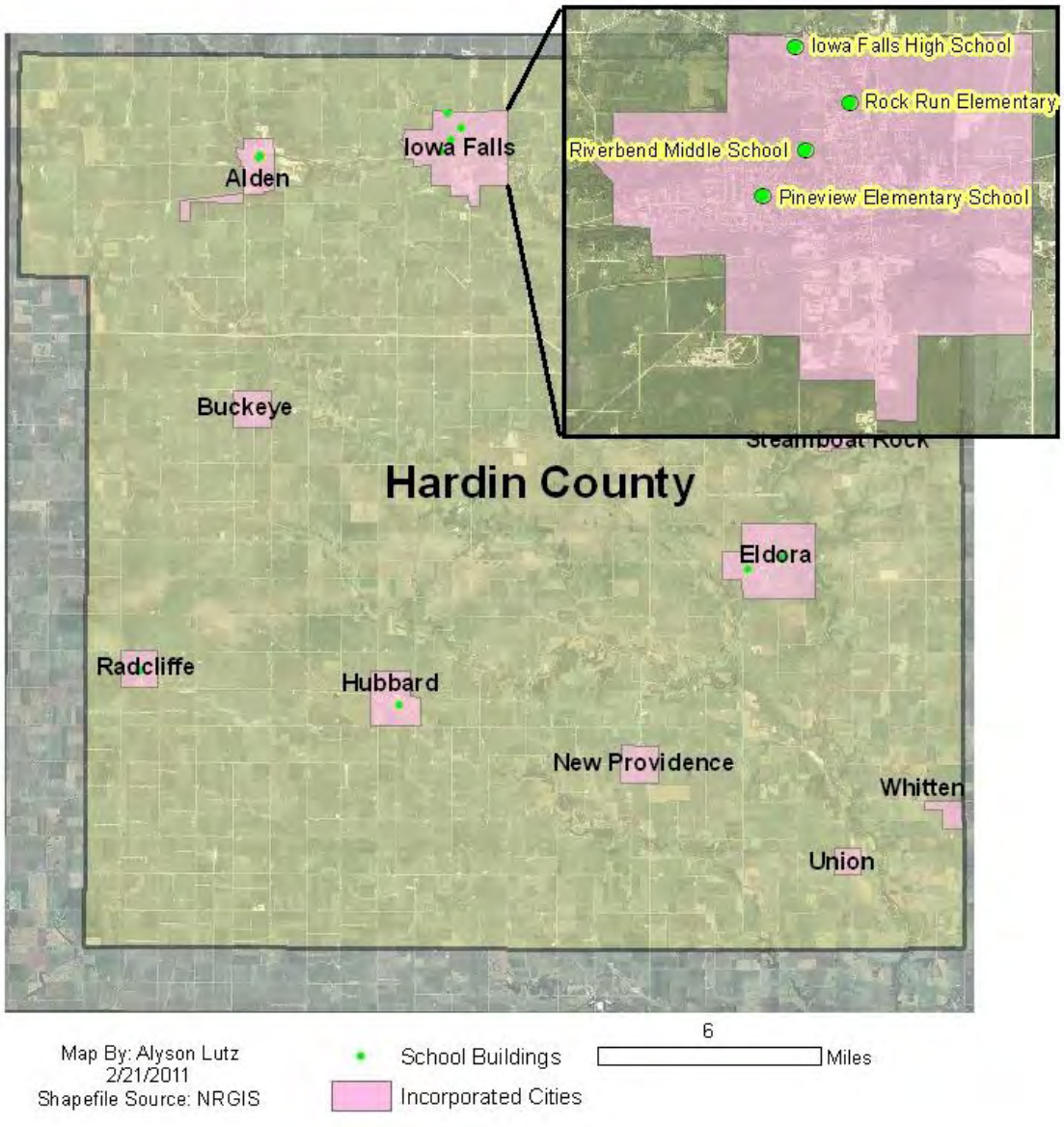
Figure 3.2.16: Hubbard-Radcliffe Community School District Buildings



Iowa Falls-Alden Community School District

The Iowa Falls Alden Community School District is located in Iowa Falls, Iowa. Iowa Falls is located in the north central portion of the county. This district contains the Pineview Elementary with 267, Rock Run Elementary with 255, Riverbend Middle with 185, and Iowa Falls-Alden High School with a 412 student enrollment for the 2010-2011 school year. With a total of 1,119 students enrolled, the Iowa Falls Alden Community School District is the largest school district in Hardin County. For more information, visit their website at http://www.iowa-falls.k12.ia.us/.

Figure 3.2.17: Iowa Falls Community School District Buildings



Government and Regulation

All of the school districts in Iowa are governed by a local school board that is elected by the public. School boards in Hardin County have either a five or seven-member board depending on how the district is divided. One member of the school board is chosen to be its president. Each school district's school board has several responsibilities and legal authorities. According to the Iowa Association of School Boards, some of the authorities include:

- Determine major educational goals and objectives, and implement a means of attaining the goals (mitigation through education)
- Adopt board policy which establishes the rules governing the operations of the school district (mitigation integrated into school policy)
- Utilize funds received through gifts, devises and bequests in the general or schoolhouse fund, unless limited by the terms of the grant (funding for mitigation projects)
- Insure against loss of property (major mitigation goal)
- Determine attendance centers for the district and the particular school each child will attend (determine the distance students must travel)
- Provide transportation services (transportation is extremely vulnerable to hazards)
- Incur indebtedness when authorized by the voters of the school corporation at an election (funding for mitigation projects)

This is not an exhaustive list of authority, but these are the authorities most relevant to hazard mitigation. Overall, the school board of the Hardin County school district can be extremely influential in the effectuation of hazard mitigation projects.

Aside from the school board, the superintendent and school district staff are extremely important to the operation of the school district. The superintendent is appointed by the school board and given the responsibility of running the daily and long-term operations of the school district. Along with each school building's principal, teachers, and staff, the superintendent is a key person in completing a hazard mitigation project.

Like all school districts in Iowa, each school building has emergency response plans in place. Emergency response activities like fire drills and student relocation during tornadoes or severe storms are practiced regularly. Many school buildings, though, do not have any prevention or mitigation measures in place.

Technical and Fiscal Resources

Each school district's school board, superintendent and staff, principals, teachers, and school staff are responsible for the district and each school building's daily and long-term operations. The public does have quite a bit of influence because it elects school board members and approves school tax levies in the community. Most planning efforts are handled within the school district and community unless recreational trails or hazard mitigation are involved. In those cases, the local council of government often gets involved.

Other Mitigation Activities

Each school district has plans and procedures for handling many hazards already like fire, tornado, severe weather, etc. The established procedures for these hazards are practiced on a regular basis through planned drills at school facilities. The Iowa Falls Community School District has applied twice in the past for Safe Routes to School money as the need arises, but was not funded either time. This program not only encourages kids to bike and walk to school, but helps school districts fund sidewalk and trail additions and improvements, which may help reduce traffic accidents involving pedestrians.

4 Risk Assessment

44 CFR Requirement §201.5(c)(2): [The plan shall include] a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.

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 Hardin County, including loss of life, personal injury, property damage, and economic loss from a hazard event. The risk assessment process allows communities in Hardin County to better understand their potential risk from natural hazards and provide a framework for developing and prioritizing mitigation actions to reduce risk from future hazard events. (Adapted from the Neosho County, MO 2009 Multi-hazard Mitigation Plan)

4.1 Hazard Identification

Ultimately, the hazards chosen for the plan were determined by the Planning Team. First, Region 6 identified the hazards most likely to affect the county based on the 2007 Iowa Hazard Mitigation Plan, past disaster declarations in Iowa, research, and knowledge of the area.

Iowa has experienced 28 presidential declared disasters since 1990. The state's most recent disasters occurred in late summer of 2010, when severe storms and flooding caused significant impacts in Central Iowa. Iowa's disaster declarations are listed below.

Table 4.1.1: Disaster Declarations in Iowa 1990-2010

Date Declared	Disaster Type
7/29/2010	Severe Storms, Flooding, Tornadoes
7/27/2010	Severe Storms and Flooding
3/2/2010	Severe Winter Storms
2/25/2010	Severe Winter Storms
8/13/2009	Severe Storm
5/27/2008	Severe Storms, Tornadoes, Flooding
1/4/2008	Severe Winter Storm
9/14/2007	Severe Storms, Flooding
5/25/2007	Severe Storms, Flooding, Tornadoes
3/30/2007	Snow
3/14/2007	Severe Winter Storms
9/10/2005	Hurricane Katrina Evacuation
5/25/2004	Severe Storms, Tornadoes, Flooding
6/19/2002	Severe Storms, Flooding
5/2/2001	Severe Storms, Flooding
7/22/1999	Severe Storms, Flooding
5/21/1999	Severe Storms, Flooding, Tornadoes
7/2/1998	Severe Weather, Tornadoes, Flooding
11/20/1997	Severe Snow Storms
8/21/1996	Flooding
6/24/1996	Flooding
7/9/1993	Flooding, Severe Storm
4/26/1993	Flooding, Severe Storm
10/2/1992	Flooding, Severe Storm
12/26/1991	Ice Storm
7/12/1991	Flooding, Severe Storm
9/9/1990	Flooding, Severe Storm
5/26/1990	Flooding, Severe Storm

Data Source: Iowa Homeland Security, April 2010

According to Iowa's presidential disaster declaration history, severe storms, severe winter storms, tornadoes, and flooding are the hazards that most frequently reach disastrous levels. Hardin County was not included in all of these disaster declarations. According to available data, Hardin County was included in ten disaster declarations since 1990. These disasters involved the hazards listed as reaching disastrous levels most often.

To start narrowing down the number of hazards, Region 6 started with the list of hazards that includes all those identified in Iowa's 2007 hazard mitigation plan. Refer to Table 1.1 for the full list. Based on research, Region 6 identified 25 unique hazards from the comprehensive list that could possibly affect Hardin County. The hazards that were considered a general threat are listed in Table 4.1.2.

Table 4.1.2: Probable Hardin County Hazards

Natural Hazards	Man-made Hazards
Drought	Animal/Crop/Plant Disease
Dam Failure	Communications Failure
Earthquake	Energy Failure
Extreme Heat	Hazardous Materials Incident
Expansive Soils	Highway Transportation Incident
Flash Flood	Pipeline Transportation Incident
Grass or Wildland Fire	Railway Transportation Incident
Hailstorm	Structural Failure
Landslide	Structural Fire
Levee Failure	
River Flood	
Severe Winter Storm	
Sinkholes	
Thunderstorms and Lightning	
Tornado	
Windstorm	

At the countywide meetings, the Planning Team was asked to agree or disagree with the list of hazards in Table 4.1.2. The entire list of possible hazards (Table 1.1 minus Agro-Terrorism and Human Pandemic Disease) was provided so Planning Team members could add hazards to the list. Members were also able to eliminate hazards if they could provide sufficient reasoning. Hazards not on the list were also welcome to be added. There was no mention of any agro-terrorism and human pandemic disease by any Planning Team members so the hazard list oversight may not have affected the results. The final list of hazards for Hardin County is found on the next page.

The final list of hazards for Hardin County includes all except three of the natural hazards suggested by Iowa's State Hazard Mitigation Plan. About half of the man-made hazards identified in the Iowa Hazard Mitigation Plan are included, too. The three hazards removed from the list are expansive soils, landslides, and levee failure because they are not an issue in Hardin County.

44 CFR §201.6(c)(2)(i): *[The risk assessment shall include a] description of the type… of all natural hazards that can affect the jurisdiction…*

The following table lists all the natural hazards along with all of the manmade hazards that could possibly affect Hardin County. Definitions are included so there is consistency in how each hazard is understood in the context of this plan.

Table 4.1.3: Hardin County Hazards and Definitions

Hazard	Definition
Drought	Lack of precipitation for a long period of time
Dam Failure	A break in or threat from any water retention fixture
Earthquake	Shaking or vibrating of the earth
Extreme Heat	Temperatures in excess of 100 degrees Fahrenheit or 3 days of 90+ degrees
Flash Flood	Flooding with little or no warning where water levels rise at a fast rate
Grass or Wildland Fire	Uncontrolled fire that threatens life and property
Hailstorm	Balls or irregularly shaped lumps of ice fall with rain
River Flood	Rising or overflowing of a body of water onto adjacent land
Severe Winter Storm	Severe winter weather conditions that affect day-to-day activities
Sinkholes	Collapsed land surface
Thunderstorms and Lightning	Heavy rains, high speed winds, tornadoes, hail
Tornado	Rotating column of air with wind speeds that can exceed 200 miles per hour
Windstorm	Extreme winds associated with severe storms
Animal/Crop/Plant Disease	Medical, health, or sanitation threat to wildlife or domestic animals
Communications Failure	Breakdown or disruption of normal communications
Energy Failure	Extended interruption of an energy source
Hazardous Materials Incident	Accidental release of chemical substances or mixtures that present a danger to the public
Highway Transportation Incident	Auto accident exceeding normal capabilities
Pipeline Transportation Incident	Break in a pipeline creates the potential for an explosion or leak of a dangerous substance (oil, gas, etc.)
Railway Transportation Incident	Derailment or accident threatening life and property
Structural Failure	Collapse of structures, includes roads, bridges, etc.
Structural Fire	Uncontrolled fire of structures that threatens life and property.

The natural hazards suggested by both FEMA and the State Hazard Mitigation Plan that are not being included in this particular plan are expansive soils, landslides, and levee failure. Expansive soils are not found in Hardin County and are not considered further in this Plan. Also, the lack of major elevation changes within Hardin County does not constitute a landslide threat to the people and property of Hardin County. Like expansive soils, landslides are not considered further in this Plan. There are no levees located in Hardin County.

Across Hardin County, there is variance in what hazards can affect particular jurisdictions. Some communities do not have a rail line and others are not susceptible to sinkholes. Hardin County is just one percent of Iowa's land area, but even in such a relatively small area, hazards vary in their coverage. Refer to Table 4.1.4 for the hazards identified for each jurisdiction in Hardin County.

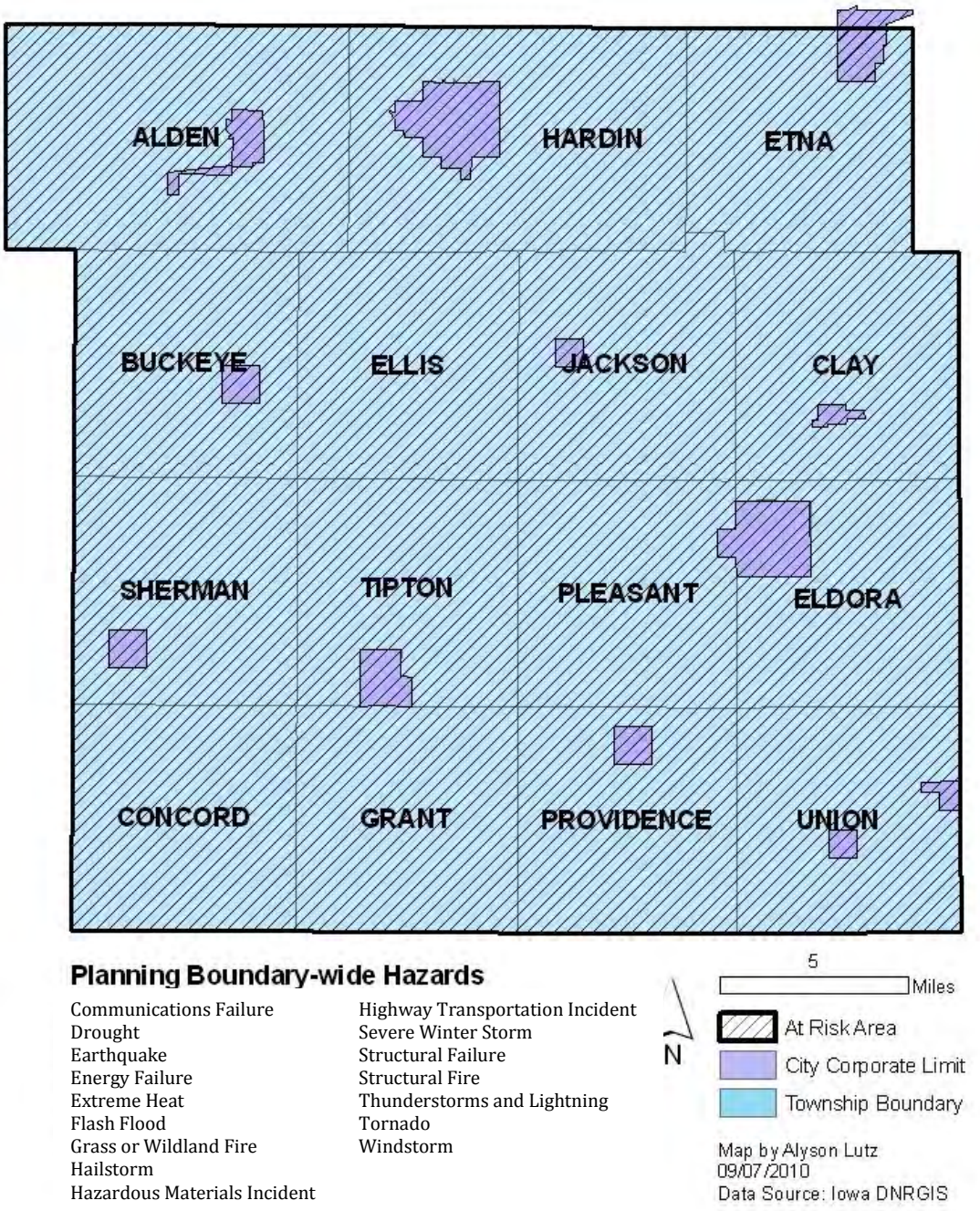
Table 4.1.4: Hardin County Hazard Boundaries

Hazard	Jurisdictions	Source(s) of Identification
Severe Winter Storm	All Jurisdictions	Local knowledge 2007 Iowa Hazard Mitigation Plan NCDC Data Past disaster declarations
Highway Transportation Incident	All Jurisdictions	Local knowledge 2007 Iowa Hazard Mitigation Plan Iowa DOT Data
Windstorm	All Jurisdictions	Local knowledge 2007 Iowa Hazard Mitigation Plan NCDC Data
Tornado	All Jurisdictions	Local knowledge 2007 Iowa Hazard Mitigation Plan NCDC Data Past Disaster Declarations
Flash Flood	All Jurisdictions	Local knowledge 2007 Iowa Hazard Mitigation Plan NCDC Data
Structural Fire	All Jurisdictions	Local knowledge 2007 Iowa Hazard Mitigation Plan Hardin County EMC Data
Hailstorm	All Jurisdictions	Local knowledge 2007 Iowa Hazard Mitigation Plan NCDC Data
Thunderstorms and Lightning	All Jurisdictions	Local knowledge 2007 Iowa Hazard Mitigation Plan NCDC Data
Hazardous Materials Incident	All Jurisdictions	Local knowledge 2007 Iowa Hazard Mitigation Plan Hardin County EMC Data
Energy Failure	All Jurisdictions	Local knowledge 2007 Iowa Hazard Mitigation Plan Hardin County EMC Data
River Flood	Ackley Alden Hubbard Iowa Falls Steamboat Rock Union Whitten Unincorporated Hardin County AGWSR School District Alden School District BCLUW School District Iowa Falls School District	Local knowledge 2007 Iowa Hazard Mitigation Plan NCDC Data FEMA FIRM Maps Past Disaster Declarations
Grass/Wildland Fire	All Jurisdictions	Local knowledge 2007 Iowa Hazard Mitigation Plan
Railway Transportation Incident	Ackley Alden Buckeye Eldora Iowa Falls Steamboat Rock Union Unincorporated Hardin County AGWSR School District Alden School District	Local knowledge 2007 Iowa Hazard Mitigation Plan Hardin County EMC Data

Railway Transportation Incident (Continued)	BCLUW School District Eldora-New Providence School Dist Iowa Falls School District	
Drought	All Jurisdictions	2007 Iowa Hazard Mitigation Plan
Animal/Crop/Plant Disease	Unincorporated Hardin County	Local knowledge 2007 Iowa Hazard Mitigation Plan
Pipeline Transportation Incident	Ackley Alden Eldora Hubbard Iowa Falls New Providence Radcliffe Steamboat Rock Union Whitten Unincorporated Hardin County AGWSR School District Alden School District BCLUW School District Eldora-New Providence School Dist Hubbard-Radcliffe School District Iowa Falls School District	Local knowledge 2007 Iowa Hazard Mitigation Plan Hardin County EMC Data
Extreme Heat	All Jurisdictions	Local knowledge 2007 Iowa Hazard Mitigation Plan NCDC Data
Structural Failure	All Jurisdictions	Local knowledge 2007 Iowa Hazard Mitigation Plan Hardin County EMC Data
Sinkholes	Ackley Alden Buckeye Eldora Iowa Falls Steamboat Rock Union Unincorporated Hardin County AGWSR School District Alden School District BCLUW School District Eldora-New Providence School Dist Iowa Falls School District	Local knowledge 2007 Iowa Hazard Mitigation Plan Iowa DNR Data
Dam Failure	Alden Eldora Iowa Falls Steamboat Rock Unincorporated Hardin County AGWSR School District Eldora-New Providence School Dist Iowa Falls School District	2007 Iowa Hazard Mitigation Plan Iowa DNR Data
Earthquake	All Jurisdictions	Local knowledge 2007 Iowa Hazard Mitigation Plan
Communications Failure	All Jurisdictions	Local knowledge 2007 Iowa Hazard Mitigation Plan

Maps are also a valuable tool for displaying which jurisdictions are affected by hazards. The following pages include maps that depict each hazard's coverage among the jurisdictions in the planning boundary.

Figure 4.1.1: Planning Boundary-wide Hazards

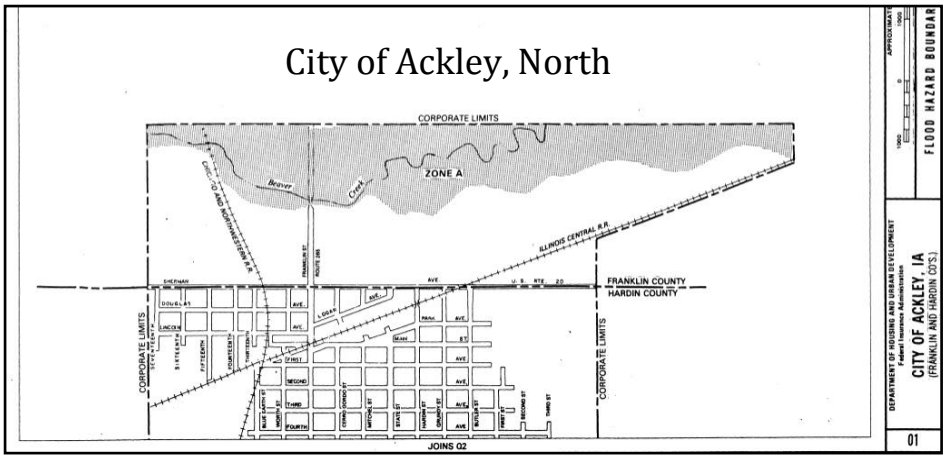


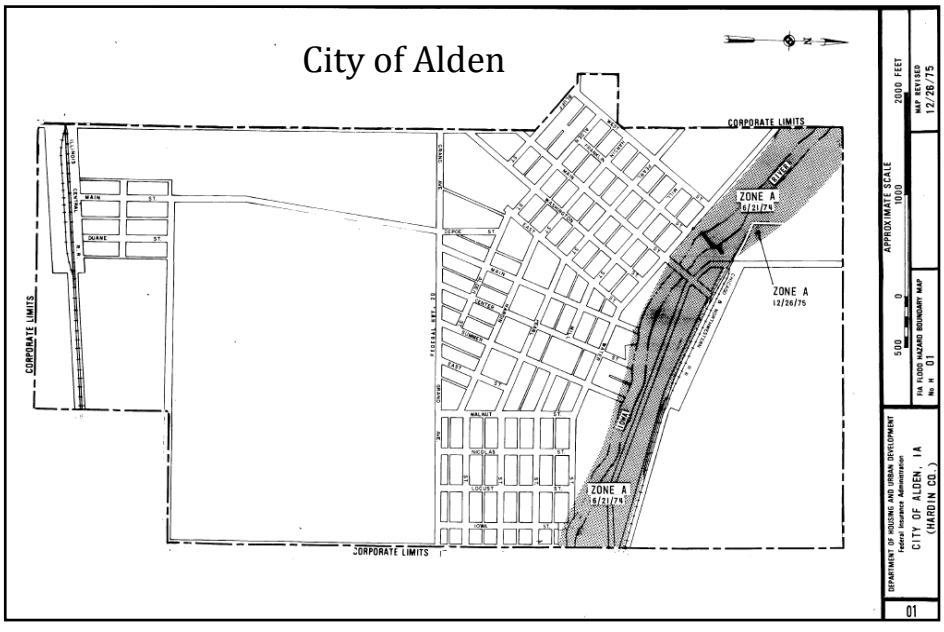
Special Flood Hazard Areas

A GIS overlay of a flood boundary map, created by FEMA (derived from FIRM info) and a structure footprint shapefile (all structures in Hardin County larger than 150 sq ft) was performed by the County GIS Coordinator. In the flood boundary, 794 structures were identified (ranging from small outbuildings to residences to commercial buildings). A large majority were along the Iowa River from west of Alden through to Iowa Falls. Another section was along the river in Ackley. The last large section contained structures in the town of Union, much of which falls in the flood boundary. During the 5-yrs in-between plans, the Planning Team will investigate to confirm that this is the case, and valuations, if available, can be determined.

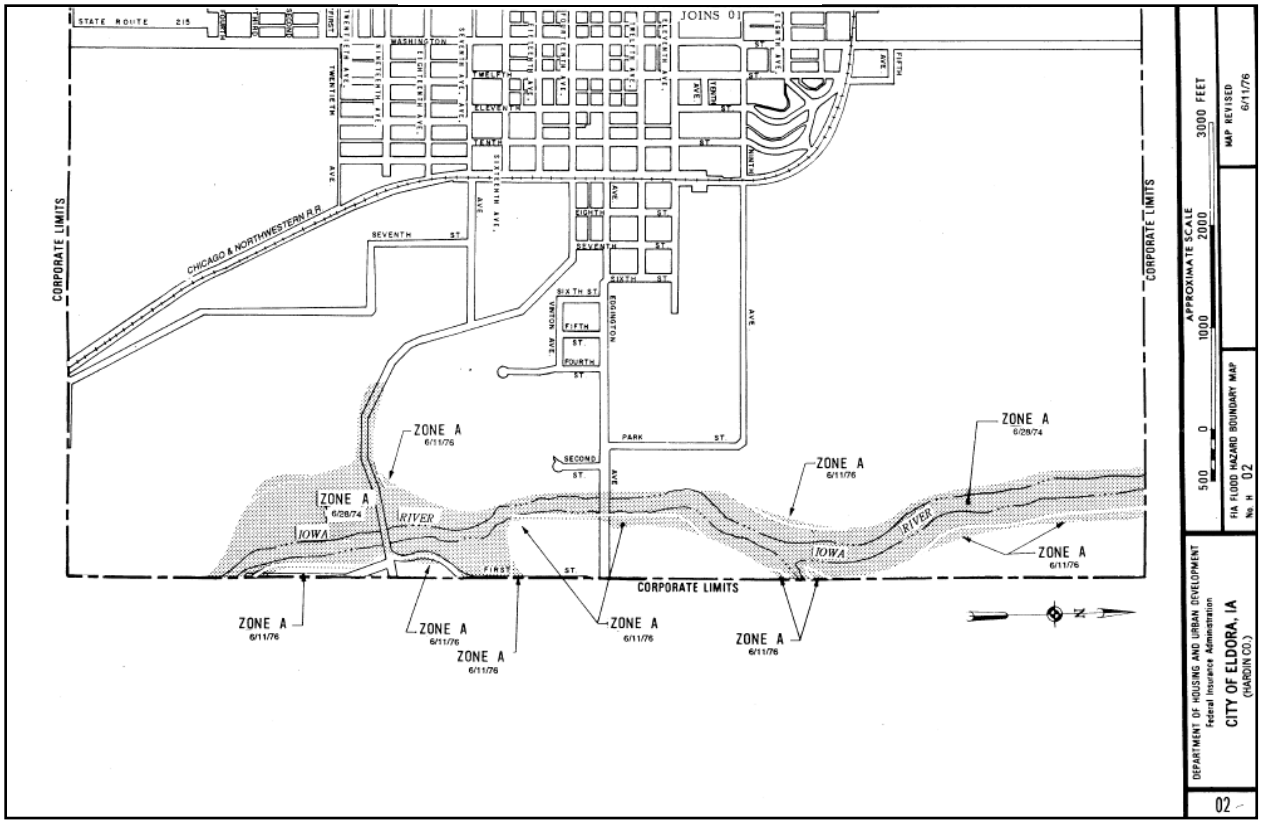
The Flood Insurance Rate Maps (FIRMs) below depict the Special Flood Hazard Areas in Hardin County, which indicate the areas that have 1% chance of flooding each year. A portion of each Hardin County jurisdiction is located in a Special Flood Hazard Area. As far as FEMA mapping is concerned, these are the only communities that have any flood plain mapping completed, and not all have the entire community map available. There are no records for the cities of Buckeye, New Providence, Radcliffe, Whitten or Unincorporated Hardin County. The specific boundaries of flooding for each jurisdiction will be discussed in the flood section of this plan.

Figure 4.1.2: Special Flood Hazard Areas

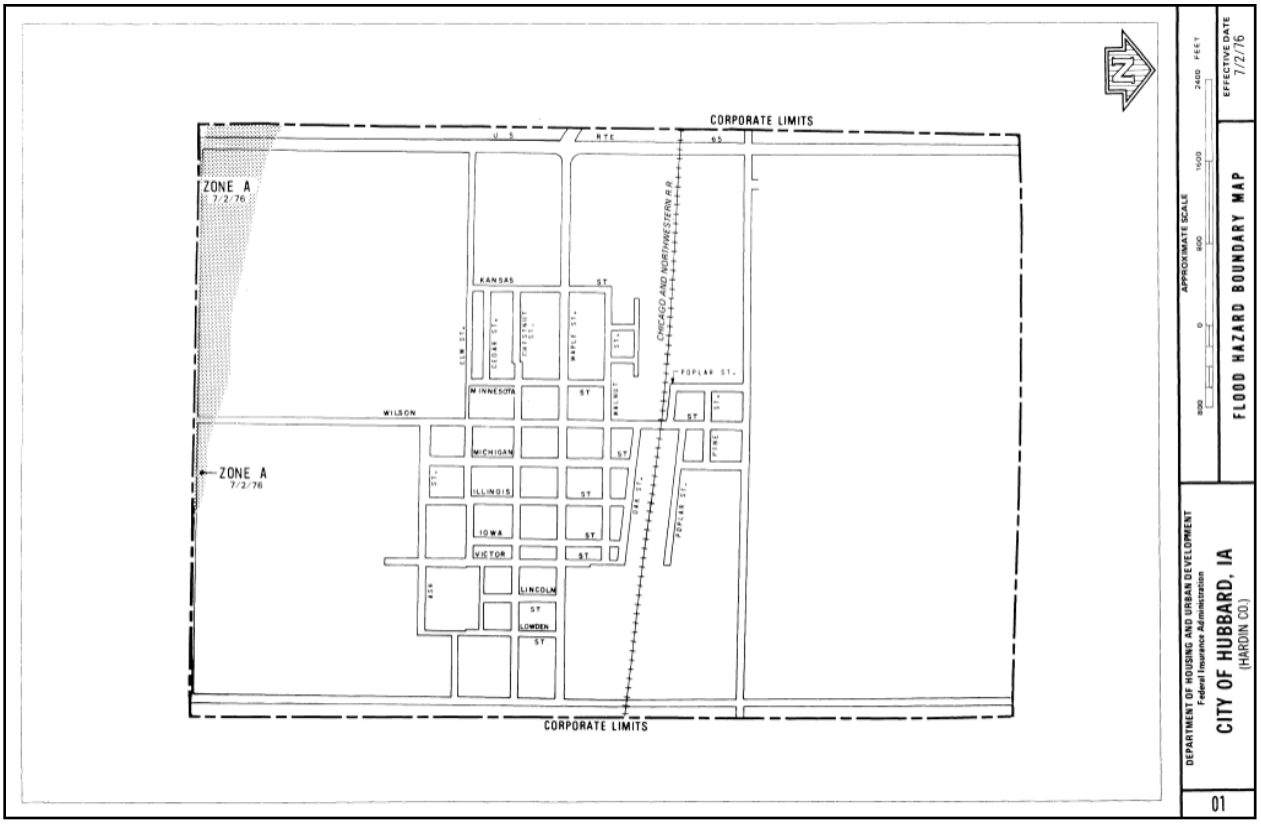




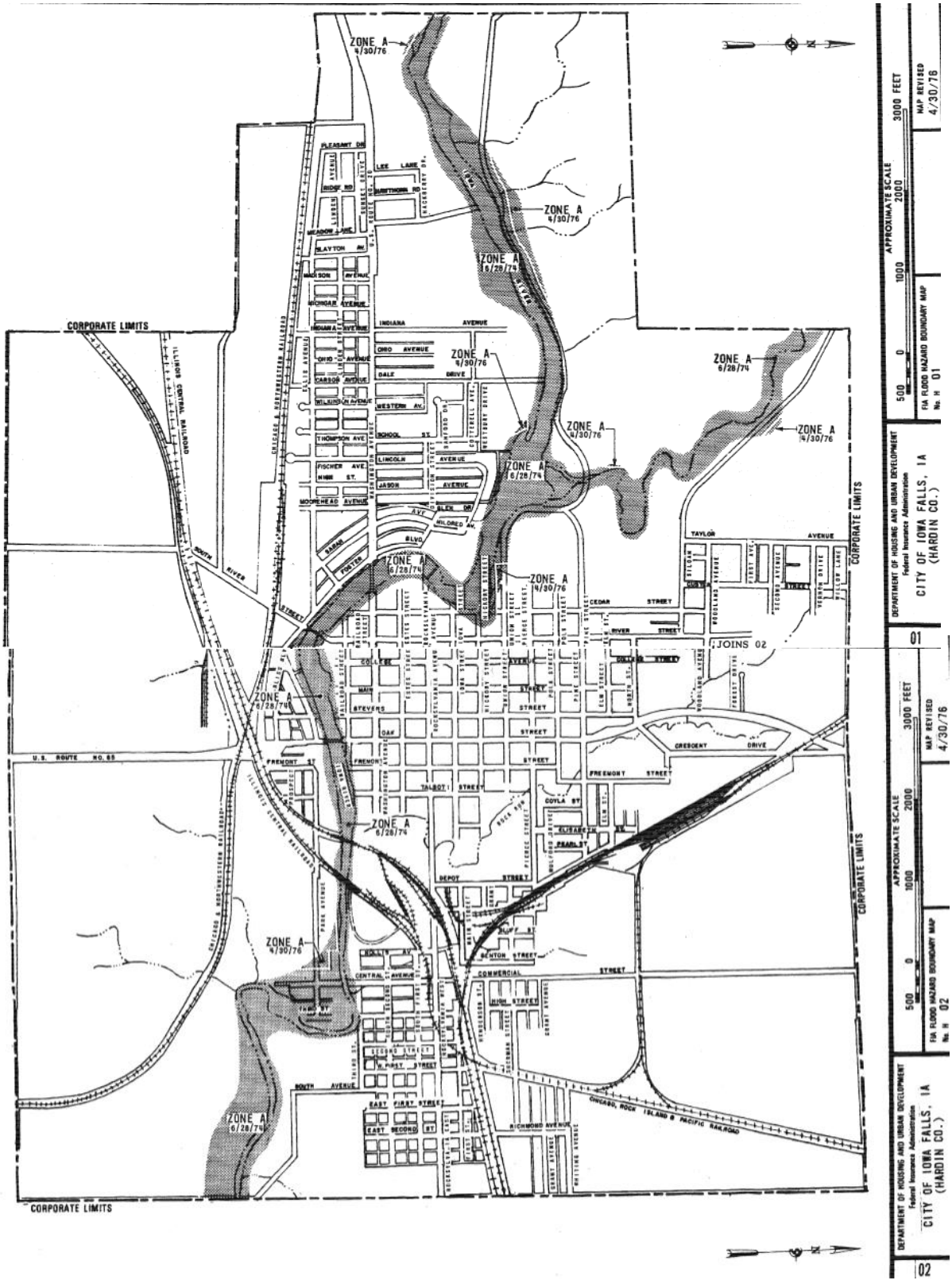
City of Eldora, East Half



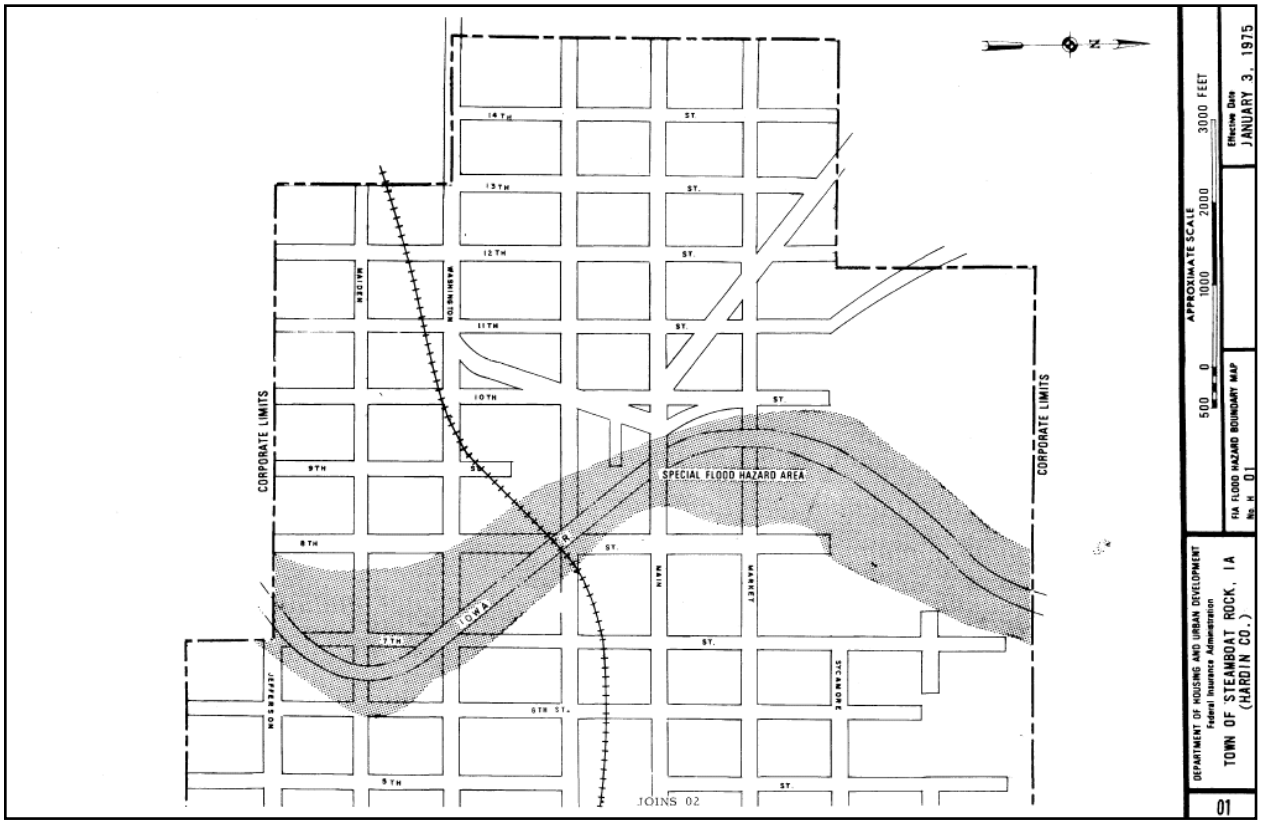
City of Hubbard



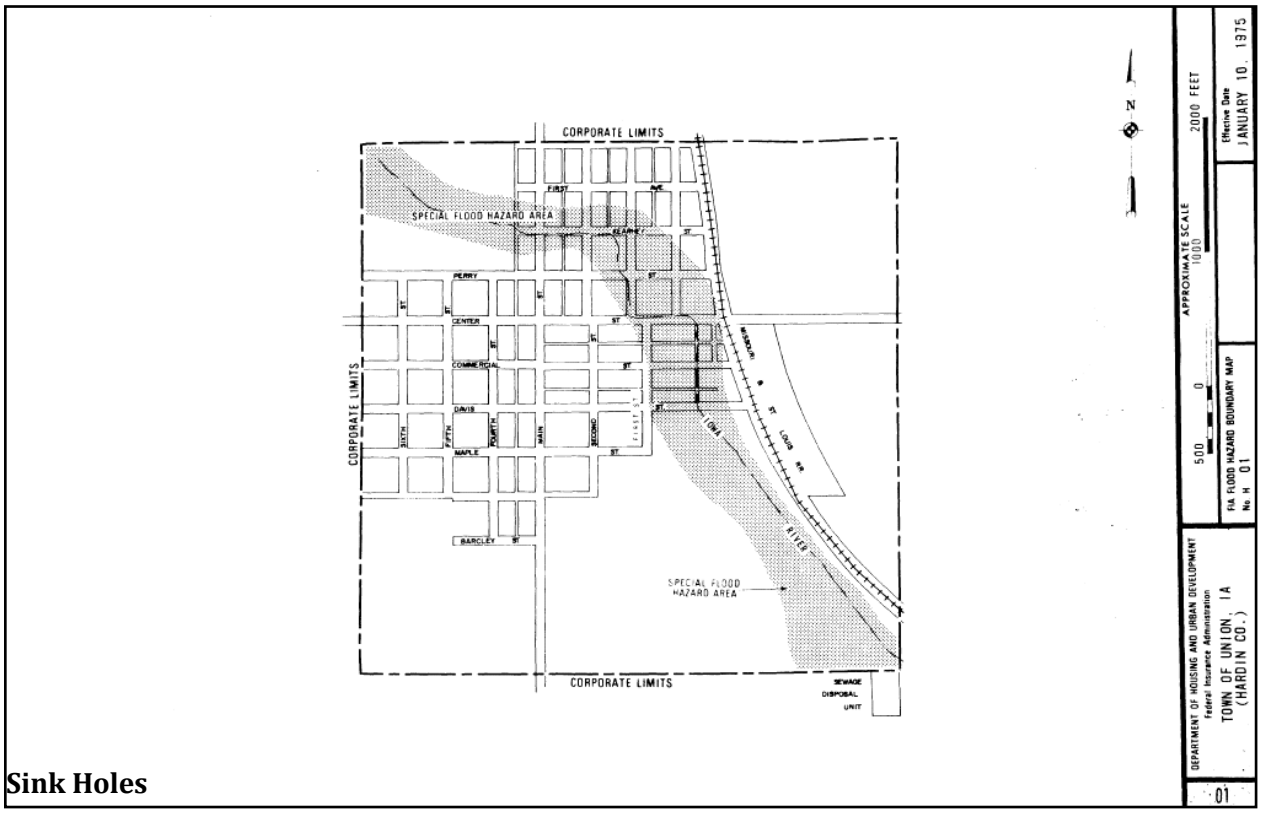
City of Iowa Falls



City of Steamboat Rock, West Half



City of Union



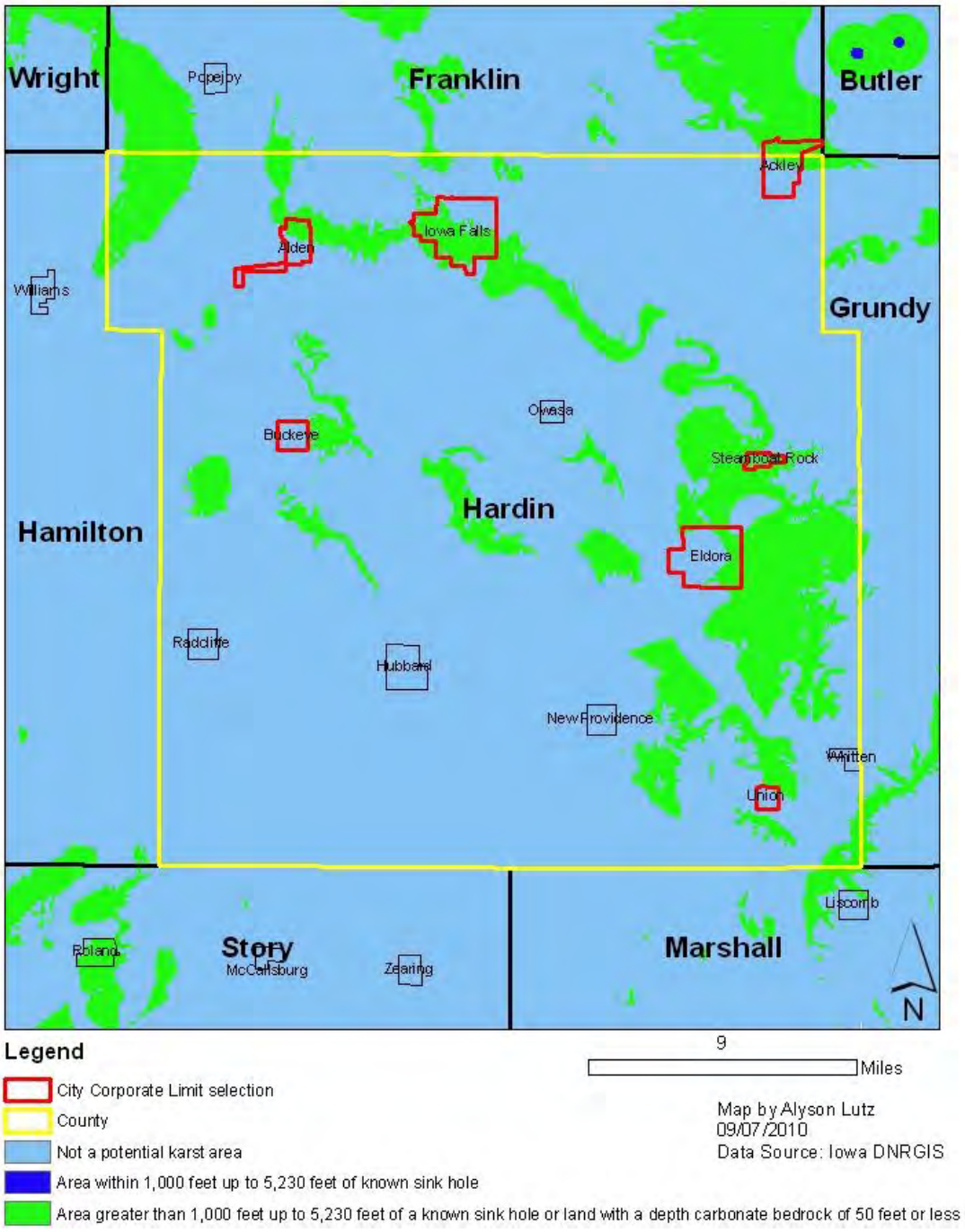
Sink Holes

Data Source for all FIRMs: FEMA Map Service Center,2010

Sink Holes

Karst describes soils as an indicator of possible sink holes. The map below shows areas that are either near or vulnerable to the sinkhole hazard. There are seven cities in Hardin County that are vulnerable in terms of sink holes with large portions of the rural county also being vulnerable to this hazard, mostly in the east.

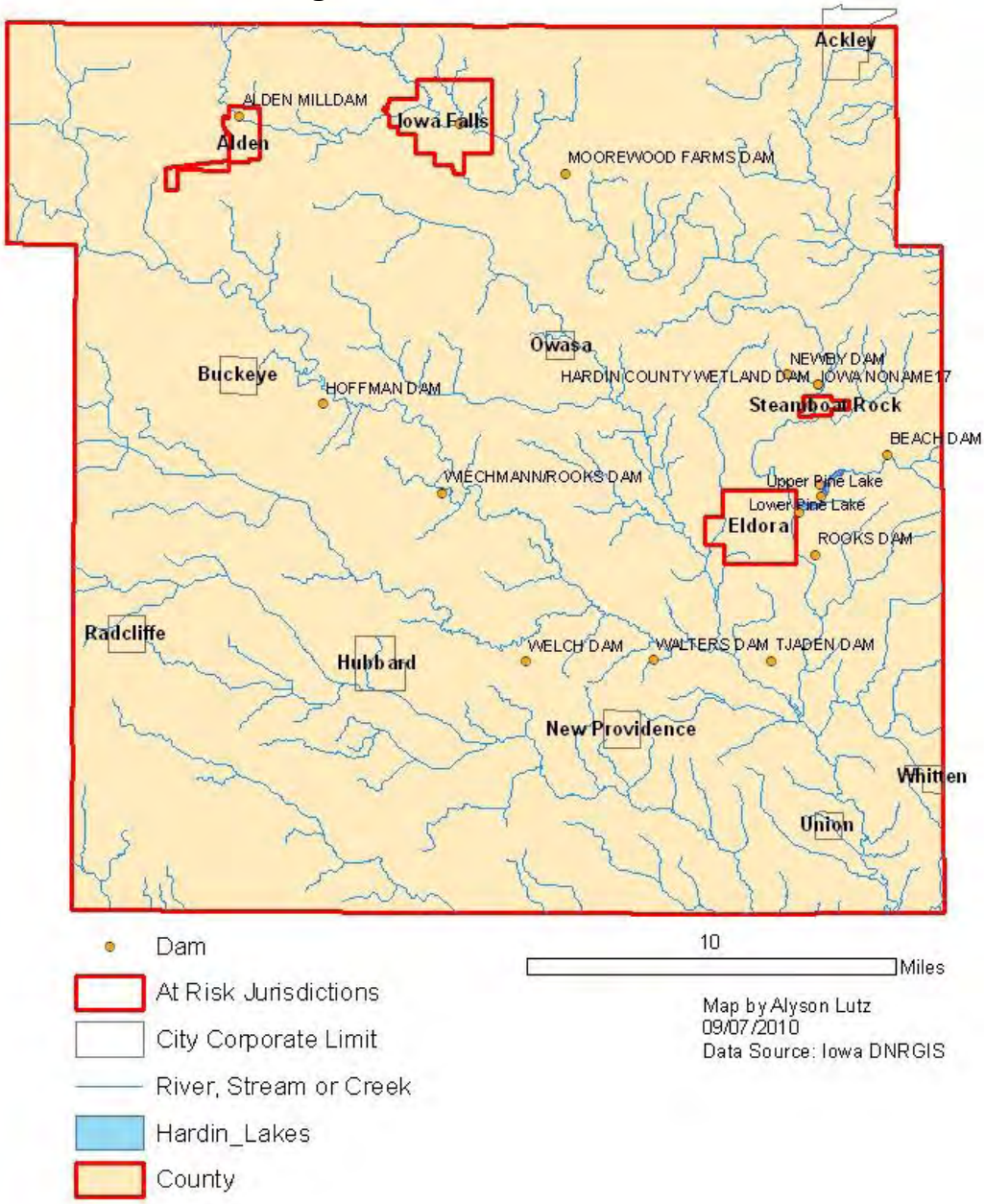
Figure 4.1.3: Sink Holes



Dam Failure

There are 17 dams located on the waterways of Hardin County, 3 of which are in the corporate city boundaries of Alden, Iowa Falls and Steamboat Rock. All of the dams in Hardin County will likely only cause minor damage if breeched. The Upper Pine Lake Dam and Lower Pine Lake Dam are located downstream of their respective lakes, and can possibly cause loss of life to unincorporated residents living in the area. The fact that there are 2 lakes upstream of Eldora heightens the threat of these possible dam failures. A lake is a body of water not to be underestimated; generally all areas near and downstream from a failed dam can be adversely affected by a dam failure. Just in case this hazard may occur, the jurisdictions that are downstream from a dam were identified to be within dam failure hazard boundaries.

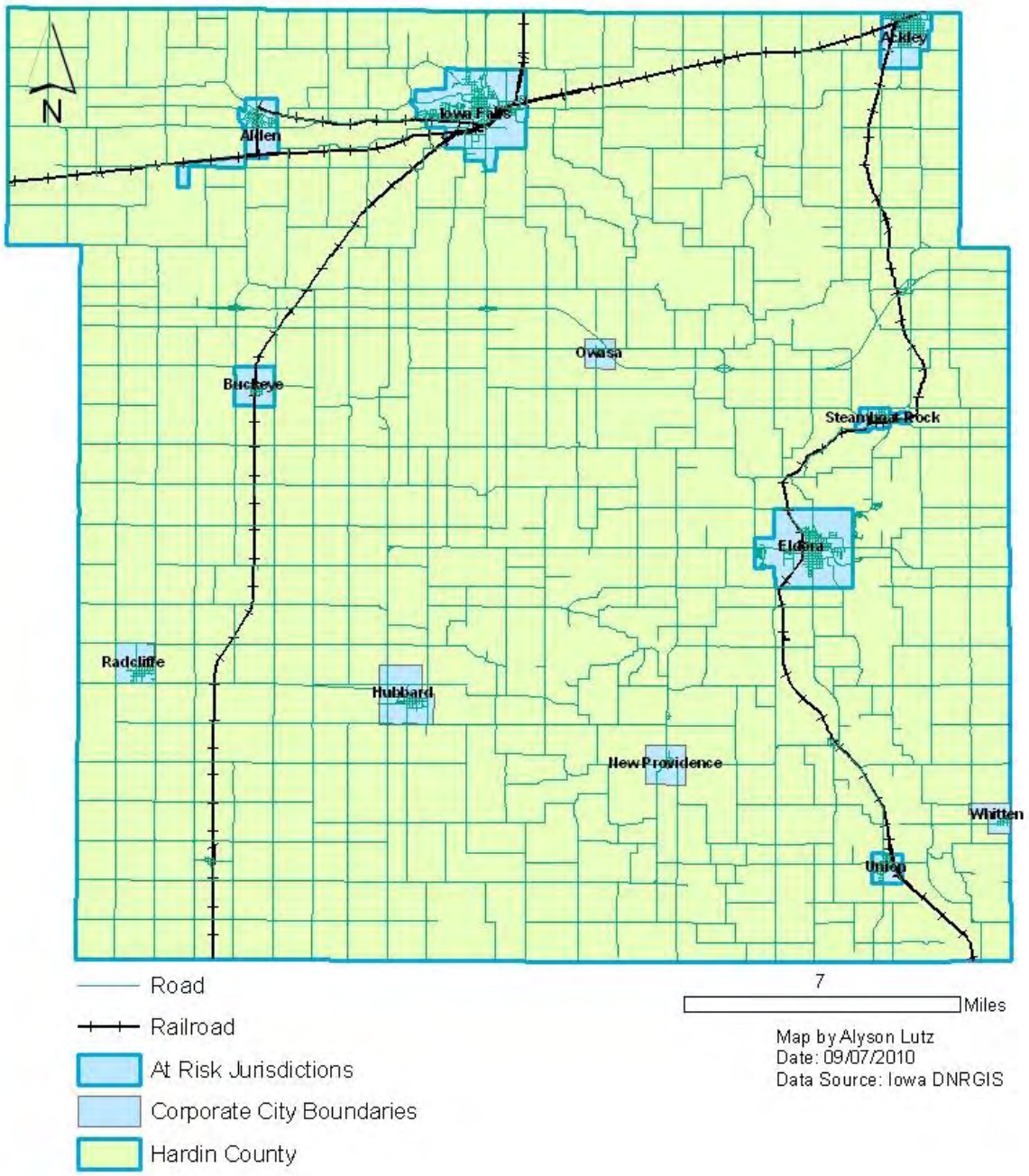
Figure 4.1.4: Dam Failure



Rail Transportation Incident

A Canadian National rail line runs east-west through the upper portion of Hardin County. A Union Pacific Railroad freight line runs north-south through the east and west (Kansas City to Minneapolis) portions of the county. The Iowa River Railroad runs from Marshalltown to Ackley. This route goes north-south in the eastern part of the county. Only the jurisdictions along the rail line should be at risk for a rail transportation incident. Overall, seven of twelve jurisdictions are at risk for a rail transportation incident. Unincorporated Hardin County is listed, but only the immediate surroundings of the rail line throughout the county are most at risk.

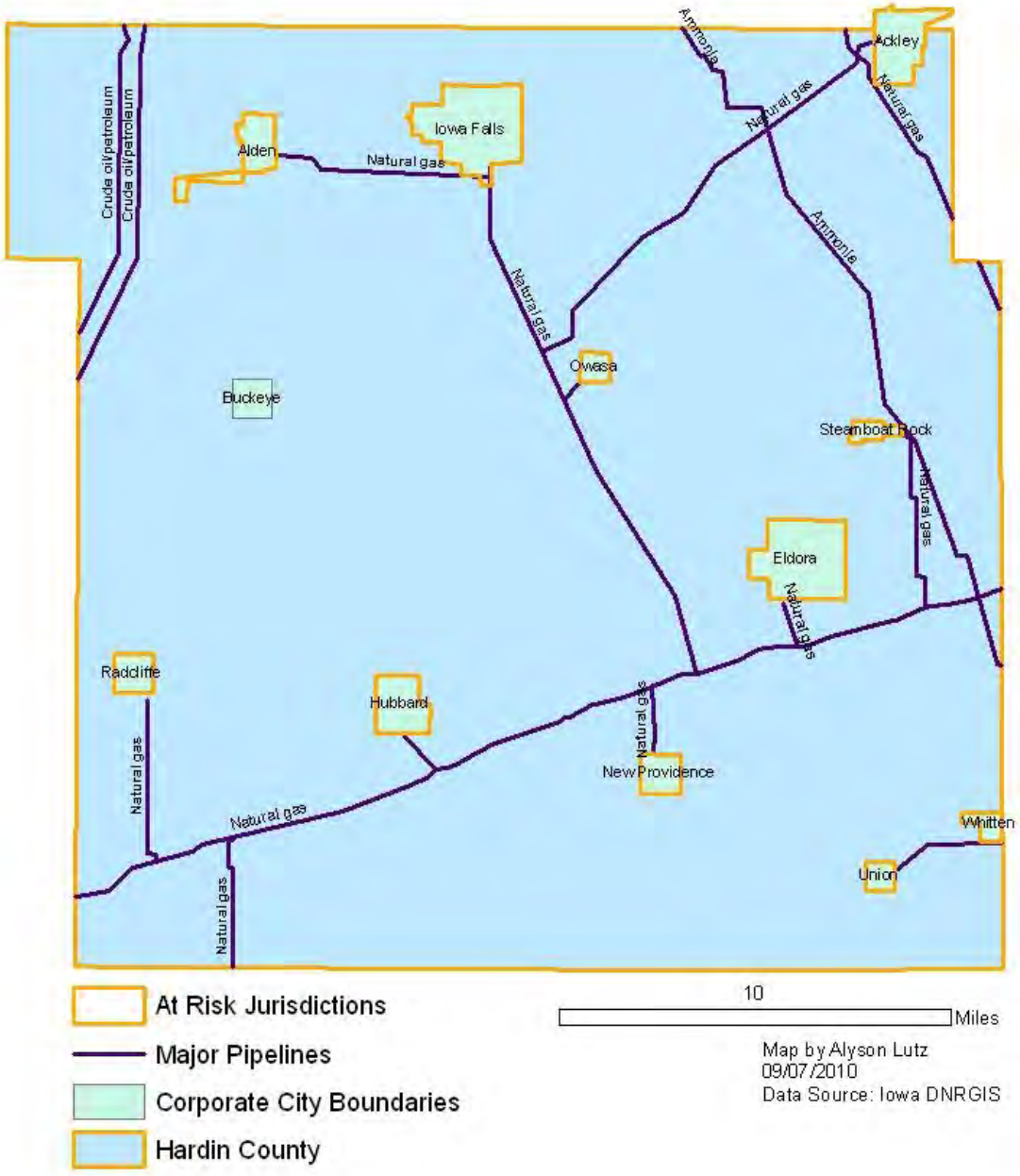
Figure 4.1.5: Rail Transportation Incident



Pipeline Transportation Incident

Major pipelines run through or by all jurisdictions in Hardin County except Buckeye. At least for natural gas lines, looking at the natural gas utility service availability in the county is an indicator besides this map. Most of the lines that run through the county (13) are natural gas along with one ammonia line and two petroleum lines.

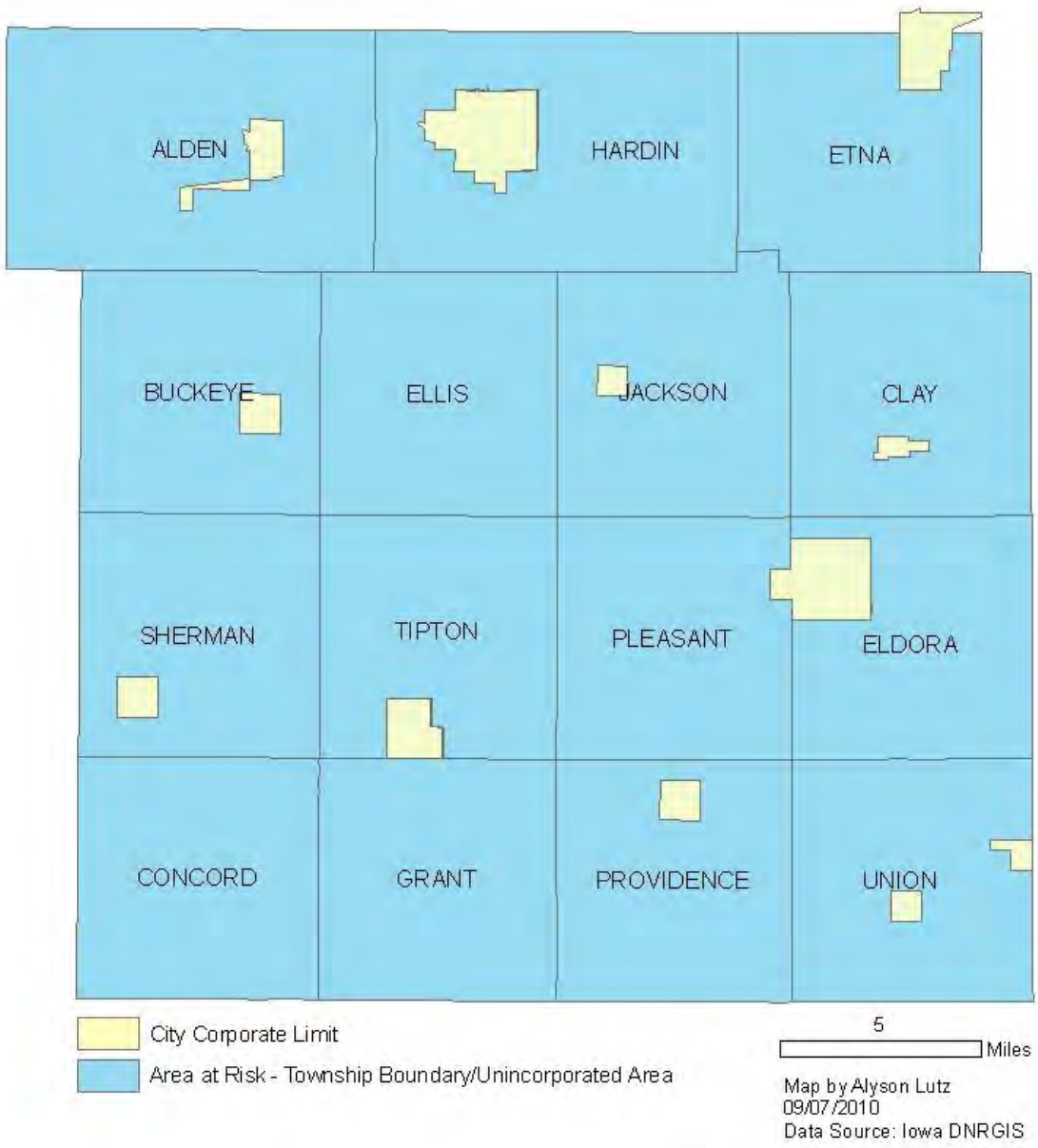
Figure 4.1.6: Pipeline Transportation Incident



Animal/Crop/Plant Disease

Hardin County identified Animal/Crop/Plant Disease as a potential hazard. The most at risk areas are in the unincorporated portion of the county, which is more rural with livestock and wildlife. The incorporated cities of the county are much less likely to be affected by this hazard since there is very little, if any, livestock located within city corporate limits.

Figure 4.1.7: Animal/Crop/Plant Disease



4.2 Hazard Profiles

44 CFR 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.

All hazards that could possibly affect Hardin County were profiled. This was done through review of the Iowa Hazard Mitigation Plan, past events and declared disasters, reviewing data from Hardin County Emergency Management, and other research.

The actual profiles of each possible hazard are based on the format used by Iowa's 2007 hazard mitigation plan. The following information for hazards in Hardin County is addressed:

- Definition of the hazard
- General description of the hazard
- Historical occurrence of the hazard
- Probability of the hazard occurring in the future
- Vulnerability of citizens, visitors, and emergency responders during and after a hazard event
- Maximum geographic extent of the hazard
- Severity of the hazard's potential impact on human life and property
- Speed of onset or amount of warning time before the hazard occurs

The hazard scoring and ranking method from Iowa's 2007 plan is also used and included in the hazard profiles in the following pages. Refer to pages 163-164 for an explanation of the score for each element of the hazard profiles. The total score for each hazard is at the bottom of its profile. The higher the score, the higher priority the hazard is in Hardin County. The hazards will be formally ranked in the next step of the planning process.

Note that the hazards are listed first by type, natural or man-made, then alphabetically so the order does not indicate any sort of ranking. The hazards will be ranked in the next step of the planning process.

Drought [A prolonged period of prolonged lack of precipitation producing severe dry conditions]

Description

There are three types of drought conditions that are relevant to Iowa: meteorlogic drought, which refers to precipitation deficiency; hydrological drought, which refers to declining surface water and groundwater supplies; and agricultural drought, which refers to soil moisture deficiencies. Droughts can be spotty or widespread and last from weeks to a period of years. A prolonged drought can have a serious economic impact on a community. Increased demand for water and electricity may result in shortages of resources. Moreover, food shortage may occur if agricultural production is damaged or destroyed by a loss of crops or livestock. While droughts are generally associated with extreme heat, drought can and do occur during cooler months.

Historical Occurrence (1)

According to the Palmer Drought Severity Index, a composite of evapotranspiration, recharge, runoff, loss, and precipitation, Iowa has suffered seven periods of drought condition since 1910. While some may have been more severe than others, agricultural areas were impacted much more than the metropolitan areas where impacts were indirect.

According to the National Climatic Data Center (NCDC), Hardin County has experienced three drought events since 1985. The most recent drought was in 2003. The total property damage, from the three events, to Hardin County and the other areas (one being statewide) affected by the drought totals $645 million, and crop damaged reached a total of $1 billion. No deaths or injuries were reported during any of these drought events.

Probability (2)

Drought is part of normal climate fluctuations. Climatic variability can bring dry conditions to the region for up to years at a time. Research and observations of the El Nino/La Nina climatic events are resulting in more predictable climatic forecasts.

Vulnerability (2)

Those dependent on rain would be the most vulnerable during a drought. This means that agriculture, agribusiness, and consumers would be impacted. A drought limits the ability to produce goods and provide services. Because citizens draw their drinking water from groundwater sources, a prolonged severe drought may impact all citizens if there were to be a dramatic drop in the water table. Fire suppression can also become a problem due to the dryness of the vegetation and possible lack of water.

Maximum Extent (4)

A drought would likely affect most of Hardin County and Iowa if not the entire Midwest. Because of the dependence on precipitation and water, the agricultural areas would be most adversely impacted. Even though the agricultural areas would be most adversely impacted, the entire county would likely feel at least some impact.

Severity (2)

Drought in the U.S. seldom results directly in the loss of life. Deaths associated with drought are usually related to a heat wave. Drought more directly affects agricultural crops, livestock, natural vegetation, and stream flows that include fish and aquatic vegetation. Impacts are costly to the economy, environment, and general population.

Speed of Onset (3)

Drought warning is based on a complex interaction of many different variables, water uses, and consumer needs. Drought warning is directly related to the ability to predict the occurrences of atmospheric conditions that produce the physical aspects of drought, primarily precipitation and temperature. There are so many variables that can affect the outcome of climatic interactions, and it is difficult to predict a drought in advance. An area may already be in a drought before it is recognized. While the warning of the drought may not come until the drought is already occurring, the secondary effects of a drought may be predicted and warned against weeks in advance.

Total Score: 14

Dam Failure [A break in, or imposed threat from, any water retention fixture which may endanger population downstream of the containment area]

Description

Dams are constructed for a variety of uses, including flood control, erosion control, water supply impoundment, hydroelectric power generation, and recreation. Flooding, operating error, poor construction, lack of maintenance, damage due to burrowing animals, vandalism, terrorism, and earthquakes can cause dam failure. Dams are classified into three categories based on the potential risk to people and property should a failure occur: High Hazard – if the dam was to fail, lives would be lost and extensive property damage could result; Moderate Hazard – failure could result in loss of life and significant property damage; and Low Hazard – failure results in minimal property damage only. The classification may change over time because of development downstream from the dam since it construction. Older dams may not have been built to the standards of its new classification. Dam hazard potential classifications have nothing to do with the material condition of a dam, only the potential for death or destruction due to the size of the dam, the size of the impoundment, and the characteristics of the area downstream of the dam. The Iowa Department of Natural Resources tracks all dams in the State of Iowa with a height of at least 25 feet or a total storage of at least 50 acre feet of water. The inventory excludes dams less than 6 feet high regardless of storage capacity and dams less than 15 acre feet of storage regardless of height.

Historical Occurrence (1)

There are no major dam failures to report for Hardin County.

Probability (1)

The probability of a major dam failure occurring in or affecting Hardin County is low.

Vulnerability (1)

People and property along streams are most vulnerable. Facilities and lives considerable distances from the actual impoundment are not immune from the hazard. Depending on the size and volume of the impoundment as well as the channel characteristics, a flash flood can travel a significant distance.

Maximum Extent (1)

The area impacted following a dam failure would be limited to those areas in and near the floodplain. People and property outside the floodplain could also be impacted depending on the proximity to the dam and the height above the normal stream level.

According to the Iowa DNR's Natural Resources Geographic Information System (NRGIS) Library, there are three dams located within the city limits of Alden, Iowa Falls, and Steamboat Rock. Failure at the Upper or Lower Pine Lake Dams (one being downstream of the other) can affect some unincorporated areas which are downstream and around the Upper and Lower Pine Lakes and the City of Eldora.

Severity (2)

There are 2,442 inventoried dams located in Iowa. Of these, 63 are high hazard, 160 are categorized as significant hazard, and 2,219 are classified as low-hazard dams. The severity of damage could range from property damage, if a small subdivision impoundment failed, all the way to multiple deaths, injuries, and extensive property damage if a large high-hazard dam, such as the Saylorville Reservoir, failed upstream from Des Moines. None of the dams in Hardin County are considered high hazard.

Speed of Onset (4)

A dam failure can be immediate and catastrophic leaving little or no time to warn those downstream of the imminent hazard. With maintenance and monitoring, weak areas and possible failure points can be identified allowing time for evacuation and securing of the dam. Most dams are only inspected periodically thus allowing problems to go undetected until a failure occurs.

Total Score: 10

Earthquake [Any shaking or vibration of the earth caused by the sudden release of energy that may impose a direct threat on life and property]

Description

An earthquake is a sudden, rapid shaking of the earth caused by the breaking and shifting of rock beneath the Earth's surface. This shaking can cause buildings and bridges to collapse; disrupt gas, electric, and phone service; and sometimes trigger landslides, flash floods, and fires. The three general classes of earthquakes now recognized are: tectonic, volcanic, and artificially produced.

Historical Occurrence (1)

Iowa as a whole has experienced the effects of only a few earthquakes in the past two centuries. The epicenters of 13 earthquakes have been located in the state. The majority have been along the Mississippi River, and none have been in central Iowa. The last earthquake to occur in Iowa was in the southwestern Iowa town of Shenandoah in 2004. Since the early 1800s, 9 earthquakes have occurred outside of Iowa but have impacted areas in the state. The most recent quakes were in the 1960s and occurred in Illinois and Missouri. While more than 20 earthquakes have occurred in or impacted Iowa in the past 200 years, they have not seriously affected Iowa.

According to the National Climatic Data Center, there have been no earthquakes in Hardin County.

Probability (1)

Seismologists attempt to forecast earthquake size and frequency based on data from previous events. In the New Madrid Fault Zone, this analysis is difficult because there are few historic moderate to large earthquakes, and the active faults are too deeply buried to monitor effectively. 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 a magnitude 4 effect in Iowa resulting in little or no damage.

Vulnerability (1)

In general, peak ground acceleration (PGA) is a measure of the strength of ground movements. More specifically, the PGA measures the rate in change of motion relative to the established rate of acceleration due to gravity. According to the United States Geological Services, for Hardin County, the peak acceleration with a 2% probability of exceeding in 50 years is 2% g, which means the County is under a very small threat in regards to earthquakes. Also, most of Iowa is located in Seismic Zone 0, which is the lowest risk zone in the United States.

Maximum Extent (2)

The strongest earthquake in Iowa occurred in Davenport in 1934 and resulted in only slight damage. Estimated effects of a 6.5 Richter magnitude earthquake along the New Madrid Fault Zone suggests Iowans in four southeast counties could experience trembling buildings, some broken dishes and cracked windows. About 29 other counties, from Page to Polk to Muscatine, could experience vibrations similar to the passing of a heavy truck, rattling of dishes, creaking of walls,

and swinging of suspended objects. If an earthquake were to occur, it would more than likely be felt in all of Hardin County.

Severity (1)

Due to the relatively low magnitude of earthquakes that would occur in the state, and the distance from the epicenter of an earthquake that would occur in the New Madrid Fault Zone, Iowans would likely see only minor impacts. Fatalities would be very rare, injuries limited to falls and small-unsecured objects, property loss would likely be minimal, and economic loss could occur due to short disruptions in commercial and industrial activities.

Speed of Onset (4)

Earthquake prediction is an inexact science. Even in areas that are well monitored with instruments, such as California's San Andreas Fault Zone, scientists only very rarely predict earthquakes.

Total Score: 10

Extreme Heat [Temperatures, including heat index, in excess of 100 degrees Fahrenheit or three successive days of 90+ degrees Fahrenheit. A head advisory is issued when temperatures reach 105 degrees and a warning is issued at 115 degrees]

Description

A prolonged period of excessive heat and humidity. The heat index is a number in degrees Fahrenheit that tells how hot it really feels when relative humidity is added to the actual air temperature. Exposure to full sunshine can increase the heat index by at least 15 degrees. Extreme heat can impose stress on humans and animals. Heatstroke, sunstroke, cramps, exhaustion, and fatigue are possible with prolonged exposure or physical activity due to the body's inability to dissipate the heat. Urban areas are particularly at risk because of air stagnation and large quantities of heat absorbing materials such as streets and buildings. Extreme heat can also result in distortion and failure of structures and surfaces such as roadways and railroad tracks.

Historical Occurrence (1)

The record high temperature of 110 for Des Moines was recorded in 1936. During July 1936, 12 record setting days topped 100 degrees in Des Moines. The record high temperatures for Des Moines are above 90 degrees Fahrenheit beginning in March and lasting through October.

According to the National Climatic Data Center, two extreme heat events have occurred in Hardin County since 1995. The event in 1995 affected the entire State of Iowa and resulted in three deaths and $3.8 million in property damage. The last extreme heat event to affect Hardin County resulted in one death.

Probability (2)

Based on historical information, Iowa will likely experience about 26 days a year with temperatures above 90 degrees. There is a very good change that there will also be a period of 3 consecutive days or more with temperatures in the 90s. It is also common for the temperature to hit 100 degrees or more once every three years during the summer months.

Vulnerability (2)

Elderly people, small children, chronic invalids, those on certain medications or drugs (especially tranquilizers and anticholinergics), and persons with weight and alcohol problems are particularly susceptible to heat reactions. Healthy individuals working outdoors in the sun and heat are vulnerable as well. Individuals and families with low budgets as well as inner city dwellers can also be susceptible due to poor access to air-conditioned housing.

Maximum Extent (3)

Most of the County and State would likely be impacted by extreme heat, but urban areas pose special risks. The stagnant atmospheric conditions of the heat wave trap pollutants in urban areas and add to the stresses of hot weather.

Severity (2)

Extreme heat has broad and far-reaching sets of impacts. These include significant loss of life and illness, economic costs in transportation, agriculture, production, energy, and infrastructure. Transportation impacts include the loss of lift for aircrafts, softening of asphalt roads, buckling of highways and railways, and stress on automobiles and trucks (increase in mechanical failures). Livestock and other animals are adversely impacted by extreme heat. High temperatures at the wrong time inhibit crop yields as well. Electric transmission systems are impacted when power lines sag in high temperatures. High demand for electricity also outstrips supply, causing electric companies to have rolling blackouts. The demand for water also increases sharply during periods of extreme heat. This can contribute to fire suppression problems for both urban and rural fire departments.

Speed of Onset (1)

As with other weather phenomena, periods of extreme heat are predictable within a few degrees within three days or so. Variations in local conditions can affect the actual temperature within a matter of hours or even minutes. The National Weather Service will initiate alert procedures when the heat index is expected to exceed 105 degrees Fahrenheit for at least two consecutive days.

Total Score: 11

Flash Flood [A flood event occurring with little or no warning where water levels rise at an extremely fast rate]

Description

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 water moves at very fast speeds and can roll 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.

Historical Occurrence (4)

Flash floods are the most common and widespread of all-natural disasters except fire. In Iowa, as much as 21" of rain has fallen in a 24-hour period. According to the National Climatic Data Center, twelve flash flood events have affected Hardin County in the past 25 years. These flash floods occurred mostly in Iowa Falls with a few at the Iowa Falls municipal airport and some beginning in Hubbard and ending in Eldora. Including these flash flood events, there have been 72 flooding events total since 1993 resulting in $177.649 million in property damage and $52.916 million in crop damage but no deaths or injuries were reported.

Probability (3)

Flash flooding has a high probability of happening in all communities. As land is converted from fields or woodlands to roads and parking lots, it loses its ability to absorb rainfall. Urbanization increases runoff two to six times over what would occur on natural terrain. As more development occurs, the amount of runoff produced also increases. Unless measures are taken to reduce the amount of runoff (or slow its movement), flash floods will continue to occur and possibly increase. Also having sewer systems that cannot handle large amounts of water in a short period of time results in flash floods.

Specifically, in the county seat of Eldora; the city sits at a much higher elevation than the Iowa River. The Iowa River with an extreme flash flood event may threaten the Eldora wastewater treatment facility and a bridge to enter the facility, making access difficult. Some homes and businesses may also be impacted with extreme flash flooding events.

Vulnerability (3)

Flash floods occur in all fifty states in the United States. Particularly at risk are those in low-lying areas; close to dry creek beds or drainage ditches; near water; or downstream from a dam, levee, or storage basin. People and property in areas with insufficient storm sewers and other drainage infrastructure can also be put at risk because the drains cannot rid the area of the runoff quickly enough.

Nearly half of all flash flood fatalities are auto-related. Motorists often try to traverse water-covered roads and bridges and are swept away by the current. Six inches of swiftly moving water can knock persons off their feet and only two feet of water can float a full-sized automobile. Recreational vehicles and mobile homes located in low-lying areas can also be swept away by water.

Maximum Extent (3)

Areas in a floodplain, downstream from a dam or levee, or in low-lying areas can be impacted. People and property located in areas with narrow stream channels, saturated soil, or on land with large amounts of impermeable surfaces are likely to be impacted in the event of a significant rainfall. Unlike areas impacted by a river/stream flood, flash floods can impact areas a good distance from the stream itself. Flash flood prone areas are not particularly those areas adjacent to rivers and streams. Streets can become swift moving rivers, and basements can become deathtraps because flash floods can fill them with water in a manner of minutes. All Hardin County communities are prone to flash flooding.

Severity (3)

Flash floods are the number one weather-related killer in the United States. They can quickly inundate areas thought not to be flood-prone. Other impacts can include loss of life; property damage and destruction; damage and disruption of communications, transportation, electric service, and community services; crop and livestock damage, and interruption of business. Hazards of fire, health and transportation accidents, and contamination of water supplies are likely effects of flash flooding situations. In Iowa, there have been 644 flash flood events since 1993, and there have been five deaths and eight injuries.

Speed of Onset (3)

Flash floods are somewhat unpredictable, but there factors that can point to the likelihood of a flood's occurring in the area. Flash floods occur within a few minutes or hours of excessive rainfall, a dam or levee failure, or a sudden release of water held by an ice jam. Warnings may not always be possible for these sudden flash floods. Predictability of flash floods depends primarily on the data available on the causal rain. Individual basins react differently to precipitation events. Weather surveillance radar is being used to improve monitoring capabilities of intense rainfall. Knowledge of the watershed characteristics, modeling, monitoring, and warning systems increase the predictability of flash floods. Depending on the location in the watershed, warning time can be increased. The National Weather Service forecasts the height of floods crests, the data, and time the flow is expected to occur at a particular location.

Total Score: 19

Grass or Wildland Fire [An uncontrolled fire that threatens life and property in either a rural or wooded area and is beyond normal day-to-day response capabilities]

Description

Grass and wildland fires can occur when conditions are favorable such as during periods of drought when natural vegetation would be drier and subject to combustibility.

Historical Occurrence (2)

According to the National Climatic Data Center, there were no wildland or forest fire events reported in Hardin County. This does not account for small or contained grass fires that may not have been reported.

Probability (4)

There is nearly 100% chance that there will be a grass fire in each county in the state each year.

Vulnerability (2)

While wildfires have proven to be most destructive in the Western States, they have become an increasingly frequent and damaging phenomenon nationwide. People choosing to live in wildland settings are more vulnerable to wildfires, and the value of exposed property is increasing at a faster rate than population. Iowa is less vulnerable to wildfires because of the extremely large percentage of land that is developed. Grass fires are often more easily contained and extinguished before there is damage to people or developed property. Fires often burn large portions of field crops in the fall when the crops are dry and the harvesting equipment overheats or throws sparks. This can be quite costly to the farmer in terms of lost production.

Maximum Extent (2)

Most grass fires are contained to highway right-of-way and rail right-of-way ditches and are less than a few acres in size. High winds can turn a small flame into a multi-acre grass fire within a matter of minutes. The extent is dependent upon conditions such as land use/land cover, moisture, and wind. Grass fires are equally likely to affect Hardin County communities where there is dense or high vegetation. Rural areas are much more likely to experience grass or wildland fire issues.

Severity (1)

Most grass fires burn only the grasses, crops, or other low land cover. Injuries and deaths from fighting the fire most often occur by natural causes such as heart attack or stroke. Property damage is usually limited to grass, small trees, etc. Occasionally a house or outbuilding can be damaged or destroyed.

Speed of Onset (4)

As mentioned above, most grassfires occur without warning and travel at a moderate rate. This situation depends upon conditions at the time such as moisture, wind, and land cover.

Total Score: 15

Hailstorm [An outgrowth of a severe thunderstorm in which balls or irregularly shaped lumps of ice greater than 0.75 inches in diameter fall with rain]

Description

Hail is produced by many strong thunderstorms. Strong rising currents of air within a storm carry water droplets to a height where freezing occurs. Ice particles grow in size until they are too heavy to be supported by the updraft. Hail can be as small as a pea or as large as a softball and can be very destructive to plants and crops. Pets and livestock are particularly vulnerable to hail.

Historical Occurrence (4)

According to the National Climatic Data Center, there have been 85 hail events in Hardin County since 1985. The size of hail ranges from 0.75 inches in diameter to 3 inches. In total, 22 injuries were reported, all from the most recent event in August of 2009, which heavily affected Eldora, Iowa. The sum total of all the property damage from these hail events is $21.490 million. The resulting crop damage is $56.432 million. For more information on the storm, see the article in Appendix J.

Probability (4)

Data on probability and frequency of occurrence of hailstorms is limited, but research indicates at any given point in Iowa, it can expect on average two to three hailstorms in a year.

Vulnerability (2)

Agricultural crops such as corn and beans are particularly vulnerable to hailstorms stripping the plant of its leaves. Hail can also do considerable damage to vehicles and buildings. Hail only rarely results in loss of life directly, although injuries can occur.

Maximum Extent (3)

The land area affected by individual hail events is not much smaller that that of the parent thunderstorm, an average of 15 miles in diameter around the center of the storm. Any area in Hardin County can be affected by this hazard.

Severity (2)

Hailstorms cause nearly $1 billion annually in property and crop damage in the United States. The peak hail activity coincides with the Midwest's peak agricultural season. Financial impacts resulting from damage to property is in the millions of dollars every year, most of which is covered by crop and hazard insurance.

Speed of Onset (4)

Forecasting hailstorms as with their parent thunderstorms is becoming quite accurate due to the advancement in Doppler Radar and other technologies operated by the National Weather Service and television network weather departments. Warnings in the 20 to 30 minute range are usually available prior to the occurrence of the storm.

Total Score: 19

River Flood [A rising or overflowing of a tributary or body of water that covers adjacent land not usually covered by water when the volume of water in a stream exceeds the channel's capacity]

Description

A flood is a natural event for rivers and streams. Excess water from snowmelt, rainfall, or storm surge accumulates and overflows onto the banks and adjacent floodplains. Floodplains are lowlands, adjacent to rivers, lakes, and oceans that are subject to recurring floods. Hundreds of floods occur each year, making it one of the most common hazards in all of the United States. They can occur at any time of the year, in any part of the country, and at any time of day or night. Most injuries and deaths occur when people are swept away by flood currents, and most property damage results from inundation by sediment-filled water.

Several factors determine the severity of floods, including rainfall intensity (or other water source) and duration. A small amount of rain can also result in floods in locations where the soil is saturated from a previous wet period or if the rain is concentrated in an area of impermeable surfaces such as large parking lots, paved roadways, or other impervious developed areas.

Topography and ground cover are also contributing factors for floods. Water runoff is greater in areas with steep slopes and little or no vegetative ground cover.

Historical Occurrence (4)

According to the NCDC, since 1950, Hardin County has experienced 72 river flood events with no deaths or injuries reported. The total property damages that resulted from these events total nearly $178 million, and the crop damages total nearly $53 million.

The most recent and major floods in Iowa since 2008 occurred in the Summer of 2010. Though this is the case for most of central Iowa, Hardin County was not affected by these events. The most costly flood damage to Hardin happened in May of 2004 affecting 50 other counties and causing a total of $5 million in property damage and about $15 million in crop damage. According to the National Climatic Data Center (NCDC), the month started dry with only 0.19 inches of rain in the first week, regular seasonal rainfall for the second week and heavy rainfall in the third week. The heaviest rains came over the course of two days in the last week of May with about 6 inches in some parts of the state. A statewide average of 2.97 inches of rain fell from these two systems was Iowa's greatest rainfall since July 1993.

Probability (4)

Considering that there were several damages to Hardin County from the floods in the summer of 2008, flooding is very likely to occur in the county's cities and unincorporated areas. The chance of human injury is low, however possibilities of property and/or crop damage is certain.

Vulnerability (2)

The vulnerability from river flooding is quite delineated. Much work in the area of flood hazard mapping has allowed many communities to restrict development in hazardous areas, but development does in fact exist in many areas susceptible to flooding so structures and people who live and work in buildings that are in or located near the floodplain are at risk.

Maximum Extent (2)

The Federal Emergency Management Agency has delineated the probable extent of the 1% annual chance floodplain in most areas. These Flood Insurance Rate Maps (FIRMs) show properties affected by the floods that have at least 1% chance of occurring in any particular year. Generally, these areas are in the floodplain or adjacent areas. As an estimate made from visual study of FEMA FIRMs, we can derive that 17% of the land in Hardin County is in or could be affected by the floodplain, with an understanding that there is no information for Buckeye, New Providence, Radcliffe, Whitten, and some parts of the other jurisdictions. A small portion of the land in Hardin County's incorporated cities is within the 1% annual chance floodplain, and a great deal of land outside the city corporate limits is also within the floodplain. All of the jurisdictions included in this plan are considered at risk.

Severity (2)

Flooding impacts include potential loss of life; property damage and destruction; damage and disruption of communications, transportation, electric service, and community services; crop and livestock losses; and interruption of businesses. Hazards of fire, health and transportation accidents; and contamination of water supplies are likely effects of flooding situations as well.

Speed of Onset (1)

Gages along streams and rain gages through the state provide for an early flood warning system. River flooding usually develops over the course of several hours or even days depending on the basin characteristics and the position of the particular reach of the stream. The national weather service provides flood forecasts for Iowa. Flood warnings are issued over emergency radio and television messages as well as the NOAA weather radios.

Total Score: 15

Severe Winter Storm [Severe winter weather conditions that affect day-to-day activities. These can include blizzard conditions, heavy snow, bowing snow, freezing rain, heavy sleet, and extreme cold]

Description

Winter storms are common during winter months of October through April. The various types of extreme winter weather cause considerable damage. Heavy snows cause immobilized transportation systems, downed trees and power lines, collapsed buildings, and loss of livestock and wildlife.

Blizzard conditions are winter storms which last at least three hours with sustained wind speeds of 35 mph or more, reduced visibility of ¼ mile or less, and white-out conditions. Heavy snows of more than six inches in a 12-hour period or freezing rain greater than ¼ inch accumulation causing hazardous conditions in the community can slow or stop the flow of vital supplies as wells as disrupting emergency and medical services. Loose snow begins to drift when the wind speed reaches 9 to 10 mph under freezing conditions. The potential for some drifting is substantially higher in open country than in urban areas where buildings, trees, and other features obstruct the wind.

Severe ice storms have caused total electric power losses over large areas of Iowa and rendered assistance unavailable to those in need due to impassable roads. Frigid temperatures and wind chills are dangerous to people, particularly the elderly and the very young. Dangers include frostbite or hypothermia. Water pipes, livestock, fish and wildlife, and pets are also at risk from extreme cold and severe winter weather.

Historical Occurrence (4)

Since 1993, Iowa has had 3,636, heavy snow, ice storm, or extreme wind chill events. There are many accounts of large numbers of deaths due to cold and blizzards in Iowa's history. While we are not as vulnerable as the early settlers, there are recent accounts of multiple deaths from snowstorms and extreme cold around the state.

According to the National Climatic Data Center, Hardin County has been affected by 50 snow and ice events since 1993. A total of six deaths and no injuries were reported due to these snow and ice events. Also, property damage reached a total of $30 million, with no crop damages reported.

Probability (4)

Winter storms regularly move easterly and use both the southward plunge of arctic cold air from Canada and the northward flow of moisture from the Gulf of Mexico to produce heavy snow and sometimes blizzard conditions in Iowa and other parts of the Midwest. From 1983 to 1998, Des Moines averaged nearly 50 days a year with falling snow. The cold temperatures, strong winds, and heavy precipitation are the ingredients of winter storms. Most counties can usually expect 2 or 3 winter storms a season with an extreme storm every 3 to 5 years on average. A snowfall of 6 inches

or more from one storm only occurs in 49% of Iowa winters, while a large winter storm of 10 inches or more will occur about once every three years.

Vulnerability (4)

Hazardous driving conditions due to snow and ice on highways and bridges lead to many traffic accidents. The leading cause of death during winter storms is transportation accidents. About 70 percent of winter-related deaths occur in automobiles and about 25 percent are people caught out in the storm. The majority of these are males over 40 years of age. Emergency services such as police, fire, and ambulance are unable to respond due to road conditions. Emergency needs of remote or isolated residents for food or fuel, as well as feed, water and shelter for livestock are unable to be met. People, pets, and livestock are also susceptible to frostbite and hypothermia during winter storms. Those at risk are primarily either engaged in outdoor activity like shoveling snow, digging out vehicles, assisting stranded motorists, or are the elderly or very young. Schools often close during extreme cold or heavy snow conditions to protect the safety of children and bus drivers. Citizens' use of kerosene heaters and other alternative forms of heating may create other hazards such a structural fires and carbon monoxide poisoning.

Maximum Extent (4)

Winter storms are quite vast and would likely impact multiple counties. Certain areas may experience local variations in storm intensity and quantity of snow or ice. The Iowa Department of Transportation, county road departments, and local public works agencies are responsible for the removal of snow and treatment of snow and ice with sand and salt on the hundreds of miles of streets and highways in the area. Overall, any area of Hardin County can be affected.

Severity (4)

Immobilized transportation, downed trees and electrical wire, building and communication tower collapse, and bodily injury or death are just a few of the impacts of a severe winter storm. Vehicle batteries and diesel engines are stressed and the fuel often gels in extreme cold weather. This impacts transportation, trucking, and rail traffic. Rivers and lakes freeze and subsequent ice jams threaten bridges and can close major highways. Ice jams can also create flooding problems when temperatures begin to rise.

An ice coating at least ¼ inch in thickness is heavy enough to damage trees, overhead wires, and similar objects and to produce widespread power outages. Buried water pipes can burst causing massive ice problems, loss of water, and subsequent evacuations during sub-zero temperatures.

Fire during winter storms presents a great danger because water supplies may 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, causing pipes to freeze and possibly burst.

Cold temperature impacts on agriculture are frequently discussed in terms of frost and freeze impacts early or late in growing seasons and on unprotected livestock. The cost of snow removal, repairing damage, and loss of business can have large economic impacts on a community.

Speed of Onset (2)

The National Weather Service has developed effective weather advisories that are promptly and widely distributed. Radio, television, and Weather Alert Radios provide the most immediate means to do this. Accurate information is made available to public officials and the public up to a day in advance. Several notifications made by the National Weather Service include winter storm warning, blizzard warning, winter weather advisory, and a frost/freeze advisory.

Total Score: 22

Sinkholes [Land surface that is collapsed into subsurface voids]

Description

Sinkholes are common where the rock below the land surface is limestone, carbonate rock, 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 just gets too big. If there is not enough support for the land above the spaces then a sudden collapse of the land surface can occur. These collapses can be small or they can be huge and can occur where a house or road is on top.

Karst refers to geologic, hydrologic, and landscape features associated with the dissolution of soluble rocks, such as carbonates and evaporites. A common feature of karst landscapes are sinkholes, which form when the land surface collapses into subsurface voids formed in the slowly dissolving rock.

In Iowa, carbonate rocks form the uppermost bedrock over roughly the eastern half of the state, and are mantled with a variable thickness of glacial and other unconsolidated materials. Where these unconsolidated materials are less than 50 feet, and particularly less than 25 feet thick, sinkholes may occur.

New sinkholes have been correlated to land-use practices, especially from ground-water pumping and from construction and development practices. Sinkholes can also form when natural water-drainage patterns are changed and new water-diversion systems are developed. Some sinkholes form when the land surface is changed, such as when industrial and runoff-storage ponds are created. The substantial weight of the new material can trigger an underground collapse of supporting material, thus causing a sinkhole.

The overburden sediments that cover buried cavities in the aquifer systems are delicately balanced by ground-water fluid pressure. The water below ground is actually helping to keep the surface soil in place. Ground-water pumping for urban water supply and for irrigation can produce new

sinkholes In sinkhole-prone areas. If pumping results in a lowering of ground-water levels, then underground structural failure, and thus, sinkholes, can occur.

Historical Occurrence (1)

There are three areas in Iowa where large numbers of sinkholes exist: (1) within the outcrop belt of the Ordovician Galena Group carbonates in Allamakee, Clayton, and Winneshiek counties; (2) in Devonian carbonates in Bremer, Butler, Chickasaw, and particularly Floyd and Mitchell counties; and (3) along the erosional edge of Silurian carbonates in Dubuque and Clayton counties. According to the Iowa Department of Natural Resources, there are no significant sink holes in Hardin County.

Probability (1)

In Hardin County, Ackley, Eldora, Iowa Falls, and Steamboat Rock are all susceptible to the sinkhole hazard with no less than one third of each jurisdiction in the hazard area extent. Buckeye is directly adjacent to a sinkhole hazard area, creating the possibility of some land in the jurisdiction to be affected. Unlike other counties in Region 6's Jurisdiction, there are several large rural areas in most of the townships that are susceptible to sink holes but like other counties, there is no history of this issue so the probability of a sinkhole occurring is very low. However, according to Hardin County Emergency Management, there is one sink hole in rural northern Hardin County that is close to taking away a historic cemetery.

Vulnerability (2)

If a sinkhole were to form, people and structures located on or near the sink hole are the most at risk for injury, death, and property damage. People can be injured while the sinkhole is forming as well as after by falling into the open sinkhole. People, buildings, and infrastructure can basically be swallowed by a sink hole.

Maximum Extent (1)

There are three areas in Iowa where large numbers of sinkholes exist: (1) within the outcrop belt of the Ordovician Galena Group carbonates in Allamakee, Clayton, and Winneshiek counties; (2) in Devonian carbonates in Bremer, Butler, Chickasaw, and particularly Floyd and Mitchell counties; and (3) along the erosional edge of Silurian carbonates in Dubuque and Clayton counties. The only areas that are at risk for this hazard are unincorporated portions of Hardin County. For this jurisdiction, the worst case scenario would be if a sink hole actually developed in these areas, but the sink hole would more than likely not be large.

Severity (1)

Sinkhole impacts included potential loss of life; property damage and destruction; damage and disruption of communications, transportation, electric service, and community services; crop and

livestock losses; and interruption of businesses. Hazards of fire, health, and transportation accidents; and contamination of water supplies are likely effects. Much of this depends on the location and size of a sinkhole.

Most of Iowa's sinkholes occur in rural areas where their main impact is rendering some land unsuitable for row-crop agriculture. Sinkholes have also resulted in the failure of farm and other types of ponds, roads, and one sewage-treatment lagoon. As sinkholes sometimes allow surface runoff to directly enter bedrock aquifers, their presence has implications for groundwater quality.

Speed of Onset (4)

Sinkholes are a geological hazard that forms over time. A community can only be aware of their potential to develop a sink hole but often cannot be warned before a sinkhole forms.

Total Score: 10

Thunderstorm and Lightning [Atmospheric imbalance and turbulence resulting in heavy rains, winds reaching or exceeding 58 mph, tornadoes, or surface hail at least 0.75 inches in diameter]

Description

Thunderstorms are common in Iowa and can occur singly, in clusters, or in lines. They are formed from a combination of moisture, rapidly raising warm air, and a lifting mechanism such as clashing warm and cold air masses. Most thunderstorms produce only thunder, lightning, and rain. Severe storms, however, can produce tornadoes, high straight-line winds above 58 mph or higher, microburst, lightning, hailstorms, and flooding.

The National Weather Service considers a thunderstorm severe if it produces hail at least ¾ inch in diameter, wind 58 mph or higher, or tornadoes. High straight-line winds, which can often exceed 60 mph, are common occurrences and are often mistaken for tornadoes.

Lightning is an electrical discharge that results from the buildup of positive and negative charges within a thunderstorm. When the buildup becomes strong enough, lightning appears as a "bolt." This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning reaches temperatures approaching 50,000 degrees Fahrenheit in a split second. This rapid heating, expansion, and cooling of air near the lightning creates thunder.

Historical Occurrence (4)

According to the National Climatic Data Center, Hardin County has experienced 106 thunderstorm, lightning, and high wind events since 1985. Out of these events, no deaths and no injuries occurred. The total property damage from these storms was just over 3 million, and the crop damage totals $812,000. The high winds ranged from speeds of zero mph to nearly 90 mph. Also, according to the

NCDC, there are three lightning events for Hardin County between 1/1/1995 and 1/1/2011. All of the reported events occurred in three separate Hardin County participating jurisdictions.

Probability (4)

Iowa experiences between 30 and 50 thunderstorms days per year on average. With Iowa's location in the interior of the U.S., there is a very high likelihood that a few of these summer storms will become severe and cause damage. Because of the humid continental climate that Iowa experiences, ingredients of a severe thunderstorm are usually available (moisture to form clouds and rain, relatively warm and unstable air that can rise rapidly, and weather fronts and convective systems that lift air masses).

Vulnerability (2)

People in unprotected areas, mobile homes, or automobiles during a storm are at risk. Sudden strong winds often accompany a severe thunderstorm and may blow down trees across roads and power lines. Lightning presents the greatest immediate danger to people and livestock during a thunderstorm. It is the second most frequent weather-related killer in the U.S. with nearly 100 deaths and 500 injuries each year. Floods and flash floods are the number one cause of weather related deaths in the U.S.

Livestock and people who are outdoors, especially under a tree or other natural lightning rods, in or on water, or on or near hilltops are at risk from lightning. Hail can be very dangerous to people, pets, and livestock if shelter is not available.

Flash floods and tornadoes can develop during thunderstorms as well. People who are in automobiles or along low-lying areas when flash flooding occurs and people who are in mobile homes are vulnerable to the impacts of thunderstorms.

Maximum Extent (4)

Thunderstorms and lightning have the ability to span a large area like all of Hardin County but in most cases it affects smaller areas and moves across the county over time. It is possible for the entire county to be affected by a large thunderstorm and lightning event that moves across the entire county but this hazard can also be more isolated and only affect certain areas.

Severity (2)

Like tornadoes, thunderstorms and lightning can cause death, serious injury, and substantial property damage. Severe thunderstorms can bring a variety of associated hazards with them including straight-line winds in excess of 100 mph. Straight-line winds are responsible for most thunderstorm damage. High winds can damage trees, homes (especially mobile homes), and businesses and can knock vehicles off of the road. 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. One or more severe thunderstorms occurring over a short period can lead to flooding and cause extensive damage, power and communication outages, and agricultural damage.

Speed of Onset (2)

Some thunderstorms can be seen approaching, while others hit without warning. The National Weather Service issues severe thunderstorm watches and warnings as well as statements about severe weather and localized storms. These messages are broadcast over NOAA Weather Alert Radios and area television and radio stations. Advances in weather prediction and surveillance have increased warning times. The resolutions of radar and Doppler radar have increased the accuracy of storm location and direction. Weather forecasting and severe weather warnings issued by the National Weather Service usually provide residents and visitors alike adequate time to prepare. Isolated problems arise when warnings are ignored.

Total Score: 18

Tornado [A violent, destructive, rotating column of air taking the shape of a funnel-shaped cloud that progresses in a narrow, erratic path—rotating wind speeds can exceed 200 mph and travel across the ground at average speeds of 25 to 30 mph]

Description

A tornado is a violent whirling wind characteristically accompanied by a funnel shaped cloud extending down from a cumulonimbus cloud. A tornado can be a few yards to about a mile wide where it touches the ground. An average tornado, however, is a few hundred yards wide. It can move over land for distances ranging from short hops to many miles, causing great damage wherever it descends. The funnel is made visible by the dust sucked up and by condensation of water droplets in the center of the funnel. The rating scale used to rate tornado intensity is the Enhanced Fujita Scale.

Historical Occurrence (4)

In the U.S., Iowa is ranked third in the number of strong-violent (F2-F5) tornadoes per 10,000 square miles. From 1950-1995, Iowa averaged 31 twisters per year. In Iowa most tornadoes occur in the spring and summer months, but twisters can and have occurred in every month of the year. Late afternoon to evening hour tornadoes are the most common, but they can occur at any time of the day.

According to the National Climatic Data Center, in Hardin County, there have been no funnel clouds since 1950, but 28 tornadoes reported. From these events, 0 deaths and 3 injuries have occurred.

The intensity of these tornadoes ranges from F0 to F4. The total property damage throughout the county totaled about $34 million, and the crop damage was about $8,000.

Probability (4)

Historically, 30-40 tornadoes are confirmed in Iowa per year. Looking at historical data, tornadoes do not occur every year in Hardin County. The years that the county does have a tornado, though, sometimes have multiple tornadoes, such as in the years of 1989, 1990, 1991, 2004, 2005 and 2009.

Vulnerability (3)

Those most at risk from tornadoes include people living in mobile homes, campgrounds, and other dwellings without secure foundations or basements. People in automobiles are also very vulnerable to twisters. The elderly, very young, and the physically and mentally handicapped are most vulnerable because of the lack of mobility to escape the path of destruction. People who may not understand watches and warnings due to language barriers are also at risk.

Maximum Extent (3)

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. Normally, a tornado will stay on the ground for no more than 20 minutes; however, one tornado can touch ground several times in different areas. Large hail, strong straight-line winds, heavy rains, flash flooding, and lightning are also associated with severe storms and may cause significant damage to a wider area. The most damaging tornado that is likely to occur is an F3, which is based on historical tornado events in Hardin County.

Severity (3)

The severity of damage from tornadoes can be very high. Impacts can range from broken tree branches, shingle damage to roofs, and some broken windows; all the way to complete destruction and disintegration of well constructed structures, infrastructure, and trees. Injury or death related to tornadoes most often occurs when buildings collapse; people are hit by flying objects or are caught trying to escape the tornado in a vehicle.

Speed of Onset (4)

Tornadoes strike with an incredible velocity. Wind speeds may approach 300 mph and the storm can travel across the ground at more than 70 mph. These winds can uproot trees and structures and turn harmless objects into deadly missiles, all in a matter of seconds. The advancement in weather forecasting has allowed watches to be delivered to those in the path of these storms up to hours in advance. The best lead-time for a specific severe storm and tornado is about 30 minutes. Tornadoes have been known to change paths very rapidly, thus limiting the time in which to take shelter. Tornadoes may not be visible on the ground due to blowing dust or driving rain and hail.

Total Score: 21

Windstorm [Extreme winds associated with severe winter storms, severe thunderstorms, downbursts, and very steep pressure gradients]

Description

Extreme winds other than tornadoes are experienced in all regions of the United States. It is difficult to separate the various wind components that cause damage from other wind-related natural events that often occur with or generate windstorms.

Historical Occurrence (4)

Large-scale extreme wind phenomena are experienced over every region of the United States. Historically, high wind events are associated with severe thunderstorms and blizzards. It is often difficult to separate windstorms and tornado damage when winds get above 70 knots.

In Hardin County, according to the National Climatic Data Center, there are about 37 high wind events that were separated from either a thunderstorm or extreme wind chill. These windstorms occurred between 1993 and 2008, and were the only storms reported since 1950. The wind speeds during these windstorms ranged from less than one knot to 72 knots. Two deaths and 13 injuries were reported during these windstorm events. The total amount of property damage from these windstorms is almost $57 million, and the total crop damage is about $385,000.

Probability (4)

Based on historical data, Hardin County should expect at least one windstorm each year, but because it is difficult to separate a windstorm from other hazard events such as a thunderstorm there may be occurrences of high winds that may not necessarily be considered a windstorm.

Vulnerability (2)

Those most at risk from windstorms include people living in mobile homes, campgrounds, and other dwellings without secure foundations or basements. People in automobiles are also very vulnerable to windstorms. The elderly, very young, and the physically and mentally handicapped are most vulnerable because of the lack of mobility to escape the path of destruction. People who may not understand watches and warnings due to language barriers are also at risk.

Maximum Extent (4)

Unlike tornadoes, windstorms may have a destructive path that is tens of miles wide. Large hail, strong straight-line winds, heavy rains, flash flooding, and lightning are also associated with severe storms and may cause significant damage to a wider area. Wind speeds can reach up to 70 knots or greater during a windstorm event so a major event is possible.

Severity (3)

The severity of damage from windstorms can be very high. Impacts can range from broken tree branches, shingle damage to roofs, and some broken windows, all the way to complete destruction and disintegration of well-constructed structures, infrastructure, and trees. Injury or death related to windstorms most often occurs when buildings collapse; people are hit by flying objects or are caught trying to escape the windstorm in a vehicle. Crop damage is often associated with windstorms, laying down crops, breaking stalks, and twisting plants, reducing the yield and making it difficult to harvest.

Speed of Onset (4)

Wind speeds may approach 120 miles per hour and the storm can travel across the ground at more than 30 mph. These winds can uproot trees and structures and turn harmless objects in to deadly missiles, all in a matter of seconds. The advancement of weather forecasting has allowed watches to be delivered to those in the path of these storms up to hours in advance. The best lead-time for a specific severe storm is about 30 minutes.

Total Score: 21

Animal/Crop/Plant Disease [A medical, health, or sanitation threat to the wildlife or domestic animals like contamination, epidemics, plagues, and insect infestation]

Description

Infectious diseases introduced onto an operation can have a devastating effect on cash flow and equity. Major animal diseases include foot and mouth disease, rinderpest, African swine fever, classical swine fever, brucellosis, lumpy skin disease, and others. Adverse effects of infectious diseases can occur at the farm or industry level. Some diseases may severely limit or eliminate animal marketing options (for example: to slaughter only). In the future producers may be responsible for potential pathogen contamination of the food supply or environment. Negative effects may be short- or long-term depending on the nature of the pathogen and level of concern among producers and consumers. Presence of some pathogens can also affect market access for high priority in day-to-day management decisions.

Historical Occurrence (1)

Statewide, the most recent Animal/Crop/Plant Disease was the West Nile Virus (WNV). First indentified in New York City and carried by birds and mosquitoes, the disease spread to four states in 1999 and to 12 states and the District of Columbia in 2000. WNV causes severe neuralgic infections humans, horses, and other mammal species. As of early 2003, the disease has been found in nearly all states east of the Rocky Mountains, including Iowa where 15 confirmed human cases, 113 birds, and 1,039 horses have tested positive. The rabbit calicivirus disease was first found in 2000, but the infected rabbits were quarantined. Since then, there have been no major breakouts in the state.

According to Hardin County Emergency Management, there have been many incidents of animal disease outbreaks in the county due to the high concentration of animals. Rabies and West Nile are a challenge. There are also frequent crop disease and infestation outbreaks in the county.

Probability (2)

As the nation's number one producer of corn, soybeans, eggs, and hogs, Iowa farmers and producers know the importance of securing America's food supply. With hundreds of thousands of head of livestock produced and transported in Iowa each year, Iowa could be a rich environment for a disease epidemic to take hold if precautions such as vaccinations and handling procedures are not rigorously followed.

According to Kelvin Leibold, ISU Hardin County Extension Farm Management Program Specialist, there are sure to be crop related diseases, fungus, molds, insect outbreaks that occur regularly every year and are treated by the farming community.

Recently discovered in Northeast Iowa, though not in Hardin County yet, is the Emerald Ash Borer. This insect threatens to destroy every ash tree across the landscape. In some communities, ash trees compose 50-70+% of the trees. This may be just like when Dutch Elm disease went through 60-70 years ago.

An Emerald Ash Borer (EAB) website, created and run by the University of Michigan Extension describes the ash border as metallic green and about 1/2-inch long. They expect that it probably came from Asia in wood packing material. An implication of their infestation is the effect on firewood in some states not being moved because of a quarantining effort. These quarantines are in place to prevent infested ash firewood, logs or nursery trees from being transported and starting new infestations. Some signs of EAB damage are canopy dieback, Epicormic shoots (sprouts growing from roots and trunk), bark splitting, serpentine galleries, D-shaped exit holes, and increased woodpecker activity/damage.

Another disease yet to arrive in Hardin County, but has the potential of being devastating is Asian Soybean Rust. According to ISU extension; this fungal plant disease creates small angular rust-colored spots on the beans and eventually turns the leaves of severely affected plants yellow and cause them to fall off. The fungus is spread from plant to plant by tiny, dust-like spores that are carried by the wind. The disease first appeared in the US in Louisiana in 2004 and is believed to have been carried to the US by hurricanes from farther south. The only management option available to soybean farmers is to spray fungicides at the first sign of rust.

Vulnerability (3)

U.S. agriculture is very vulnerable to the introduction of a foreign animal/crop/plant disease. Outbreaks can be inadvertently introduced by contaminated material carried by an international traveler or by the importation of infected animals and animal products. Foreign animal/crop/plant disease could enter the U.S. vectored by wild animals, insects, or migratory birds or they could be intentionally introduced to cause severe economic problems or to target human health.

Maximum Extent (3)

State and federal animal health programs have been very successful in preventing or limiting the scope and magnitude of animal emergencies. However, because threats to animal health are always changing and because the animal population is mobile, the possibility always exists for a local, regional, or statewide animal health emergency to occur. Unincorporated Hardin was identified as the jurisdiction most at risk for this hazard. Most livestock is located outside city corporate limits in Hardin County.

Severity (4)

Animal health emergencies can take many forms: disease epidemics, large-scale incidents of feed and water contamination, extended periods without adequate water, harmful exposure to chemical, radiological, or biological agents, and large-scale infestations of disease-carrying insects or rodents, to name a few. One of the principal dangers of disease outbreaks they can rapidly overwhelm the animal care system. Perhaps the greatest animal health hazard would be the intentional release of a foreign animal disease agent to adversely impact a large number of animals. Such a release would likely not be an act of sabotage.

Speed of Onset (1)

The private practitioner is the first line of defense and will undoubtedly be the first to witness the symptoms of Animal/Crop/Plant Diseases. The United States Department of Agriculture monitors reports submitted by veterinarians and labs to identify patterns. The department is proactive in providing information to the agricultural community on medical concerns. Conditions related to scope and magnitude can escalate quickly and area resources can be drained of vets, medications, and vaccinations rather quickly.

Total Score: 14

Communications Failure [The widespread breakdown or disruption of normal communication capabilities. This could include major telephone outages, loss of local government radio facilities, or long-term interruption of electronic broadcast services]

Description

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. Business and industry rely heavily on various communication media as well. 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, an outage could be more widespread.

Historical Occurrence (1)

According to Hardin County Emergency Management, communication problems arose during the hail storm in Eldora last year (2009). Phone and cell phone problems occurred after the storm, as well as a loss of communication towers at the Sheriff's Department. For more information on the storm, see the article in Appendix I.

Probability (1)

Widespread communications losses are unlikely due to backup systems and redundant system designs. Local communications failures are likely to affect small areas of the county.

Vulnerability (1)

Citizens of the community would be impacted only indirectly. Phone and data transmission could be impacted. Most communication systems that are highly necessary have backup and are redundant in order to provide continuity of service.

Maximum Extent (1)

Most communications failures would be limited to localized areas. In the event of a widespread communications failure, only portions of Hardin County would be impacted, but this highly unlikely due to the support of other jurisdictions and secondary communication devices.

Severity (1)

A communications failure would not directly result in injuries or fatalities. Most financial losses would be incurred due to the direct damage to electronic equipment and the communication system infrastructure. If emergency 911 systems were to fail due to phone communication disruption, secondary impacts could occur by the inability of citizens to alert responder of their needs. Inter-agency and intra-agency communications would be limited. Data transmission could also be affected. This could disrupt business and financial transactions resulting in potential loss of business.

Speed of Onset (4)

A communications failure would likely occur with little or no warning. It is usually impossible to predict a communications failure. Some communications may be shut down for a short while for improvements or maintenance. These disruptions are usually made during period of low demand and those who rely on them are given previous notice that the system will be out of service.

Total Score: 9

Energy Failure [An extended interruption of electric, petroleum or natural gas service, which could create a potential health problem for the population]

Description

International events could potentially affect supplies of energy-producing products, while local conditions could affect distribution of electricity, petroleum, or natural gas. The magnitude and frequency of energy shortages are associated with international markets. Local and state events such as ice storms can disrupt transportation and distribution systems. If disruptions are long lasting, public shelters may need to be activated to provide shelter from either extreme cold or extreme heat. Stockpiles of energy products eliminate short disruptions, but can also increase the level of risk to the safety of people and property in proximity to the storage site.

On the other hand, there are also shorter term interruptions of energy due to some sort of damage or malfunction to infrastructure. An example is a loss of electricity due to damaged electric lines or loss of natural gas due to a damage pipeline.

Historical Occurrence (1)

Hardin County Emergency Management explains; the county has power outages several times a year. Most are caused by weather events including; strong winds, lightning, ice, fallen trees, etc. They are mostly short lived and of little significance.

Probability (3)

Only when free market forces cease to provide for the health, welfare, and safety of the citizens, can governments take appropriate actions to limit the effects of an energy shortage. The State of Iowa has three strategies to limit the likelihood of an energy shortage. Through voluntary and mandatory demand reduction mechanisms; the substitution of alternative energy sources when possible; and state government programs to curtail excessive use, energy supply and demand can be kept in check. The federal government has a strategic petroleum reserve to supplement the fuel supply during energy emergencies. Shortage, especially electrical shortage, can be unpredictable with immediate effects. Natural events, human destruction, price escalation, and national security energy emergencies can cause unavoidable energy shortages. Hardin County Emergency Management states that several power outages occur per year. Several are due to disaster conditions like ice, snow, and hailstorms.

Vulnerability (3)

Because Iowa is almost entirely dependent on out-of-state resources for energy, Iowans must purchase oil, coal, and natural gas from outside sources. 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 because of their lower purchasing power. Agricultural, industrial, and transportation sectors are also vulnerable to supply, consumption, and price fluctuations. In Iowa, petroleum represents 97% of transportation fuel. Individual consumers such as commuters are also vulnerable.

In the case of shorter term outages, people in their homes or care facilities are vulnerable if they have special medical needs that require equipment powered by electricity or some other form of power that can be lost. During times of extreme temperature, people are vulnerable because they may not be able to heat or cool their home.

Maximum Extent (3)

The effects of energy shortage would be felt throughout Hardin County. If it were a major supply interruption type of incident local shortages could be quickly covered, because the distribution systems are very developed. An Energy Failure due to damaged infrastructure could affect a small or large are of the county, but this depends on what type and degree of damage that causes the loss.

Severity (2)

Injuries and fatalities would not be directly caused by an energy shortage. Injuries and fatalities could occur if energy was not available for heating during extreme cold periods or for cooling during extreme heat. Hospitals, shelters, emergency response vehicles and facilities, and other critical facilities would have priority during energy shortages. Rotating blackouts, voluntary conservation measures, and possibly mandatory restrictions could be used to limit the severity of an energy shortage. Effects could range from minor heating and air conditioning disruptions to transportation limitations all the way to civil unrest due to the high demand, low supply, and subsequent high price. Business disruption and increased cost of business would have far-reaching financial implications across many sectors of the economy.

Speed of Onset (4)

The Iowa Department of Natural Resources Energy Bureau monitors domestic and international energy situations and has developed a plan to deal with an energy crisis. Signs that an energy shortage may be developing can be recognized even months in advance, but energy shortages/emergencies can rise suddenly and unexpectedly. Supply distribution problems in other countries and local weather situations can lead to low supply coupled with high demand in a matter of a day or two. As for outages, there is no warning for this type of Energy Failure.

Total Score: 16

Hazardous Materials Incident [Accidental release of chemical substances or mixtures that presents danger to the public health or safety]

Description

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. As many as 500,000 products pose physical or health hazards and can be defined as "hazardous chemicals." Each year, over 1,000 new synthetic chemicals are introduced and transported across the county via semi truck and train. Hazardous substances are categorized as

toxic, corrosive, flammable, irritant, or explosive. Hazardous materials incidents generally affect a localized area, and the use of planning and zoning can minimize the area of impact.

Historical Occurrence (3)

According to Hardin County Emergency Management, the county has hazardous materials incidents every year. Because of the location of major highways and railroads through most towns in Hardin County, most incidents are transportation related. Intentional dumping, accidental spills, and improper disposal are also occurrences in the county. These include Ethanol, Oil, Fuel Oil, Farm Chemicals, Manure, Ethanol Byproducts, Bio-diesel Byproducts, and others.

Probability (3)

Large quantities of hazardous materials are transported daily on Iowa streets, highways, interstates, and railways. Roadways are a common site for the release of hazardous materials. Railways are another source for hazardous materials releases. The Department of Transportation regulates routes and speed limits used by carriers and monitor the types of hazardous materials crossing state lines. 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.

Vulnerability (3)

A hazardous materials incident can occur almost anywhere so any area is considered vulnerable to an accident. People, pets, livestock, and vegetation in close proximity to transportation corridors and populations downstream, downwind, and downhill of a released substance are particularly vulnerable. Depending on the characteristics of the substance released, a larger area may be in danger from explosion, absorption, injection, ingestion, or inhalation. Occupants of areas previously contaminated by a persistent material may also be harmed either directly or through consumption of contaminated food and water.

Maximum Geographic Extent (2)

Most of the hazardous materials incidents are localized and are quickly contained or stabilized by highly trained fire departments and hazardous materials teams. Hardin County has an agreement with the Northeast Iowa Response Group for hazmat response because their firemen are trained for hazardous materials incidents. The Northeast Iowa Response Group provides HazMat Ops and HazMat Recertification training to emergency responders. Depending on the characteristic of the hazardous 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. All jurisdictions are at risk for this hazard.

Severity of Impact (3)

Many injuries and fatalities due to transport of hazardous materials are related to the collision itself rather than the product released. 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, ingested, or inhaled. Contaminated water resources may be unsafe and unusable, depending on the amount of contaminant. 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. Loss of livestock and crops may lead to economic hardships within the community. The occurrence of a hazardous materials 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.

Speed of Onset (4)

When managed properly under current regulations, hazardous materials pose little risk. However, when handled improperly or in the event of an accident, hazardous materials can pose a significant risk to the population. Hazardous materials incidents usually occur very rapidly with little or no warning. Even if reported immediately, people in the area of the release have very little time to be warned and evacuated. During some events, sheltering in-place is the best alternative to evacuation because the material has already affected the area and there is no time to evacuate safely. Public address systems, television, radio, and the NOAA Weather Alert Radios are used to disseminate emergency messages about hazardous materials incidents.

Total Score: 18

Highway Transportation Incident [A single or multi-vehicle incident which requires responses exceeding normal day-to-day capabilities]

Description

An extensive surface transportation network exists in Hardin County. Local residents, travelers, business, and industry rely on this network on a daily basis. Thousands of trips a day are made on the streets, roads, and highways. If the designed capacity of the roadway is exceeded, the potential for a major highway incident increases. Weather conditions play a major factor in the ability of traffic to flow safely in and through the county; as does the time of day and day of week. Incidents involving buses and other high-occupancy vehicles could trigger a response that exceeds the normal day-to-day capabilities of response agencies.

Historical Occurrence (4)

According to the Iowa Department of Transportation, between 2004 and 2008, there were a total of 1,068 rural car crashes in Hardin County. Of these, 57 were major and 141 were minor crashes with 15 resulting in fatalities. Within these crashes, 571 injuries were sustained while 17 of these injuries were fatal.

Probability (4)

Although traffic engineering, inspection of traffic facilities, land use management of areas adjacent to roads and highways, and the readiness of local response agencies have increased, highway incidents continue to occur. As the volume of traffic on the county's streets and highways increases, the number of traffic accidents will likely also increase. The combination of large numbers of people on the road, unpredictable weather conditions, potential mechanical problems, and human error always leaves open the potential for a transportation accident.

Vulnerability (3)

Those who use the surface transportation system are most vulnerable. Travelers, truckers, delivery personnel, and commuters are at risk all time that they are on the road. During high traffic hours and holidays the number of people on the road in Hardin County is higher. This is also true before and after major gatherings such as sporting events, concerts, and conventions. Pedestrians and citizens of the community are less vulnerable but still not immune from the impacts of a highway incident.

Maximum Extent (3)

Hardin County is crisscrossed by hundreds of miles of roads and highways. Highway incidents are usually contained to areas on the roadway or directly adjacent to the roadway. Very few highway incidents affect areas outside the traveled portion of the road and the right-of-way. Extensive segments of the transportation system can be impacted during significant weather events, such as a large snowstorm, when multiple individual accidents occur. The area of impact can extend beyond the localized area if the vehicle(s) is involved in transporting hazardous materials.

Severity (3)

Highway incidents threaten the health and lives of people in the vehicles, pedestrians, and citizens of the community if hazardous materials are involved. Mass casualty events can occur if mass transit vehicles are involved. Community bus and school buses have a good safety record, but accidents can and do occur. Numerous injuries are a very real possibility in situations involving mass transit vehicles. Property damage would be limited to vehicles and cargo involved; roads, bridges, and other infrastructure; utilities such as light and power poles; and third-party property adjacent to the accident scene such as buildings and yards. Between 2001 and 2005 there were 1580 car crashes and 23 of these crashes resulted in 25 fatal injuries.

Speed of Onset (4)

There is usually no warning of highway incidents. During snow storms and other weather events that may impede travel, travelers, response agencies, and hospitals alike can be notified of hazardous travel conditions.

Total Score: 21

Pipeline Transportation Incident [A break in a pipeline creating a potential for an explosion or leak of a dangerous substance—oil, gas, water from water mains, etc.—possibly requiring evacuation]

Description

Iowa is served by many high pressure pipelines to residents and industries. An underground pipeline incident can be caused by environmental disruption, accidental damage, or sabotage. Incidents can range from a small slow leak that is not ignited to a large rupture in which the gas is ignited. Inspection and maintenance of the pipeline system along with marked gas line locations and an early warning and response procedure can lessen the risk to those in proximity to the pipelines.

Historical Occurrence (1)

According to Hardin County Emergency Management, pipeline leaks and explosions have occurred in both Hubbard and Union. In December, 2000, a natural gas pipeline explosion blew up Hubbard's downtown.

Probability (2)

The vast majority of pipeline incidents that occur are caused by third-party damage to the pipeline, often due to construction or some other activity that involves trenching or digging operations. With development occurring at an unprecedented rate and the ground becoming more and more congested with utilities, the probability of an underground pipeline incident is significant.

Petroleum and natural gas pipeline accidents occur with some regularity, but they usually have a limited impact and are quickly and adequately handled by pipeline company emergency crews and local and state responders. Pipeline operators are required to coordinate all safety preparedness and response activities with the communities. Planning, training, and exercising of emergency procedures with all involved parties helps to limit the occurrence and severity of incidents.

Vulnerability (2)

People and property with pipelines on their land or nearby are the most at risk. In the event of a pipeline incident, those downwind and downhill of the release are the most vulnerable. People excavating earth near a pipeline are also at risk. Private homes and business served by natural gas have small diameter pipelines connected to their structure. The underground pipelines cross public streets, roads, and highways as well as streams. Iowa's natural environment is also vulnerable to contamination from an underground pipeline incident.

Maximum Extent (2)

Though often overlooked, petroleum and natural gas pipelines pose a real threat in the community. Most incidents affect only the area directly above or near the damaged pipeline. Depending on the size of pipeline and amount of product released, the extent of impact could be several hundred feet in diameter. Large areas may need to be evacuated to remove people from the threat of fire,

explosion, or exposure. Pipelines have automatic shutoff valves installed so that damaged sections can be isolated and the volume of product escaping can be limited. Identification and caution signs are posted wherever pipelines pass under roads, streams, fence lines, or at any aboveground utilities.

Major pipelines are located in or around Hardin County, Montezuma, Grinnell, and Brooklyn. Other Hardin County cities do not have natural gas service and use other sources for power. The jurisdictions with major pipelines are much more likely to be affected by a potential pipeline transportation incident than those jurisdictions that do not.

Severity (3)

Petroleum and natural gas pipelines can leak or erupt and cause property damage, environmental contamination, injuries, and even loss of life. Accidents may be caused by internal or external corrosion, defective welds, incorrect operation, outside damage, or other defective pipeline or equipment. Most incidents involve crude oil, gasoline, or natural gas pipelines. All petroleum liquids pose dangers from fire or explosion, and the fire may produce poisonous or irritating gasses. Toxic fumes and direct contact can cause health hazards. Vapor clouds can travel a distance and settle in low-lying areas where the fumes may overcome people and animals. Released products should be treated as any other hazardous material. Large areas may need to be evacuated to remove people from the threat of fire, explosion, or exposure. These evacuations potentially save lives and limit injury, but they also disrupt businesses and inconvenience residents. A break in water pipelines may impact fire protection and continuity of operations at business and industry and may affect the area by saturating the soil and causing rapid erosion.

Speed of Onset (4)

A pipeline incident may occur suddenly, but sight, sound, and smell can alert individuals that there may have been damage done to a pipeline in the area. Products may bubble up from the ground or collect in low-lying areas, a roaring or hissing noise may be heard, and most products give off distinct odor. These warning signs can alert individuals not to use any devices that may act as ignition sources and cause a fire or explosion.

Total Score: 14

Railway Transportation Incident [A derailment or a train accident which directly threatens life or property, or which adversely impacts a community's capabilities to provide emergency services]

Description

Railway incidents may include derailments, collisions, and highway/rail crossing incidents. Train incidents can result from a variety of causes. Human error, mechanical failure, faulty signals, and problems with the track can all lead to railway incidents. Results of an incident can range from minor "track hops" to catastrophic hazardous materials incidents and even passenger casualties.

With the many miles of track in Iowa, there are numerous at-grade crossings at which vehicles must cross the railroad tracks. These crossings can be found throughout the County.

Historical Occurrence (2)

In Hardin County, there have been several train derailments and more than one railway incident a year over the past 10 years, according to Hardin County Emergency Management. One took place near Gifford, involving hazardous materials when a bridge collapsed. Several train accidents causing derailments take place near Buckeye.

Probability (3)

There are 61 railroad crossings in Hardin County. The miles of railroad track in the county combined with the large number of street and highway crossings makes the probability of highway/rail collision significant. Derailments are also possible, while a major derailment would occur less frequently.

Vulnerability (1)

People and property in close proximity to the railway lines, crossing, sidings, switching stations, and loading/unloading points are most at risk. Those away from railroad track and facilities are vulnerable only to large-scale incidents including those in which hazardous materials are involved.

Maximum Extent (2)

A Canadian National rail line runs east-west through the upper portion of Hardin County. A Union Pacific Railroad freight line runs north-south through the east and west (Kansas City to Minneapolis) portions of the county. The Iowa River Railroad runs from Marshalltown to Ackley. This route goes north-south in the eastern part of the county. There are 101 railways crossings throughout Hardin County. Vehicle/train collisions are usually limited to areas in and near intersections. Rarely, the incident will result in widespread effects. The direct area of impact is usually quite small, but depending on the materials involved, the effect could reach areas up to 1-5 miles from the scene. Harmful products may contaminate streams, rivers, water distribution systems, and storm water systems. If this occurs, a large portion of the community could be affected. The ability of response agencies to contain the product on-scene usually limits the area affected.

Severity (2)

Railway incidents can result in death, injury, and property damage. Deaths and injuries can range from those directly involved to citizens in the community affected by hazardous materials. Depending on the materials involved, evacuations may occur, moving residents away from dangerous products and the possibility of explosion. Gases, liquids, and solids can contaminate air, soil, and water in and near the incident scene. If a railway incident occurred in an urban area, the health and welfare of thousands of people could be put in jeopardy. Damage may be limited to the train, railcars, and cargo involved, but it can also include loss of production, business disruption due

to evacuations, and business disruptions of those served by the railroad. Business and traffic disruptions could last several days until the clean-up efforts are complete.

Speed of Onset (4)

Like other transportation incidents, a railway incident would occur with no warning. There may be a limited amount of time to warn those in the pathway of the harmful effects.

Total Score: 14

Structural Failure [The collapse (part or all) of any public or private structure including roads, bridges, towers, and buildings]

Description

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 a roof of a building to collapse under the weight of the 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. Enforcement of building codes can better guarantee that structures are designed to hold up under normal conditions. Routine inspection of older structures may alert inspectors to "weak" points. The level of damage and severity of the failure is dependent on factors such as the size of the building or bridge, the number of occupants of the building, the time of day, day of week, amount of traffic on the road or bridge, and the type and amount of products stored in the structure.

Historical Occurrence (1)

According to Hardin County Emergency Management, there have been no major structural failures in the last five years. The ones that did occur were old houses, barns, and out buildings.

Probability (2)

Civil structures may fail in a variety of modes. The unprecedented growth in technology has resulted in a host of problems related to complex structures, special materials, and severe operation and environmental loads, such as fire, excessive vibrations, explosion, high-energy piping failures, missiles, and earthquakes. With the possible exception of misuse, accidental or environmental loads, the causes of failure may be found in deficiencies in design, detailing, material, workmanship, or inspection. With the aging structures in the county along with problems with new materials, structural failures will continue to occur. Efforts to inspect and maintain structures will lessen the probability of a failure, but not guarantee that it will not happen in the future. Internal weaknesses can be hidden from inspectors and not be realized until it is too late.

Vulnerability (1)

There are many buildings in Hardin County that are very old or which may become hazardous in the event of an earthquake, fire, high winds, or other natural events. All bridges are vulnerable to

the effects of elements and the deterioration that results. Increases in the amount and weight of traffic they are expected to support increase their vulnerability to failure.

Maximum Extent (1)

The impacts of the failed structure would be contained to the immediate area and adjacent properties. This could be as small as the house and yard of a fallen chimney, or the area could be relatively extensive if the structure that failed was a multi-story building of a downtown or a tall communication tower. All Hardin County jurisdictions are at risk for this hazard. Dam failure would affect a much larger area.

Severity (2)

Bridge failures and debris in streets and sidewalks would interrupt normal routes of travel. Functional purpose of the building would be terminated or suspended until the integrity of the structure could be restored. Personal injury, death, and property damage may occur in the collapse itself or by falling debris from nearby structures. There would also be a considerable cost to replace or fix the structure, not to mention the loss of revenue that would occur because the structure could not be used. Utilities may be cut off to surrounding areas and communication transmissions may be lost for a period of time.

Speed of Onset (4)

The actually failure of the structure would like occur suddenly with little or no warning. There are several events that could lead up to the failure, and these have various warning times and are discussed in separate hazard worksheets. Causal hazards can include fire, explosion, overloading of ice and snow, vibration, earthquakes, flooding, high wind, erosion, chemical corrosion, subsidence, and lack of general upkeep.

Total Score: 11

Structural Fire [An uncontrolled fire in a populated area that threatens life and property and is beyond normal day-to-day response capabilities]

Description

Structural fires present a great threat to life and property and the potential for large economic losses. Modern fire codes and fire suppression requirements in new construction and building renovations, couple with improved firefighting equipment, training, and techniques, lessen the chance and impact of major urban fire. Most structural fires occur in residential structures, but the occurrences of a fire in a commercial or industrial facility could affect more people and pose a greater threat to those near the fire or fighting the fire because of the volume or type of the material involved.

Historical Occurrence (3)

According to Hardin County Emergency Management, structural fires occur on a regular basis, averaging 15-20 a year.

Probability (4)

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 fire will continue to occur. During colder months, clogged chimneys and faulty furnaces and fire places can increase the probability of structural fires.

Vulnerability (3)

Older structures with outdated electrical systems not built to current fire codes are particularly vulnerable to fire. Combustible building materials obviously are more vulnerable than structures constructed of steel or concrete. Structures without early detection devices are more likely to be completely destroyed before containment by response agencies. Structures in areas served by older, small, or otherwise inadequate water distribution infrastructure such as water mains and hydrants are also at significant risk. Problems vary from region to region, often as a result of climate, poverty, education, and demographics, but Iowa has about 13.4 fire deaths per million people. The fire death risk is nearly two times that of the average population for children 5 years of age or less.

Maximum Geographic Extent (2)

With modern training, equipment, fire detection devices, and building regulations and inspections, most fire can be quickly contained and limited to the immediate structure involved. Certain circumstances, such as the involvement of highly combustible material or high winds, can threaten a larger area. The age and density of a particular neighborhood can also make it more vulnerable to fire due to the spreading of fire from neighboring structures. All Hardin County jurisdictions are at risk for structural fires.

Severity of Impact (3)

Based on national averages in the 1990s, there is one death for every 119 residential structure fires and one injury for every 22 residential fires. On average, each residential fire causes nearly $11,000 of damage. In nonresidential fires, there is one death for every 917 fires, one injury for each 52 fires, and each nonresidential fire causes and average of nearly $20,000 in damage.

Speed of Onset (4)

While fires usually start with little or no warning time, alert devices can allow time for responders to contain the fire and allow occupants to evacuate the structure.

Total Score: 19

4.3 Hazard Ranking

Once the hazards for Hardin County were chosen and profiled, they were ranked against each other to determine which hazards can have the greatest impact on the county. The ranking was done according to the method used in the 2007 Iowa Hazard Mitigation Plan. The ranking method involves assigning a rating for historical occurrence, probability, human vulnerability, maximum geographic extent, severity of impact, and speed of onset. The framework for this method is below:

1. Historical occurrence is the number of times a hazard has occurred in the jurisdiction in the past 25 years. Assign a score accordingly.

Score	Description
1	Less than 4 occurrences in the past 25 years
2	4 to 7 occurrences in the past 25 years
3	8 to 12 occurrences in the past 25 years
4	More than 12 occurrences in the past 25 years

2. Probability reflects the likelihood of a hazard occurring again in the future, sometimes without regard to the hazard's historical occurrence. Assign a score accordingly.

Score	Description
1	Unlikely-Less than 10% probability in the next 100 years
2	Possible-Between 11% and 25% probability in the next year
3	Likely-Between 26% and 60% probability in the next year
4	High Likely-More than 60% chance in the next year

3. Human vulnerability measures the percentage of people who will be adversely affected by the occurrence of a hazard. Assign a score accordingly.

Score	Description
1	Negligible-Less than 1% of the county
2	Limited-1% to 10% of the county
3	Critical-11% to 20% of the county
4	Catastrophic-More than 20% of the county

4. Maximum geographic extent is the percentage of the jurisdiction impacted by the hazard. Assign a score accordingly.

Score	Description
1	Less than 1% of the jurisdiction
2	1% to 10% of the jurisdiction
3	11% to 20% of the jurisdiction
4	More than 20% of the jurisdiction

5. Severity of impact is an assessment of severity in terms of injuries and fatalities, personal property, and infrastructure. Assign a score accordingly.

Score	Description
1	Negligible o Few if any injuries o Minor quality of life lost with little or no property damage o Brief interruption of critical facilities and services for less than 4 hours o No environmental impact o No impact to reputation of the jurisdiction
2	Limited o Minor injuries and illness o Minor or short-term property damage which does not threaten structural stability o Shutdown of critical facilities and services for 4 to 24 hours o Minor short-term environmental impact o Very limited impact to reputation of the jurisdiction
3	Critical o Serious injury and illness o Major or long-term property damage which threatens structural stability o Shutdown of essential facilities for 24 to 72 hours o Minor long-term environmental impact o Moderate impact to the reputation of the jurisdiction
4	Catastrophic o Multiple deaths o Property destroyed or damaged beyond repair o Complete shutdown of critical facilities and services for 3 days or more o Major long-term environmental impact o Severe impacts to the reputation of the jurisdiction

6. Speed of Onset is the rating of the potential amount of warning time that is available before the hazard occurs. Assign a score accordingly.

Score	Description
1	More than 24 hours warning time
2	13 to 24 hours warning time
3	6 to 12 hours warning time
4	Minimal or no warning

Initially, the ranking of hazards was done by Region 6 before the first countywide meeting where they were presented for the Planning Team to either agree or disagree with the outcome. The result of the ranking process is in Table 4.3.1.

Table 4.3.1: Hardin County Hazard Ranking Results

Hazard	Historical Occurrence	Probability	Human Vulnerability	Maximum Geographic Extent	Severity of Impact	Speed of Onset	Score
Severe Winter Storm	4	4	4	4	4	2	22
Highway Trans Incident	4	4	3	3	3	4	21
Windstorm	4	4	2	4	3	4	21
Tornado	4	4	3	3	3	4	21
Flash Flood	4	3	3	3	3	3	19
Structural Fire	3	4	3	2	3	4	19
Hailstorm	4	4	2	3	2	4	19
Thunderstorms/Lightning	4	4	2	4	2	2	18
Haz Mat Incident	3	3	3	2	3	4	18
Energy Failure	1	3	3	3	2	4	16
River Flood	4	4	2	2	2	1	15
Grass/Wildland Fire	2	4	2	2	1	4	15
Railway Trans Incident	2	3	1	2	2	4	14
Drought	1	2	2	4	2	3	14
Animal /Crop/Plant Disease	1	2	3	3	4	1	14
Pipeline Trans Incident	1	2	2	2	3	4	14
Extreme Heat	1	2	2	3	2	1	11
Structural Failure	1	2	1	1	2	4	11
Sinkholes	1	1	2	1	1	4	10
Dam Failure	1	1	1	1	2	4	10
Earthquake	1	1	1	2	1	4	10
Communications Failure	1	1	1	1	1	4	9

Note: We cannot assume that this ranking is accurate across the entire county. Hazard boundaries already indicate that areas are affected by different hazards. The vulnerability assessment will further refine what hazards should be considered in determining goals and mitigation actions for each jurisdiction.

According to the ranking method, higher scores coincide with a greater potential impact on the county. The hazards that have the greatest potential for affecting Hardin County are severe winter storms, highway transportation incidents, windstorms and tornadoes. Other hazards rank very closely, too. In Hardin County, the high ranking hazards occur the most frequently and cause the most damage throughout the County.

The other hazards ranked lower may occur less frequently, but do not necessarily cause less damage. Hazards like sinkholes and earthquake are ranked low, but this makes them no less important. Their low ranking is mainly due to lack of historical data or knowledge. If one of these hazards were to occur, the results could be devastating.

Some hazards received the same score so they share an equal ranking. Among these shared rankings, major differences are present among the hazards. The first group, containing three of the top 4 (high) ranked hazards, includes highway transportation incidents, tornadoes and windstorms scored at 21. Tornadoes and highway transportation incidents have the same exact scoring while windstorms scored one point higher in the maximum geographic extent and one point lower in the human vulnerability category. Windstorms are more likely to cover a larger area than a fixed transportation incident or a single tornado. People are less vulnerable to windstorms because most shelters can shield a person from strong winds while tornadoes can uproot many building types depending on their structural stability.

Next, flash flood, structural fire, and hail storms were tied for the number three rank with equal scores of 19. The main difference between how these three hazards were scored was a one point difference by one of the three hazards in each category. The probability and speed of onset of a flash flood is lower than the other hazards. Historical occurrence and maximum geographic extent are lower for a structural fire than the other two hazards. Human vulnerability and severity of impact of a hail storm are lower than the other two hazards with its same ranking. A flash flood is less likely to occur than seasonal storms and hazards started by human innovation and error. Structural fires have occurred less in history and affect a much smaller geographic area, most being contained to one structure or property. Humans are more vulnerable to hail storms, especially if caught outside. If windows are destroyed, the weather coming into a structure could hurt someone inside. Hardin County is not lost on the city of Eldora where a 2009 storm caused damage still being repaired in late 2010. Hardin County is not prone to flooding and structural fires are unpredictable, leaving hail storms the most human vulnerable hazard in this set.

The third tied ranking is for fourth in which thunderstorms and hazardous materials incidents scored an 18. All aspects of each of these hazards had at least a one point difference. Two categories, however, had a 2 point difference, those being maximum geographic extent and speed of onset. Thunderstorms have a higher geographic extent than a single hazardous materials incident, which is to be expected. Hazardous materials incidents have a faster speed of onset than thunderstorms because they can start almost instantaneously if a spill happens on a major highway.

Grass/Wildland fire, and river flood scored a 15 to tie for the sixth ranked hazards. They rank similarly for most aspects. The one major difference is in the speed of onset, in which grass/wildland fire is severely faster, with a 3 point difference.

The biggest set of hazards ranked seventh all with a score of 14 includes Railway Transportation Incident, Drought, Animal/Crop/Plant Disease Epidemic, and Pipeline Trans Incident. The biggest difference in points again, came in the speed of onset. Pipeline and railway transportation incidents are generally instantaneous while some warning can be posted in the case of an animal/crop/plant disease outbreak.

Extreme heat and structural failure make up the eighth ranked hazard set with scores of 11. Once again, speed of onset had the biggest (3) point difference between the 2 hazards. Structures can decay over time but a structural failure event can happen in an instant. Extreme heat can now be forecasted in the weather and sufficient time is available to prepare.

The final hazard groupings are sinkholes, dam failures and earthquakes with a score of 10 in ninth place. All three of these hazards scored the same except in 3 categories. Human vulnerability was scored higher for sinkholes than the other 2 hazards. Earthquakes scored higher than the other hazards for maximum geographic extent while dam failure did so for severity of impact. Those differences were the reason these three hazards scored the same and hold the same rank.

4.4 Vulnerability Assessment

Requirement 44 CFR §201.6(c)(2)(ii): *[The risk assessment shall include] a description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.*

Methodology

The vulnerability assessment further defines and quantifies populations, buildings, critical facilities, and other community assets at risk to natural and manmade hazards. This assessment was conducted based on the best available data and the significance of each particular hazard. Data to support the vulnerability assessment was collected from the following sources:

- Statewide GIS datasets compiled by state and federal agencies
- FEMA HAZUS-MH loss estimation software
- Asset mapping completed by each jurisdiction
- Existing plans and reports
- Local knowledge
- Public and Planning Team input

The vulnerability assessment also considers the varying degrees of vulnerability across the planning boundary for each hazard. Hardin County is extremely vulnerable to certain hazards while others may occur but are much less of a threat people and property. The effects of hazards can be very unique from one another so the unique effects each can have on the county will be considered.

4.4.1 Vulnerability

44 CFR §201.6(c)(2)(iii): *For multijurisdictional plans, the risk assessment must assess each jurisdiction's risk where they vary from the risks facing the entire planning area.*

Hardin County is not equally vulnerable to all of the hazards identified in this plan. There is a varying degree throughout the county, and this section of the plan will assess these differences. In the context of hazard mitigation, vulnerability is how open a jurisdiction is to damage from a particular hazard. Can a hazard potentially destroy the entire community, or damage just a few homes? Are people's lives in danger? These questions and several others are important to consider when assessing vulnerability.

The results from the hazard ranking in section 4.3 were used to help determine just how vulnerable Hardin County and its individual jurisdictions are to natural and manmade hazards. As a reminder, the ranking system considered the following hazard characteristics: historical occurrence, probability, vulnerability, maximum geographic extent, severity of impact, and speed of onset.

During the scoring process, the highest score a hazard could possibly receive is 24, and no hazard received a score this high. The highest overall score among Hardin County hazards is 22. These scores were used to assign a vulnerability rating of high, medium, or low. Hazards that scored 20 to 24 are considered high-rated. Hazards that scored 15 to 19 are medium, and hazards 14 or below are considered low-rated. Refer to Table 4.4.1.1 for the rating each hazard received and which jurisdictions may potentially be affected.

As for the vulnerability rating, a high rating generally indicates that the hazard is a major threat to a jurisdiction. Its effects may be widespread and severe, which result in human loss and major property damage. Effects may vary among the high vulnerability hazards so a more detailed description of a hazard's potential effects will be discussed later in this section. Also, referring back to the detailed ranking score for each hazard will help distinguish the differences between all of the high-rated hazards.

A hazard with a medium rating is also a major threat to a jurisdiction, but its effects are on a smaller, less-severe scale. The details of these hazards will also be discussed, and referring back to Table 4.3.1 is helpful, too. The hazards rated "low," on the other hand, are those that do not pose a major threat to the jurisdiction. If they were to occur, more than likely, their effects would not be extremely widespread or very severe when compared to the high- and medium-rated hazards.

Table 4.4.1.1: Vulnerability across Hardin County

Hazard	Jurisdictions	Score	Priority
Severe Winter Storm	All Jurisdictions	**22**	**High**
Highway Trans Incident	All Jurisdictions	**21**	**High**
Windstorm	All Jurisdictions	**21**	**High**
Tornado	All Jurisdictions	**21**	**High**
Flash Flood	All Jurisdictions	**19**	**Medium**
Structural Fire	All Jurisdictions	**19**	**Medium**
Hailstorm	All Jurisdictions	**19**	**Medium**
Thunderstorms & Lightning	All Jurisdictions	**18**	**Medium**
Haz Mat Incident	All Jurisdictions	**18**	**Medium**
Energy Failure	All Jurisdictions	**16**	**Medium**
River Flood	Ackley Alden Hubbard Iowa Falls Steamboat Rock Union Whitten Unincorporated Hardin County AGWSR SD Alden SD BCLUW SD Iowa Falls SD	**15**	**Medium**
Grass/Wildland Fire	All Jurisdictions	**15**	**Medium**
Railway Trans Incident	Ackley Alden Buckeye Eldora Iowa Falls Steamboat Rock Union Unincorporated Hardin County AGWSR SD Alden SD BCLUW SD Eldora-New Providence SD Iowa Falls SD	**14**	**Low**
Drought	All Jurisdictions	**14**	**Low**
Animal /Crop/Plant Disease	Unincorporated Hardin County	**14**	**Low**
Pipeline Trans Incident	Ackley Alden Eldora Hubbard Iowa Falls New Providence Radcliffe Steamboat Rock Union Whitten Unincorporated Hardin County AGWSR SD Alden SD BCLUW SD Eldora-New Providence SD Hubbard-Radcliffe SD Iowa Falls SD	**14**	**Low**
Extreme Heat	All Jurisdictions	**11**	**Low**
Structural Failure	All Jurisdictions	**11**	**Low**
Sinkholes	Ackley Alden Buckeye Eldora Iowa Falls Steamboat Rock	**10**	**Low**

Sinkholes Continued	Union Unincorporated Hardin County AGWSR SD Alden SD BCLUW SD Eldora-New Providence SD Iowa Falls SD		
Dam Failure	Alden Eldora Iowa Falls Steamboat Rock Unincorporated Hardin County AGWSR SD Eldora-New Providence SD Iowa Falls SD	**10**	**Low**
Earthquake	All Jurisdictions	**10**	**Low**
Communications Failure	All Jurisdictions	**9**	**Low**

Higher – Priority Hazards

Hazard: Severe Winter Storm
Jurisdictions: All Jurisdictions
Score: 22

Since 1993, Iowa has had 3,636, heavy snow, ice storm, or extreme wind chill events. There are many accounts of large numbers of deaths due to cold and blizzards in Iowa's history. While we are not as vulnerable as the early settlers, there are recent accounts of multiple deaths from snowstorms and extreme cold around the state.

According to the National Climatic Data Center, Hardin County has been affected by 50 snow and ice events since 1993. A total of six deaths and no injuries were reported due to these snow and ice events. Also, property damage reached a total of $30 million, with no crop damages reported. According to the 2010 State of Iowa Hazard Mitigation Plan, Hardin County's Annual Loss Estimation from Extreme Cold and Snow and Ice is $326,463.

Hazardous driving conditions due to snow and ice on highways and bridges lead to many traffic accidents. The leading cause of death during winter storms is transportation accidents. About 70 percent of winter-related deaths occur in automobiles and about 25 percent are people caught out in the storm. The majority of these are males over 40 years of age. Emergency services such as police, fire, and ambulance are unable to respond due to road conditions. Emergency needs of remote or isolated residents for food or fuel, as well as feed, water and shelter for livestock are unable to be met. People, pets, and livestock are also susceptible to frostbite and hypothermia during winter storms. Those at risk are primarily either engaged in outdoor activity like shoveling snow, digging out vehicles, assisting stranded motorists, or are the elderly or very young. Schools often close during extreme cold or heavy snow conditions to protect the safety of children and bus drivers. Citizens' use of kerosene heaters and other alternative forms of heating may create other hazards such a structural fires and carbon monoxide poisoning.

Winter storms are quite vast and would likely impact multiple counties. Certain areas may experience local variations in storm intensity and quantity of snow or ice. The Iowa Department of Transportation, county road departments, and local public works agencies are responsible for the removal of snow and treatment of snow and ice with sand and salt on the hundreds of miles of streets and highways in the area. Overall, any area of Hardin County can be affected.

Immobilized transportation, downed trees and electrical wire, building and communication tower collapse, and bodily injury or death are just a few of the impacts of a severe winter storm. Vehicle batteries and diesel engines are stressed and the fuel often gels in extreme cold weather. This impacts transportation, trucking, and rail traffic. Rivers and lakes freeze and subsequent ice jams threaten bridges and can close major highways. Ice jams can also create flooding problems when temperatures begin to rise.

An ice coating of at least ¼ inch in thickness is heavy enough to damage trees, overhead wires, and similar objects and to produce widespread power outages. Buried water pipes can burst causing massive ice problems, loss of water, and subsequent evacuations during sub-zero temperatures.

Fire during winter storms presents a great danger because water supplies may 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, causing pipes to freeze and possibly burst.

Cold temperature impacts on agriculture are frequently discussed in terms of frost and freeze impacts early or late in growing seasons and on unprotected livestock. The cost of snow removal, repairing damage, and loss of business can have large economic impacts on a community.

Hazard: Highway Transportation Incident
Jurisdictions: All Jurisdictions
Score: 21

According to the Iowa Department of Transportation, between 2004 and 2008, there were a total of 1,068 rural car crashes in Hardin County. Of these, 57 were major and 141 were minor crashes with 15 resulting in fatalities. Within these crashes, 571 injuries were sustained while 17 of these injuries were fatal.

From July 1, 2009 until June 30, 2010, there were 458 vehicle accidents with property damage, 72 vehicle accidents with personal injury, and 6 vehicle accidents were hit and run. There was one report of a fatality.

Rural crashes outnumber urban crashes in Hardin County with 1,024 crashes occurring in rural areas between 2001 and 2005. The urban crashes during this period of time are less than half at a total of 556. Also, more rural crashes result in fatal injuries than urban crashes. Three urban crashes resulted in three fatal injuries while rural crashes resulted in 22 fatal injuries.

Those who use the surface transportation system are most vulnerable. Travelers, truckers, delivery personnel, and commuters are at risk all time that they are on the road. During high traffic hours and holidays the number of people on the road in Hardin County is higher. This is also true before and after major gatherings such as sporting events, concerts, and conventions. Pedestrians and citizens of the community are less vulnerable but still not immune from the impacts of a highway incident.

Hardin County is crisscrossed by hundreds of miles of roads and highways. Highway incidents are usually contained to areas on the roadway or directly adjacent to the roadway. Very few highway incidents affect areas outside the traveled portion of the road and the right-of-way. Extensive segments of the transportation system can be impacted during significant weather events, such as a large snowstorm, when multiple individual accidents occur. The area of impact can extend beyond the localized area if the vehicle(s) is involved in transporting hazardous materials.

The percentage of Hardin County that could be affected by a highway transportation incident may have been overestimated in the hazard ranking process. More than likely, this hazard would affect much less than 10% of the county, but it received a ranking that indicates nearly 20% of the county could be affected, which is not likely in a single incident.

There are no major interstate interchanges in Hardin County, U.S. Highway 20 runs east/west through the middle of the county, intersecting with U.S. Highway 65. Just west, outside the county, Interstate 35 runs north-south. Any incidents on that major interstate would not likely affect Hardin County. Though it does not run through any specific jurisdiction, those traveling on the highway and the land around the highway are vulnerable to accidents and possible spills.

Highway incidents threaten the health and lives of people in the vehicles, pedestrians, and citizens of the community if hazardous materials are involved. Mass casualty events can occur if mass transit vehicles are involved. Community bus and school buses have a good safety record, but accidents can and do occur. Numerous injuries are a very real possibility in situations involving mass transit vehicles. Property damage would be limited to vehicles and cargo involved; roads, bridges, and other infrastructure; utilities such as light and power poles; and third-party property adjacent to the accident scene such as buildings and yards.

Hazard: Windstorm
Jurisdictions: All Jurisdictions
Score: 21

Large-scale extreme wind phenomena are experienced over every region of the United States. Historically, high wind events are associated with severe thunderstorms and blizzards. It is often difficult to separate windstorms and tornado damage when winds get above 70 knots.

In Hardin County, according to the National Climatic Data Center, there are about 37 high wind events that were separated from either a thunderstorm or extreme wind chill. These windstorms occurred between 1993 and 2008, and were the only storms reported since 1950. The wind speeds during these windstorms ranged from less than one knot to 72 knots. Two deaths and 13 injuries

were reported during these windstorm events. The total amount of property damage from these windstorms is almost $57 million, and the total crop damage is about $385,000. According to the 2010 State of Iowa Hazard Mitigation Plan, Hardin County's Annual Loss Estimation from Windstorms is $77,142.

Those most at risk from windstorms include people living in mobile homes, campgrounds, and other dwellings without secure foundations or basements. People in automobiles are also very vulnerable to windstorms. The elderly, very young, and the physically and mentally handicapped are most vulnerable because of the lack of mobility to escape the path of destruction. People who may not understand watches and warnings due to language barriers are also at risk.

Two jurisdictions, Iowa Falls and Eldora, in Hardin County identified mobile home parks that may be extremely vulnerability during a tornado. Two mobile home parks just outside Iowa Falls have a total of 118 spaces to hook up. The mobile home park in Eldora has 85 hook ups. It is unknown how many of these spaces are vacant. According to Iowa Code 435.1, three or more mobile homes together make up a park. The other jurisdictions in Hardin County did not identify any manufactured or mobile homes that may be at risk, however, there are 157 individual manufactured homes, not in parks, present in the county.

Unlike tornadoes, windstorms may have a destructive path that is tens of miles wide so over 50% of Hardin County could be affected by a windstorm event. Large hail, strong straight-line winds, heavy rains, flash flooding, and lightning are also associated with severe storms and may cause significant damage to a wider area. Wind speeds can reach up to 70 knots or greater during a windstorm event so a major event is possible.

The severity of damage from windstorms can be very high. Impacts can range from broken tree branches, shingle damage to roofs, and some broken windows, all the way to complete destruction and disintegration of well-constructed structures, infrastructure, and trees. Injury or death related to windstorms most often occurs when buildings collapse; people are hit by flying objects or are caught trying to escape the windstorm in a vehicle. Crop damage is often associated with windstorms, laying down crops, breaking stalks, and twisting plants, reducing the yield and making it difficult to harvest.

Hazard: Tornado
Jurisdictions: All Jurisdictions
Score: 21

In the U.S., Iowa is ranked third in the number of strong-violent (F2-F5) tornadoes per 10,000 square miles. From 1950-1995, Iowa averaged 31 twisters per year. In Iowa, most tornadoes occur in the spring and summer months, but twisters can and have occurred in every month of the year. Late afternoon to evening hour tornadoes are the most common, but they can occur at any time of the day.

According to the National Climatic Data Center, in Hardin County, there have been no funnel clouds since 1950, but 28 tornadoes reported. From these events, 0 deaths and 3 injuries have occurred. The intensity of these tornadoes ranges from FO to F4. The total property damage throughout the county totaled about $34 million, and the crop damage was about $8,000. According to the 2010 State of Iowa Hazard Mitigation Plan, Hardin County's Annual Loss Estimation from Tornadoes is $570,833.

Those most at risk during tornadoes include people living in mobile/manufactured homes, campgrounds, and other dwellings without secure foundations or basements. People in automobiles are also very vulnerable to twisters. The elderly, very young, and the physically and mentally handicapped are most vulnerable because of the lack of mobility to escape the path of destruction. People who may not understand tornado watches and warnings due to language barriers are also at risk.

Two jurisdictions, Iowa Falls and Eldora, in Hardin County identified mobile home parks that may be extremely vulnerability during a tornado. Two mobile home parks just outside Iowa Falls have a total of 118 spaces to hook up. The mobile home park in Eldora has 85 hook ups. It is unknown how many of these spaces are vacant. According to Iowa Code 435.1, three or more mobile homes together make up a park. The other jurisdictions in Hardin County did not identify any manufactured or mobile homes that may be at risk, however, there are 157 individual manufactured homes, not in parks, present in the county.

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. Normally, a tornado will stay on the ground for no more than 20 minutes; however, one tornado can touch ground several times in different areas. Large hail, strong straight-line winds, heavy rains, flash flooding, and lightning are also associated with severe storms and may cause significant damage to a wider area. The most damaging tornado that is likely to occur is an F3, which is based on historical tornado events in Hardin County. In an absolute worst case scenario, a tornado along with associated hazards could affect over 50% of Hardin County. This is not likely but very possible.

The severity of damage from tornadoes can be very high. Impacts can range from broken tree branches, shingle damage to roofs, and some broken windows; all the way to complete destruction and disintegration of well constructed structures, infrastructure, and trees. Injuries or deaths 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.

Medium – Priority Hazards

Hazard: Flash Flood
Jurisdictions: All Jurisdictions
Score: 19

Flash floods are the most common and widespread of all-natural disasters except fire. In Iowa, as much as 21" of rain has fallen in a 24-hour period. According to the National Climatic Data Center, twelve flash flood events have affected Hardin County in the past 25 years. These flash floods occurred mostly in Iowa Falls with a few at the Iowa Falls municipal airport and some beginning in Hubbard and ending in Eldora. Including these flash flood events, there have been 72 flooding events total since 1993 resulting in $177.649 million in property damage and $52.916 million in crop damage but no deaths or injuries were reported. According to the 2010 State of Iowa Hazard Mitigation Plan, Hardin County's Annual Loss Estimation from Flooding is $13,562,647.

Flash floods occur in all fifty states in the United States. Particularly at risk are those in low-lying areas; close to dry creek beds or drainage ditches; near water; or downstream from a dam, levee, or storage basin. People and property in areas with insufficient storm sewers and other drainage infrastructure can also be put at risk because the drains cannot rid the area of the runoff quickly enough.

Nearly half of all flash flood fatalities are auto-related. Motorists often try to traverse water-covered roads and bridges and are swept away by the current. Six inches of swiftly moving water can knock persons off their feet and only two feet of water can float a full-sized automobile. Recreational vehicles and mobile homes located in low-lying areas can also be swept away by water.

Areas in a floodplain, downstream from a dam or levee, or in low-lying areas can be impacted. People and property located in areas with narrow stream channels, saturated soil, or on land with large amounts of impermeable surfaces are likely to be impacted in the event of a significant rainfall. Unlike areas impacted by a river/stream flood, flash floods can impact areas a good distance from the stream itself. Flash flood-prone areas are not particularly those areas adjacent to rivers and streams. Streets can become swift moving rivers, and basements can become deathtraps because flash floods can fill them with water in a manner of minutes. All Hardin County communities are prone to flash flooding.

Flash floods are the number one weather-related killer in the United States. They can quickly inundate areas thought not to be flood-prone. Other impacts can include loss of life; property damage and destruction; damage and disruption of communications, transportation, electric service, and community services; crop and livestock damage, and interruption of business. Hazards of fire, health and transportation accidents, and contamination of water supplies are likely effects of flash flooding situations. In Iowa, there have been 643 flash flood events since 1993, and there have been four deaths and eight injuries.

Hazard: Structural Fire
Jurisdictions: All Jurisdictions
Score: 19

According to Hardin County Emergency Management, structural fires occur on a regular basis, averaging 15-20 a year.

Older structures with outdated electrical systems not built to current fire code standards are particularly vulnerable to fire. Combustible building materials obviously are more vulnerable than structures constructed of steel or concrete. Structures without early detection devices are more likely to be completely destroyed before containment by response agencies. Structures in areas served by older, small, or otherwise inadequate water distribution infrastructure such as water mains and hydrants are also at significant risk. Problems vary from region to region, often as a result of climate, poverty, education, and demographics, but Iowa has about 13.4 fire deaths per million people. The fire death risk is nearly two times that of the average population for children 5 years of age or less.

With modern training, equipment, fire detection devices, and building regulations and inspections, most fires can be quickly contained and limited to the immediate structure involved. Certain circumstances, such as the involvement of highly combustible material or high winds, can threaten a larger area. The age and density of a particular neighborhood can also make it more vulnerable to fire due to the spreading of fire from neighboring structures. All Hardin County jurisdictions are at risk for structural fires.

Based on national averages in the 1990s, there is one death for every 119 residential structure fires and one injury for every 22 of these fires. On average, each residential fire causes nearly $11,000 of damage. In nonresidential fires, there is one death for every 917 fires, one injury for each 52 fires, and each nonresidential fire causes and average of nearly $20,000 in damage.

Hazard: Hailstorms
Jurisdictions: All Jurisdictions
Score: 19

According to the National Climatic Data Center, there have been 85 hail events in Hardin County since 1985. The size of hail ranges from 0.75 inches in diameter to 3 inches. In total, 22 injuries were reported, all from the most recent event in August of 2009, which heavily affected Eldora, Iowa. The sum total of all the property damage from these hail events is $21.490 million. The resulting crop damage is $56.432 million. According to the 2010 State of Iowa Hazard Mitigation Plan, Hardin County's Annual Loss Estimation from Hailstorms is $4,870,125.

Agricultural crops such as corn and beans are particularly vulnerable to hailstorms stripping the plant of its leaves. Hail can also do considerable damage to vehicles and buildings. Hail only rarely results in loss of life directly, although injuries can occur.

The land area affected by individual hail events is not much smaller than that of the parent thunderstorm, an average of 15 miles in diameter around the center of the storm. Any area in Hardin County can be affected by this hazard.

Hailstorms cause nearly $1 billion annually in property and crop damage in the United States. The peak hail activity coincides with the Midwest's peak agricultural season. Financial impacts resulting from damage to property is in the millions of dollars every year, most of which is covered by crop and hazard insurance.

In Eldora, Iowa on August 9, 2009, a severe hailstorm caused the governor at the time, Chet Culver, to issue an emergency disaster proclamation for Hardin County. The storm hit in a band along U.S. Highway 20 in Webster, Calhoun, Hamilton, Hardin and Grundy counties. Some of the material effects were: hundreds of cars having broken windows and dimpled sheet metal; large tree limbs brought down; broke windows and sheared siding off of homes; broken bones and injuries of campers at Pine Lake State Park; and the city without power. By some local observations, 10-foot-high corn west of Eldora was sheared to not even knee-high height. In crop effects, the storm impacted an estimate of 5,000 or 10,000 acres. About 450,000 acres were hit by hail and 75,000 acres were totally destroyed.

Hazard: Thunderstorm and Lightning
Jurisdictions: All Jurisdictions
Score: 18

According to the National Climatic Data Center, Hardin County has experienced 106 thunderstorm, lightning, and high wind events since 1985. Out of these events, no deaths and no injuries occurred. The total property damage from these storms was just over 3 million, and the crop damage totals $812,000. The high winds ranged from speeds of zero mph to nearly 90 mph. According to the 2010 State of Iowa Hazard Mitigation Plan, Hardin County's Annual Loss Estimation from Lightning is $7,529 and from Thunderstorm, $229,764.

People in unprotected areas, mobile homes, or automobiles during a storm are at risk. Sudden strong winds often accompany a severe thunderstorm and may blow down trees across roads and power lines. Lightning presents the greatest immediate danger to people and livestock during a thunderstorm. It is the second most frequent weather-related killer in the U.S. with nearly 100 deaths and 500 injuries each year. Floods and flash floods are the number one cause of weather related deaths in the U.S.

Livestock and people who are outdoors, especially under a tree or other natural lightning rods, in or on water, or on or near hilltops are at risk from lightning. Hail can be very dangerous to people, pets, and livestock if shelter is not available.

Flash floods and tornadoes can develop during thunderstorms as well. People who are in automobiles or along low-lying areas when flash flooding occurs and people who are in mobile/manufactured homes are vulnerable to the impacts of thunderstorms.

Two jurisdictions, Iowa Falls and Eldora, in Hardin County identified mobile home parks that may be extremely vulnerability during a tornado. Two mobile home parks just outside Iowa Falls have a total of 118 spaces to hook up. The mobile home park in Eldora has 85 hook ups. It is unknown how many of these spaces are vacant. According to Iowa Code 435.1, three or more mobile homes together make up a park. The other jurisdictions in Hardin County did not identify any manufactured or mobile homes that may be at risk, however, there are 157 individual manufactured homes, not in parks, present in the county.

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Like tornadoes, thunderstorms and lightning can cause death, serious injury, and substantial property damage. Severe thunderstorms can bring a variety of associated hazards with them including straight-line winds in excess of 100 mph. Straight-line winds are responsible for most thunderstorm damage. High winds can damage trees, homes (especially mobile homes), and businesses and can knock vehicles off of the road. 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. One or more severe thunderstorms occurring over a short period can lead to flooding and cause extensive damage, power and communication outages, and agricultural damage.

Hazard: Hazardous Materials Incident
Jurisdictions: All Jurisdictions
Score: 18

According to Hardin County Emergency Management, the county has hazardous materials incidents every year. Because of the location of major highways and railroads through most towns in Hardin County, most incidents are transportation related. Intentional dumping, accidental spills, and improper disposal are also occurrences in the county. These include Ethanol, Oil, Fuel Oil, Farm Chemicals, Manure, Ethanol Byproducts, Bio-diesel Byproducts, and others.

A hazardous materials incident can occur almost anywhere so any area is considered vulnerable to an accident. People, pets, livestock, and vegetation in close proximity to transportation corridors and populations downstream, downwind, and downhill of a released substance are particularly vulnerable. Depending on the characteristics of the substance released, a larger area may be in danger from explosion, absorption, injection, ingestion, or inhalation. Occupants of areas previously contaminated by a persistent material may also be harmed either directly or through consumption of contaminated food and water.

Most of the hazardous materials incidents are localized and are quickly contained or stabilized by highly trained fire departments and hazardous materials teams. Hardin County depends on the Northeast Iowa Response Team out of the Waterloo for these incidents because they are trained for hazardous materials incidents. Depending on the characteristic of the hazardous 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. All jurisdictions are at risk for this hazard.

Many injuries and fatalities due to transport of hazardous materials are related to the collision itself rather than the product released. 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, ingested, or inhaled. Contaminated water resources may be unsafe and unusable, depending on the amount of contaminant. 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. Loss of livestock and crops may lead to economic hardships within the community. The occurrence of a hazardous materials 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.

Hazard: Energy Failure
Jurisdictions: All Jurisdictions
Score: 16

Only when free market forces cease to provide for the health, welfare, and safety of the citizens, can governments take appropriate actions to limit the effects of an energy shortage. The State of Iowa has three strategies to limit the likelihood of an energy shortage. Through voluntary and mandatory demand reduction mechanisms; the substitution of alternative energy sources when possible; and state government programs to curtail excessive use, energy supply and demand can be kept in check. The federal government has a strategic petroleum reserve to supplement the fuel supply during energy emergencies. Shortage, especially electrical shortage, can be unpredictable with immediate effects. Natural events, human destruction, price escalation, and national security energy emergencies can cause unavoidable energy shortages.

Because Iowa is almost entirely dependent on out-of-state resources for energy, Iowans must purchase oil, coal, and natural gas from outside sources. 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 because of their lower purchasing power. Agricultural, industrial, and transportation sectors are also vulnerable to supply, consumption, and price fluctuations. In Iowa, petroleum represents 97% of transportation fuel. Individual consumers such as commuters are also vulnerable.

The effects of energy shortage would be felt throughout Hardin County. If it were a major supply interruption type of incident local shortages could be quickly covered, because the distribution systems are very developed. An Energy Failure due to damaged infrastructure could affect a small or large are of the county, but this depends on what type and degree of damage that causes the loss.

Hardin County Emergency Management explains; the county has power outages several times a year. Most are caused by weather events including; strong winds, lightning, ice, fallen trees, etc. They are mostly short lived and of little significance.

Injuries and fatalities would not be directly caused by an energy shortage. Injuries and fatalities could occur if energy was not available for heating during extreme cold periods or for cooling during extreme heat. Hospitals, shelters, emergency response vehicles and facilities, and other critical facilities would have priority during energy shortages. Rotating blackouts, voluntary conservation measures, and possibly mandatory restrictions could be used to limit the severity of an energy shortage. Effects could range from minor heating and air conditioning disruptions to transportation limitations all the way to civil unrest due to the high demand, low supply, and subsequent high price. Business disruption and increased cost of business would have far-reaching financial implications across many sectors of the economy.

Hazard: River Flood
Jurisdictions: Ackley, Alden, Hubbard, Iowa Falls, Steamboat Rock, Union, Whitten, Unincorporated Hardin County
Score: 15

According to the NCDC, since 1950, Hardin County has experienced 72 river flood events with no deaths or injuries reported. The total property damages that resulted from these events total nearly $178 million, and the crop damages total nearly $53 million.

The most recent and major floods in Iowa since 2008 occurred in the Summer of 2010. Though this is the case for most of central Iowa, Hardin County was not affected by these events. The most costly flood damage to Hardin happened in May of 2004 affecting 50 other counties and causing a total of $5 million in property damage and about $15 million in crop damage. According to the National Climatic Data Center (NCDC), the month started dry with only 0.19 inches of rain in the first week, regular seasonal rainfall for the second week and heavy rainfall in the third week. The heaviest rains came over the course of two days in the last week of May with about 6 inches in some parts of the state. A statewide average of 2.97 inches of rain fell from these two systems was Iowa's greatest rainfall since July 1993. According to the 2010 State of Iowa Hazard Mitigation Plan, Hardin County's Annual Loss Estimation from flooding is $13,562,647.

Considering that Hardin County received individual and public assistance for the floods in the summer of 2008, flooding is likely to occur in the county's cities and unincorporated areas.

Because there is little chance of flooding in this county, there are no levees built to protect the community from a 1% annual chance flood event.

The Federal Emergency Management Agency has delineated the probable extent of the 1% annual chance floodplain in most areas. These Flood Insurance Rate Maps (FIRMs) show properties affected by the floods that have at least 1% chance of occurring in any particular year. Generally, these areas are in the floodplain or adjacent areas. As an estimate made from visual study of FEMA FIRMs, we can derive that 17% of the land in Hardin County is in or could be affected by the floodplain, with an understanding that there is no information for Buckeye, New Providence, Radcliffe, Whitten, and some parts of the other jurisdictions. A small portion of the land in Hardin County's incorporated cities is within the 1% annual chance floodplain, and a great deal of land outside the city corporate limits is also within the floodplain. All of the jurisdictions included in this plan are considered at risk.

Flooding impacts include potential loss of life; property damage and destruction; damage and disruption of communications, transportation, electric service, and community services; crop and livestock losses; and interruption of businesses. Hazards of fire, health and transportation accidents; and contamination of water supplies are likely effects of flooding situations as well.

Hazard: Grass or Wildland Fire
Jurisdictions: All Jurisdictions
Score: 15

According to the National Climatic Data Center, there were no wildland or forest fire events reported in Hardin County. This does not account for small or contained grass fires that may not have been reported.

While wildfires have proven to be most destructive in the Western States, they have become an increasingly frequent and damaging phenomenon nationwide. People choosing to live in wildland settings are more vulnerable to wildfires, and the value of exposed property is increasing at a faster rate than population. Iowa is less vulnerable to wildfires because of the extremely large percentage of land that is developed. Grass fires are often more easily contained and extinguished before there is damage to people or developed property. Fires often burn large portions of field crops in the fall when the crops are dry and the harvesting equipment overheats or throws sparks. This can be quite costly to farmers in terms of lost production. According to the 2010 State of Iowa Hazard Mitigation Plan, Hardin County's Annual Loss Estimation from crop loss is $948,367.

Most grass fires are contained to highway right-of-way and rail right-of-way ditches and are less than a few acres in size. High winds can turn a small flame into a multi-acre grass fire within a matter of minutes. The extent is dependent upon conditions such as land use/land cover, moisture, and wind. Grass fires are equally likely to affect Hardin County communities where there is dense or high vegetation. Rural areas are much more likely to experience grass or wildland fire issues.

Most grass fires burn only the grasses, crops, or other low land cover. Injuries and deaths from fighting the fire most often occur by natural causes such as heart attack or stroke. Property damage is usually limited to grass, small trees, etc. Occasionally a house or outbuilding can be damaged or destroyed.

Lower – Priority Hazards

Hazard: Railway Transportation Incident
Jurisdictions: Ackley, Alden, Buckeye, Eldora, Iowa Falls, Steamboat Rock, Union, Unincorporated Hardin County
Score: 14

In Hardin County, there have been several train derailments and more than one railway incident a year over the past 10 years, according to Hardin County Emergency Management. One took place near Gifford, involving hazardous materials when a bridge collapsed. Several train accidents causing derailments take place near Buckeye.

People and property in close proximity to the railway lines, crossing, sidings, switching stations, and loading/unloading points are most at risk. Those away from railroad tracks and facilities are vulnerable only to large-scale incidents including those in which hazardous materials are involved.

A Canadian National rail line runs east-west through the upper portion of Hardin County. A Union Pacific Railroad freight line runs north-south through the east and west (Kansas City to Minneapolis) portions of the county. The Iowa River Railroad runs from Marshalltown to Ackley. There are 101 railways crossings throughout Hardin County. Vehicle/train collisions are usually limited to areas in and near intersections. Rarely, the incident will result in widespread effects. The direct area of impact is usually quite small, but depending on the materials involved, the effect could reach areas up to 1-5 miles from the scene. Harmful products may contaminate streams, rivers, water distribution systems, and storm water systems. If this occurs, a large portion of the community could be affected. The ability of response agencies to contain the product on-scene usually limits the area affected.

Railway incidents can result in death, injury, and property damage. Deaths and injuries can range from those directly involved, to citizens in the community affected by hazardous materials. Depending on the materials involved, evacuations may occur, moving residents away from dangerous products and the possibility of explosion. Gases, liquids, and solids can contaminate air, soil, and water in and near the incident scene. If a railway incident occurred in an urban area, the health and welfare of hundreds of people could be put in jeopardy. Damage may be limited to the train, railcars, and cargo involved, but it can also include loss of production, business disruption due to evacuations, and business disruptions of those served by the railroad. Business and traffic disruptions could last several days until the clean-up efforts are complete.

Hazard: Drought
Jurisdictions: All Jurisdictions
Score: 14

According to the Palmer Drought Severity Index, a composite of evapotranspiration, recharge, runoff, loss, and precipitation, Iowa has suffered seven periods of drought conditions since 1910. While some may have been more severe than others, agricultural areas were affected much more than the metropolitan areas where impacts were indirect.

According to the National Climatic Data Center (NCDC), Hardin County has experienced three drought events since 1985. The most recent drought was in 2003. The total property damage, from the three events, to Hardin County and the other areas (one being statewide) affected by the drought totals $645 million, and crop damaged reached a total of $1 billion. No deaths or injuries were reported during any of these drought events. According to the 2010 State of Iowa Hazard Mitigation Plan, Hardin County's Annual Loss Estimation from drought is $2,033,031.

Those dependent on rain would be the most vulnerable during a drought. This means that agriculture, agribusiness, and consumers would be impacted. A drought limits the ability to produce goods and provide services. Because citizens draw their drinking water from groundwater sources, a prolonged severe drought may impact all citizens if there were to be a dramatic drop in the water table. Fire suppression can also become a problem due to the dryness of the vegetation and possible lack of water.

A drought would likely affect most of Hardin County and Iowa if not the entire Midwest. Because of the dependence on precipitation and water, the agricultural areas would be most adversely impacted. Though this is the case, the entire county would likely feel at least some impact.

Drought in the U.S. seldom results directly in the loss of life. Deaths associated with drought are usually related to a heat wave. Drought more directly affects agricultural crops, livestock, natural vegetation, and stream flows that include fish and aquatic vegetation. Impacts are costly to the economy, environment, and general population.

Hazard: Animal/Crop/Plant Disease
Jurisdictions: Unincorporated Hardin County
Score: 14

Statewide, the most recent Animal/Crop/Plant Disease was the West Nile Virus (WNV). First indentified in New York City and carried by birds and mosquitoes, the disease spread to four states in 1999 and to 12 states and the District of Columbia in 2000. WNV causes severe neuralgic infections in humans, horses, and other mammal species. As of early 2003, the disease has been found in nearly all states east of the Rocky Mountains, including Iowa where 15 confirmed human cases, 113 birds, and 1,039 horses have tested positive. The rabbit calicivirus disease was first found in 2000, but the infected rabbits were quarantined. Since then, there have been no major breakouts in the state.

According to Hardin County Emergency Management, there are always some crop disease and infestation animal disease outbreaks in the county due to the high concentration of animals in the county. Rabies and West Nile are a challenge. According to the 2010 State of Iowa Hazard Mitigation Plan, Hardin County's Annual Loss Estimation from Crop Loss is $948,367.

According to Kelvin Leibold, ISU Hardin County Extension Farm Management Program Specialist, there are sure to be crop related diseases, fungus, molds, insect outbreaks that occur regularly every year and are treated by the farming community.

U.S. agriculture is very vulnerable to the introduction of a foreign animal disease. Outbreaks can be inadvertently introduced by contaminated material carried by an international traveler or by the importation of infected animals and animal products. Foreign animal disease could enter the U.S. vectored by wild animals, insects, or migratory birds or they could be intentionally introduced to cause severe economic problems or to target human health.

State and federal animal health programs have been very successful in preventing or limiting the scope and magnitude of animal emergencies. However, because threats to animal health are always changing and because the animal population is mobile, the possibility always exists for a local, regional, or statewide animal health emergency to occur. Unincorporated Hardin was identified as the jurisdiction most at risk for this hazard. Most livestock is located outside city corporate limits in Hardin County.

Animal health emergencies can take many forms: disease epidemics, large-scale incidents of feed and water contamination, extended periods without adequate water, harmful exposure to chemical, radiological, or biological agents, and large-scale infestations of disease-carrying insects or rodents, to name a few. One of the principal dangers of disease outbreaks, they can rapidly overwhelm the animal care system. Perhaps the greatest animal health hazard would be the intentional release of a foreign animal disease agent to adversely impact a large number of animals. Such a release would likely not be an act of sabotage and is covered in biological/agro-terrorism hazard worksheet.

Hazard: Pipeline Transportation Incident
Jurisdictions: Ackley, Alden, Eldora, Hubbard, Iowa Falls, New Providence, Union, Steamboat Rock, Union, Whitten, Unincorporated Hardin County
Score: 14

According to Hardin County Emergency Management, pipeline leaks and explosions have occurred in both Hubbard and Union. In December, 2000, a natural gas pipeline explosion blew up Hubbard's downtown.

People and property with pipelines on their land or nearby are the most at risk. In the event of a pipeline incident, those downwind and downhill of the release are the most vulnerable. People excavating earth near a pipeline are also at risk. Private homes and business served by natural gas have small diameter pipelines connected to their structure. The underground pipelines cross public streets, roads, and highways as well as streams. Iowa's natural environment is also vulnerable to contamination from an underground pipeline incident.

Though often overlooked, petroleum and natural gas pipelines pose a real threat in the community. Most incidents affect only the area directly above or near the damaged pipeline. Depending on the size of pipeline and amount of product released, the extent of impact could be several hundred feet in diameter. Large areas may need to be evacuated to remove people from the threat of fire, explosion, or exposure. Pipelines have automatic shutoff valves installed so that damaged sections can be isolated and the volume of product escaping can be limited. Identification and caution signs are posted wherever pipelines pass under roads, streams, fence lines, or at any aboveground utilities.

Major pipelines are located in or around all Hardin County jurisdictions except Buckeye. They do not have natural gas service and use other sources for power, like LP tanks. The jurisdictions with major pipelines are much more likely to be affected by a potential pipeline transportation incident than those jurisdictions that do not.

Petroleum and natural gas pipelines can leak or erupt and cause property damage, environmental contamination, injuries, and even loss of life. Accidents may be caused by internal or external corrosion, defective welds, incorrect operation, outside damage, or other defective pipeline or equipment. Most incidents involve crude oil, gasoline, or natural gas pipelines. All petroleum liquids pose dangers from fire or explosion, and the fire may produce poisonous or irritating gasses. Toxic fumes and direct contact can cause health hazards. Vapor clouds can travel a distance and settle in low-lying areas where the fumes may overcome people and animals. Released products should be treated as any other hazardous material. Large areas may need to be evacuated to remove people from the threat of fire, explosion, or exposure. These evacuations potentially save lives and limit injury, but they also disrupt businesses and inconvenience residents. A break in water pipelines may impact fire protection and the continuity of operations of business and industry and may affect the area by saturating the soil and causing rapid erosion.

Hazard: Extreme Heat
Jurisdictions: All Jurisdictions
Score: 11

The record high temperature of 110 for Des Moines was recorded in 1936. During July 1936, 12 record setting days topped 100 degrees in Des Moines. The record high temperatures for Des Moines are above 90 degrees Fahrenheit beginning in March and lasting through October.

According to the National Climatic Data Center, two extreme heat events have occurred in Hardin County since 1995. The event in 1995 affected the entire State of Iowa and resulted in three deaths and $3.8 million in property damage. The last extreme heat event to affect Hardin County resulted in one death. According to the 2010 State of Iowa Hazard Mitigation Plan, Hardin County's Annual Loss Estimation from Extreme Heat is $3,000.

Elderly people, small children, chronic invalids, those on certain medications or drugs (especially tranquilizers and anticholinergics), and persons with weight and alcohol problems are particularly susceptible to heat reactions. Healthy individuals working outdoors in the sun and heat are

vulnerable as well. Individuals and families with low budgets as well as inner city dwellers can also be susceptible due to poor access to air-conditioned housing.

Most of the County and State would likely be impacted by extreme heat, but urban areas pose special risks. The stagnant atmospheric conditions of the heat wave trap pollutants in urban areas and add to the stresses of hot weather.

Extreme heat has broad and far-reaching sets of impacts. These include significant loss of life and illness, economic costs in transportation, agriculture, production, energy, and infrastructure. Transportation impacts include the loss of lift for aircrafts, softening of asphalt roads, buckling of highways and railways, and stress on automobiles and trucks (increase in mechanical failures). Livestock and other animals are adversely impacted by extreme heat. High temperatures at the wrong time inhibit crop yields as well. Electric transmission systems are impacted when power lines sag in high temperatures. High demand for electricity also outstrips supply, causing electric companies to have rolling blackouts. The demand for water also increases sharply during periods of extreme heat. This can contribute to fire suppression problems for both urban and rural fire departments.

Hazard: Structural Failure
Jurisdictions: All Jurisdictions
Score: 11

According to Hardin County Emergency Management, there have been no major structural failures in the last five years. The ones that did occur were old houses, barns, and out buildings.

There are many buildings in Hardin County that are very old or which may become hazardous in the event of an earthquake, fire, high winds, or other natural events. All bridges are vulnerable to the effects of elements and the deterioration that results. Increases in the amount and weight of traffic they are expected to support increase their vulnerability to failure.

The impacts of the failed structure would be contained to the immediate area and adjacent properties. This could be as small as the house and yard of a fallen chimney, or the area could be relatively extensive if the structure that failed was a multi-story building of a downtown or a tall communication tower. All Hardin County jurisdictions are at risk for this hazard. Dam failure would affect a much larger area.

Bridge failures and debris in streets and sidewalks would interrupt normal routes of travel. Functional purpose of the building would be terminated or suspended until the integrity of the structure could be restored. Personal injury, death, and property damage may occur in the collapse itself or by falling debris from nearby structures. There would also be a considerable cost to replace or fix the structure, not to mention the loss of revenue that would occur because the structure could not be used. Utilities may be cut off to surrounding areas and communication transmissions may be lost for a period of time.

Hazard: Sinkholes
Jurisdictions: Ackley, Alden, Buckeye, Eldora, Iowa Falls, Steamboat Rock, Union, Unincorporated Hardin County
Score: 10

There are three areas in Iowa where large numbers of sinkholes exist: (1) within the outcrop belt of the Ordovician Galena Group carbonates in Allamakee, Clayton, and Winneshiek counties; (2) in Devonian carbonates in Bremer, Butler, Chickasaw, and particularly Floyd and Mitchell counties; and (3) along the erosional edge of Silurian carbonates in Dubuque and Clayton counties. According to the Iowa Department of Natural Resources, there are no significant sinkholes in Hardin County.

In Hardin County, Ackley, Eldora, Iowa Falls, and Steamboat Rock are all susceptible to the sinkhole hazard with no less than one third of each jurisdiction in the hazard area extent. Buckeye is directly adjacent to a sinkhole hazard area, creating the possibility of some land in the jurisdiction to be affected. Unlike other counties in Region 6's Jurisdiction, there are several large rural areas in most of the townships that are susceptible to sink holes but like other counties, there is no history of this issue so the probability of a sinkhole occurring is very low. However, according to Hardin County Emergency Management, there is one sink hole in rural northern Hardin County that is close to taking away a historic cemetery.

If a sinkhole were to form, people and structures located on or near the sink hole are the most at risk for injury, death, and property damage. People can be injured while the sinkhole is forming as well as after by falling into the open sinkhole. People, buildings, and infrastructure can basically be swallowed by a sinkhole.

Sinkhole impacts included potential loss of life; property damage and destruction; damage and disruption of communications, transportation, electric service, and community services; crop and livestock losses; and interruption of businesses. Hazards of fire, health, and transportation accidents; and contamination of water supplies are likely effects. Much of this depends on the location and size of a sinkhole.

Most of Iowa's sinkholes occur in rural areas where their main impact is rendering some land unsuitable for row-crop agriculture. Sinkholes have also resulted in the failure of farm and other types of ponds, roads, and one sewage-treatment lagoon. As sinkholes sometimes allow surface runoff to directly enter bedrock aquifers, their presence has implications for groundwater quality.

Hazard: Dam Failure
Jurisdictions: Alden, Eldora, Iowa Falls, Steamboat Rock, Unincorporated Hardin County
Score: 10

There are no major dam failures to report for Hardin County. People and property along streams are most vulnerable. Facilities and lives considerable distances from the actual impoundment are not immune from the hazard. Depending on the size and volume of the impoundment as well as the channel characteristics, a flash flood can travel a significant distance.

The area impacted following a dam failure would be limited to those areas in and near the floodplain. People and property outside the floodplain could also be impacted depending on the proximity to the dam and the height above the normal stream level.

According to the Iowa DNR's Natural Resources Geographic Information System (NRGIS) Library, there are three dams located within the city limits of Alden, Iowa Falls, and Steamboat Rock. Failure at the Upper or Lower Pine Lake Dams (one being downstream of the other) can affect some unincorporated areas which are downstream and around the Upper and Lower Pine Lakes and the City of Eldora.

There are 2,442 inventoried dams located in Iowa. Of these, 63 are high hazard, 160 are categorized as significant hazard, and 2,219 are classified as low-hazard dams. The severity of damage in Hardin County would most likely be some property damage since none of the dams in Hardin County are considered high hazard.

Hazard: Earthquake
Jurisdictions: All Jurisdictions
Score: 10

Iowa as a whole has experienced the effects of only a few earthquakes in the past two centuries. The epicenters of 12 earthquakes have been located in the state. The majority have been along the Mississippi River, and none have been in central Iowa. The last earthquake to occur in Iowa was near the eastern Iowa town of Oxford in 1948. Since the early 1800s, another 9 earthquakes have occurred outside of Iowa but have impacted areas in the state. The most recent quakes were in the 1960s and occurred in Illinois and Missouri. While more than 20 earthquakes have occurred in or impacted Iowa in the past 200 years, they have not seriously affected the state. According to the National Climatic Data Center, there have been no earthquakes in Hardin County.

In general, peak ground acceleration (PGA) is a measure of the strength of ground movements. More specifically, the PGA measures the rate in change of motion relative to the established rate of acceleration due to gravity. According to the United States Geological Services, for Hardin County, the peak acceleration with a 2% probability of exceeding in 50 years is 2% g, which means the County is under a very small threat in regards to earthquakes. Also, most of Iowa is located in Seismic Zone 0, which is the lowest risk zone in the United States.

The strongest earthquake in Iowa occurred in Davenport in 1934 and resulted in only slight damage. Estimated effects of a 6.5 Richter magnitude earthquake along the New Madrid Fault Zone suggests Iowans in four southeast counties could experience trembling buildings, some broken dishes and cracked windows. About 29 other counties, from Page to Polk to Muscatine, could experience vibrations similar to the passing of a heavy truck, rattling of dishes, creaking of walls, and swinging of suspended objects. If an earthquake were to occur, it would more than likely be felt in all of Hardin County.

Due to the relatively low magnitude of earthquakes that would occur in the state, and the distance from the epicenter of an earthquake that would occur in the New Madrid Fault Zone, Iowans would likely see only minor impacts. Fatalities would be very rare, injuries limited to falls and small-unsecured objects, property loss would likely be minimal, and economic loss could occur due to short disruptions in commercial and industrial activities.

Hazard: Communications Failure
Jurisdictions: All Jurisdictions
Score: 9

According to Hardin County Emergency Management, communication problems arose during the hail storm in Eldora last year (2009). Phone and cell phone problems occurred after the storm, as well as a loss of communication towers at the Sheriff's Department.

Citizens of the community would only be impacted indirectly. Phone and data transmission could be impacted. Most communication systems that are highly necessary have backup and are redundant in order to provide continuity of service.

Most communications failures would be limited to localized areas. In the event of a widespread communications failure, only portions of Hardin County would be impacted, but this highly unlikely due to the support of other jurisdictions and secondary communication devices.

A communications failure would not directly result in injuries or fatalities. Most financial losses would be incurred due to the direct damage to electronic equipment and the communication system infrastructure. If emergency 911 systems were to fail due to phone communication disruption, secondary impacts could occur by the inability of citizens to alert responder of their needs. Inter-agency and intra-agency communications would be limited. Data transmission could also be affected. This could disrupt business and financial transactions resulting in potential loss of business.

4.4.2 Community Assets

44 CFR Requirement §201.6(c)(2)(ii)(A): *The plan should describe vulnerability in terms of types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area…*

This section covers the location and density of the population, structures, critical facilities, infrastructure, and other important assets in Hardin County that may be at risk of the natural and manmade hazards identified in the previous section.

Hazards designated as "planning boundary-wide" can affect all of the people, structures, critical facilities, infrastructure, and other assets identified in this section. As a reminder, the planning boundary-wide hazards include—in no particular order:

- Communication Failure
- Drought
- Energy Failure
- Extreme Heat
- Flash Flood
- Grass or Wildland Fire
- Hailstorm
- Severe Winter Storm
- Structural Failure
- Structural Fire
- Thunderstorm and Lightning
- Tornado
- Windstorm
- Hazardous Materials Incident
- Highway Transportation Incident
- Earthquake

The hazards that only affect certain jurisdictions and require more specific analysis include—in no particular order:

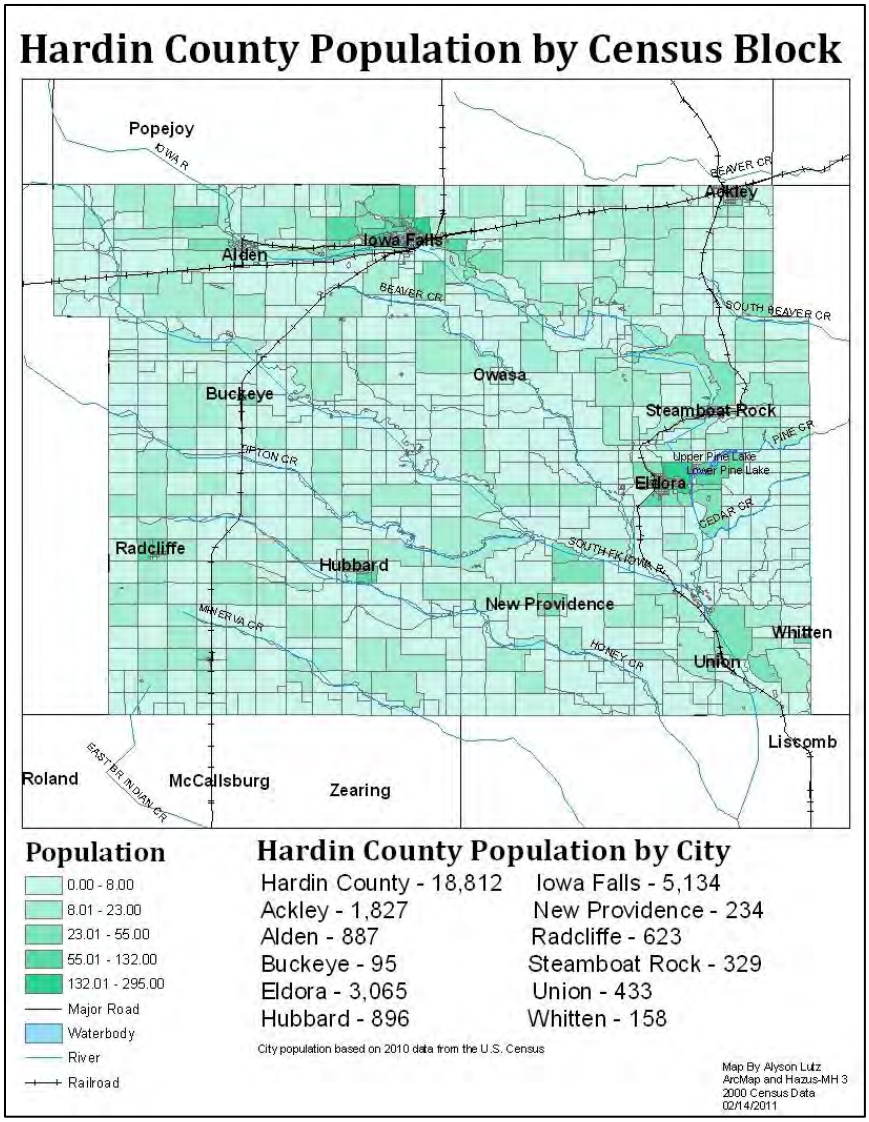
- Animal/Crop/Plant Disease—Unincorporated Hardin County
- Dam Failure—Unincorporated Hardin County, Alden, Eldora, Iowa Falls, Steamboat Rock
- Pipeline Transportation Incident— Unincorporated Hardin County, Ackley, Alden, Eldora, Hubbard, Iowa Falls, New Providence, Radcliffe, Steamboat Rock, Union, Whitten
- Railway Transportation Incident— Unincorporated Hardin County, Ackley, Alden, Buckeye, Eldora, Iowa Falls, Steamboat Rock, Union
- River Flooding— Unincorporated Hardin County, Ackley, Alden, Hubbard, Iowa Falls, Steamboat Rock, Union, Whitten
- Sinkholes— Unincorporated Hardin County, Ackley, Alden, Buckeye, Eldora, Iowa Falls, Steamboat Rock, Union

Each hazard and the effect it can have on a jurisdiction will be discussed in the next section of this plan. This section is purely a summarization of the assets that are generally in danger when a hazard event occurs and their importance to the corresponding jurisdiction. There are quite a few similarities between jurisdictions, but there are also dozens of assets unique to each jurisdiction.

Human Assets

The people who live and visit Hardin County are the first priority for providing protection from natural and manmade hazards. One of the two main goals of hazard mitigation is to prevent human injury and death. Nearly 18,500 people live in Hardin County and thousands more visit and travel through the county regularly. Refer to Figure 4.4.2.1 below for the population distribution across Hardin County.

Figure 4.4.2.1: Hardin County Population by Jurisdiction and Census Block

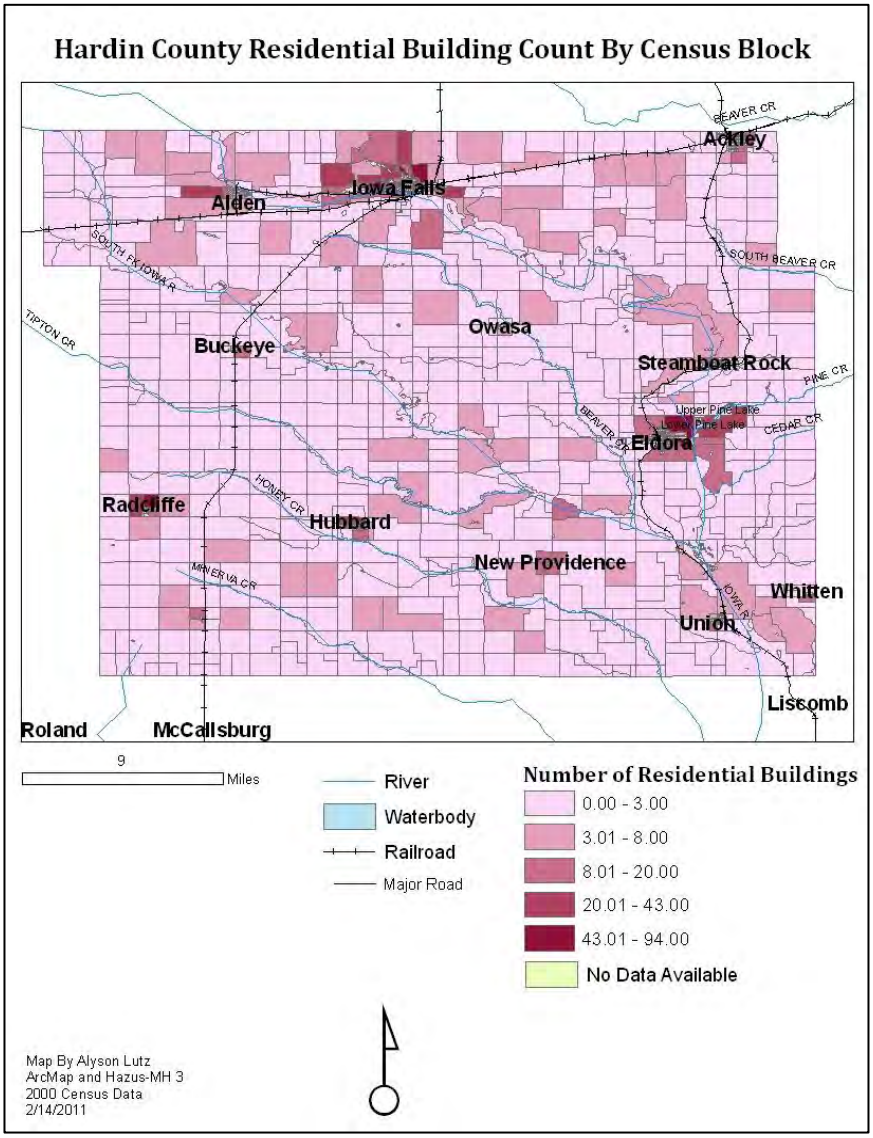


The largest concentration of people in Hardin County is in its incorporated cities. Eldora and Iowa Falls have the highest populations followed by Ackley. The rest of the population is evenly spread among the smaller cities and the unincorporated areas throughout the county.

Structural Assets

The other main goal of hazard mitigation is to prevent property damage, which can be both dangerous and extremely expensive to repair. For the sake of analysis, Hardin County's structural assets were divided into five different use categories: residential, commercial, industrial, agricultural, and historic. Figure 4.4.2.2 below features residential structures.

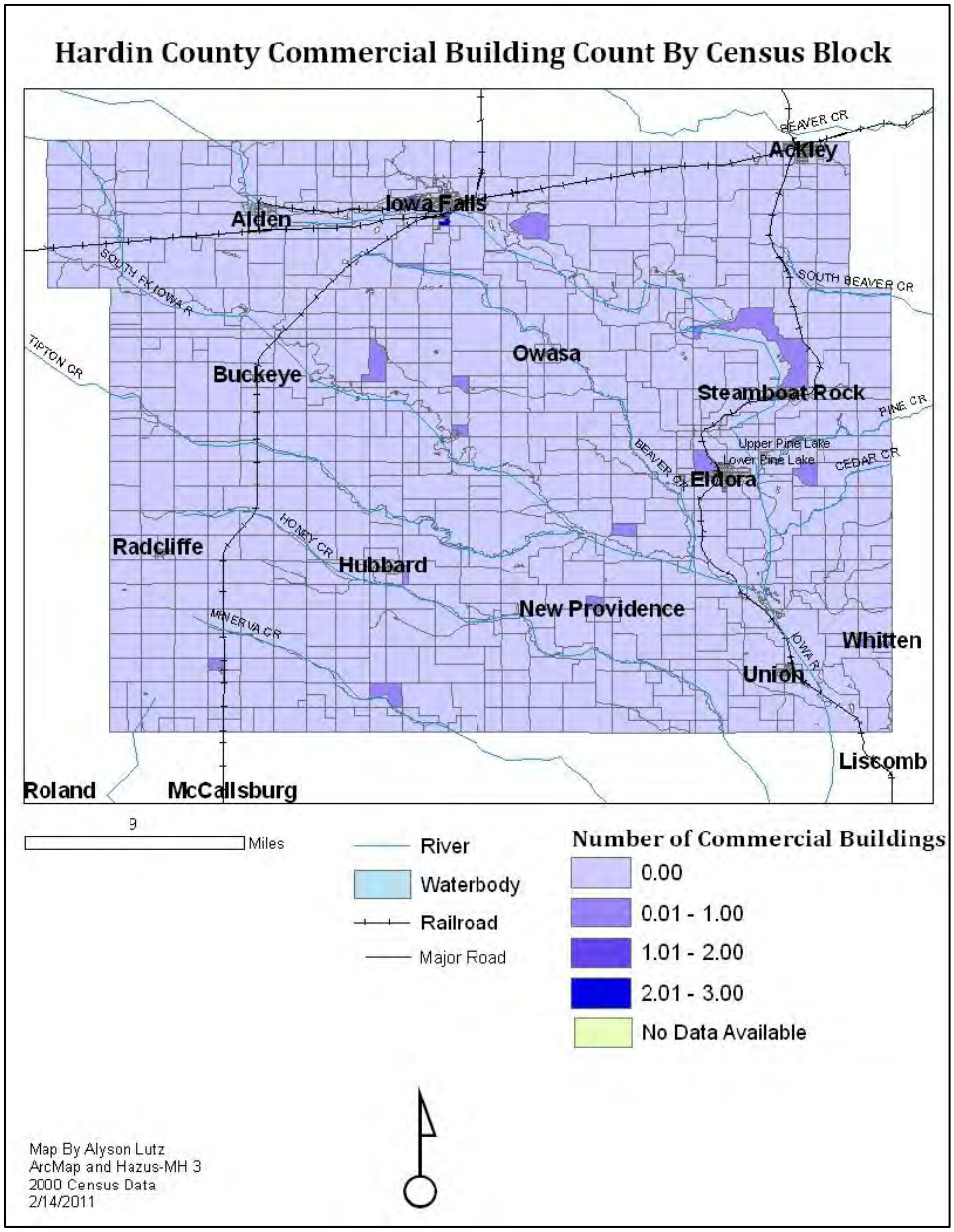
Figure 4.4.2.2: Hardin County Residential Building Count by Census Block



The pattern of residential development resembles the population distribution of the county since it is based on residence. The majority of residential structures are concentrated in the county's largest cities, including Alden. Smaller concentrations can be found in the smaller cities of Hardin County and throughout the unincorporated areas. Overall, the majority of the structures in Hardin County are for residential use. Refer to Figure 4.4.2.2.

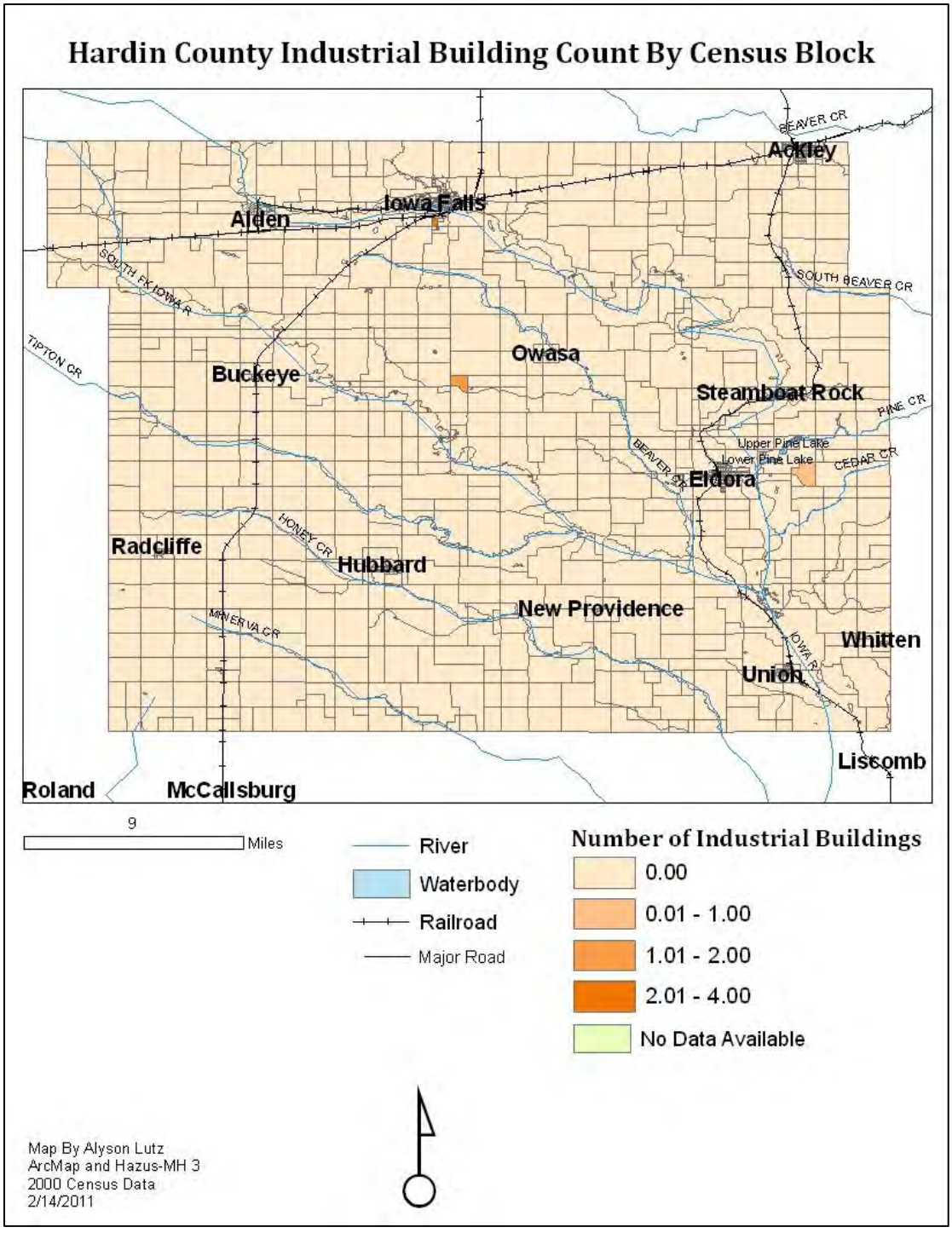
The second structure type, commercial, somewhat resembles the patterns of residential development. Most other commercial buildings are scattered in unincorporated portions of the county. The highest concentrations of buildings in one census block, though, is just two to three so there are no extremely dense areas of commercial buildings. Generally, Hardin County's largest cities have higher concentrations but there are also denser areas in the unincorporated, city periphery.

Figure 4.4.2.3: Hardin County Commercial Building Count by Census Block



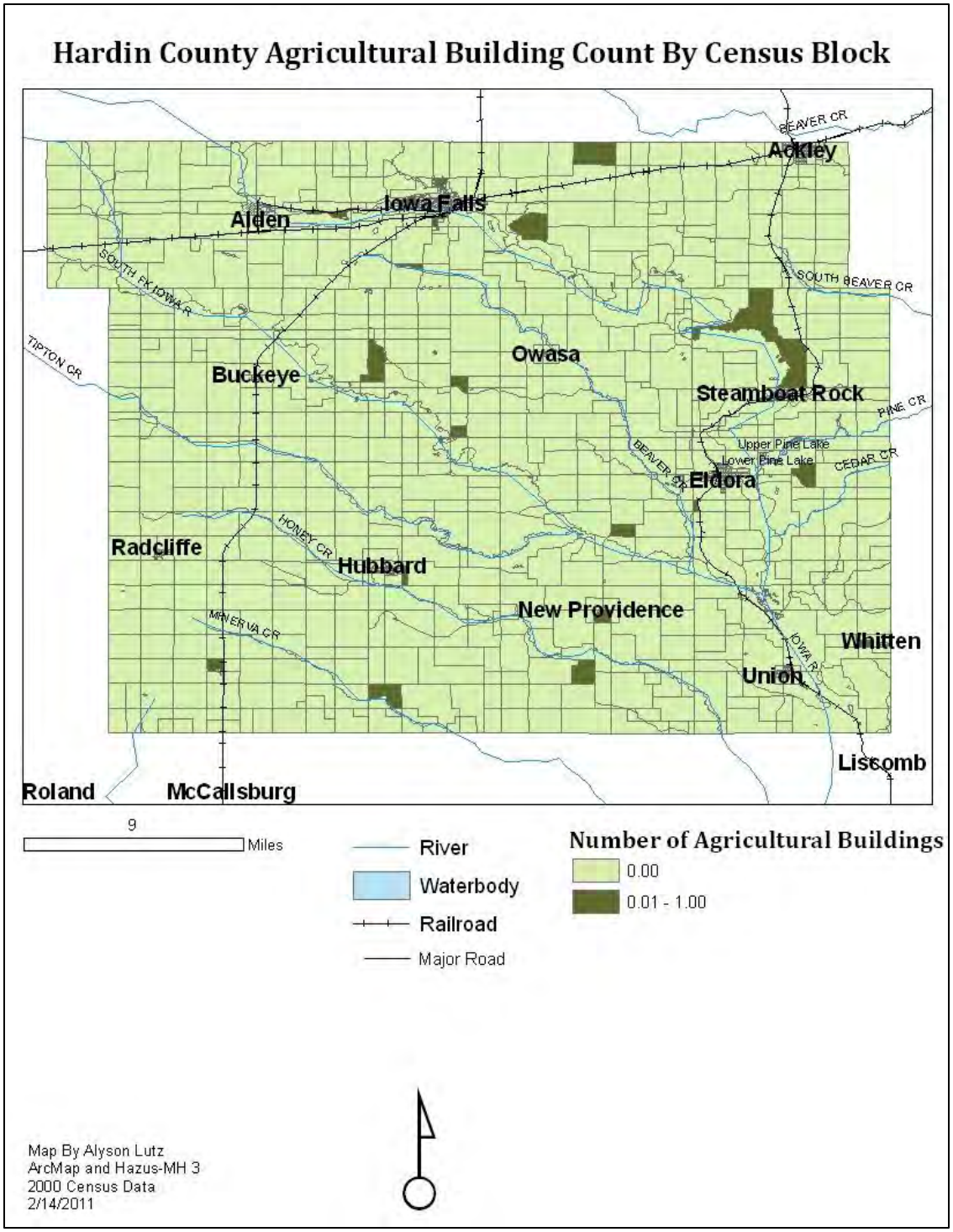
The concentration of industrial buildings is also not very dense with the highest concentration ranging from just two to four buildings. Refer to Figure 4.4.2.4. There are four areas that stand out as the densest industrial areas with two to four buildings. There is just one area with 1 industrial building. Overall, Hardin County does not have a high concentration of these buildings in one area so the county's industrial economy does not seem to be extremely vulnerable.

Figure 4.4.2.4: Hardin County Industrial Building Count by Census Block



The distribution of Hardin County's agricultural buildings is scattered, somewhat like the commercial buildings. None of the areas are extremely dense because the highest range in number of buildings per census block is just one building. Most agricultural buildings are located outside of city corporate limits in the unincorporated areas of the county. Refer to Figure 4.4.2.5 for the location of agricultural buildings in Hardin County.

Figure 4.4.2.5: Hardin County Agricultural Building Count by Census Block



Historic Assets

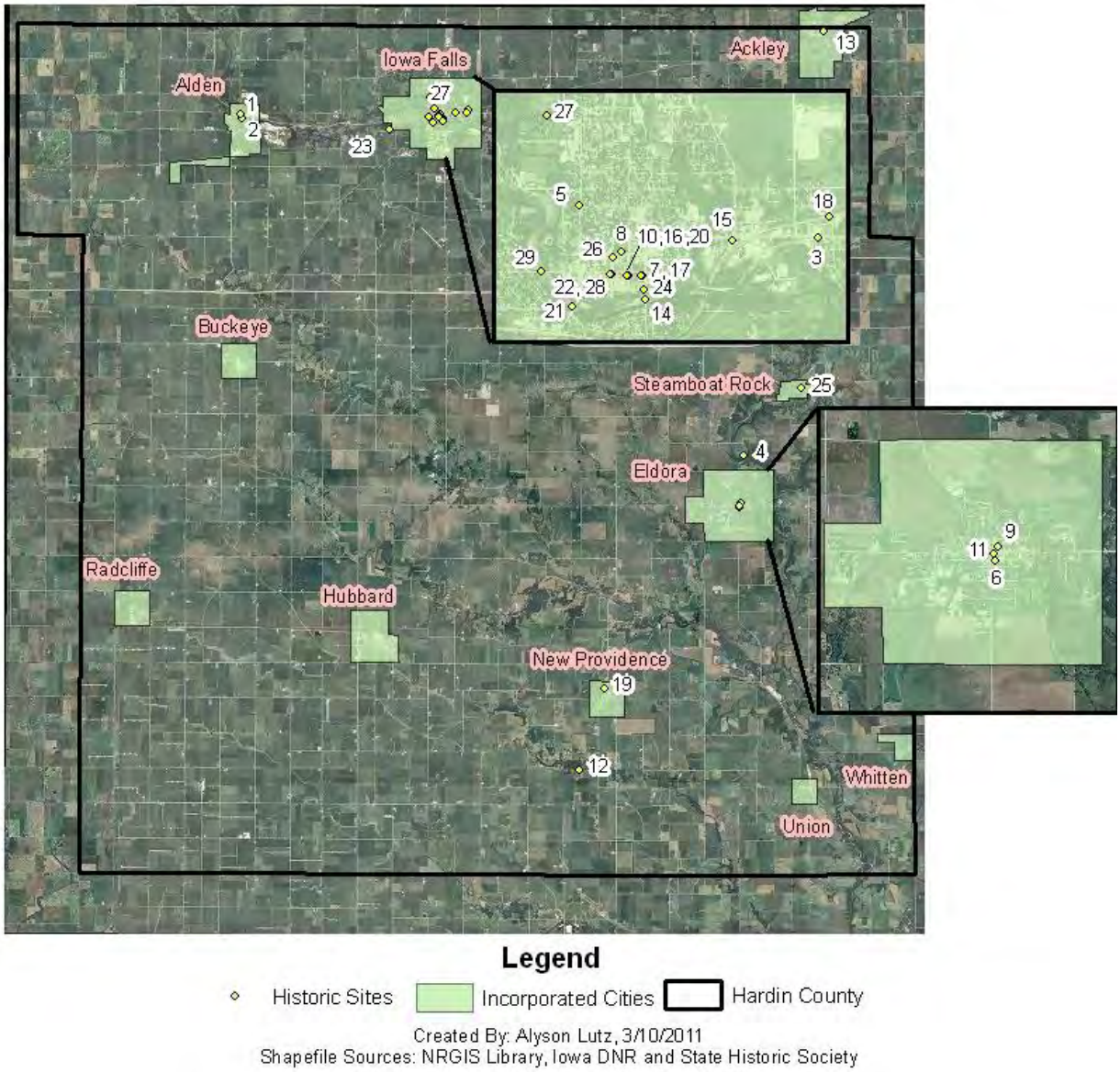
The 29 historic sites are spread across most of Hardin County. There is one major cluster of historic sites in the city of Iowa Falls, which can be seen in the call out in Figure 4.4.2.6 on the next page. This cluster contains a majority of the sites in the county. Because these historic sites are in such close proximity, they should have a high priority and consideration when it comes to protection from hazards. Many of these sites are used presently as critical facilities and therefore, maintain a high importance to the city.

In order to identify the locations of 29 registered historic sites in Hardin County, Geographic Information Systems software was used. The National Geographic Information System Library and the Iowa Department of Natural Resources provided aerial photos as well as county and incorporated city boundary shapefiles. The State Historic Society provided the points of the historic sites listed on the National Register of Historic Places. (http://www.nps.gov/nr/) The full list of Hardin County's historic sites is below:

1. Alden Bridge
2. Alden Public Library
3. Carnegie-Ellsworth Public Library
4. Coal Bank Hill Bridge
5. Edgewood School of Domestic Arts, aka Edgewood Community Center
6. Eldora Public Library
7. Ellsworth-Jones Building
8. Estes Park Band Shell
9. First Congregational Church, aka United Church of Christ
10. First National Bank, aka Iowa Falls State Bank
11. Hardin County Courthouse
12. Honey Creek Friends' Meeting house
13. Illinois Central Combination Depot
14. Iowa Falls Bridge
15. Iowa Falls Union Depot, aka Iowa Falls Depot; Illinois Central Passenger Depot
16. McClanahan Block
17. Metropolitan Opera House, aka MET Theater
18. Mills Tower Historic District
19. New Providence School Gymnasium, aka New Providence Roadhouse
20. Princess Sweet Shop
21. River Street Bridge
22. Sentinel Block
23. Slayton Farms-Round Barn
24. St. Matthew's by the Bridge Episcopal Church
25. Steamboat Rock Consolidated Schools Building, aka Steamboat Rock Community School
26. US Post Office, aka Federal Building
27. Union Cemetery Gardener's Cottage
28. W.R.C. Hall, aka American Legion Hall
29. Washington Avenue Bridge

Refer to Figure 4.4.2.6. This map shows the location of each historic site with its corresponding number in the list above as its identifier.

Figure 4.4.2.6: Hardin County Historic Sites



Jurisdiction Identified Assets, Critical Facilities, and Vulnerable Populations

A community asset diagram was completed for each individual jurisdiction and the unincorporated areas of Hardin County. The schools were also included in this process by having school representatives participate in the asset mapping for the community in which their buildings are located. The assets particular to each jurisdiction can be found in the following pages.

Critical facilities and vulnerable populations were also identified for each jurisdiction. These facilities and populations are also important to identify for the purpose of determining hazard mitigation priorities. Knowing who is most vulnerable during a hazard event and what facilities are most important during and immediately after a hazard event is extremely valuable.

Critical facilities are defined as facilities that are extremely important to the health, safety, and welfare of the people of each jurisdiction. These facilities are especially important following hazard events. Examples of critical facilities include but are not limited to:

- Shelters
- Police, fire, ambulance stations
- City Hall
- Hospitals, medical clinics, nursing facilities
- Emergency operation centers
- Transportation facilities like roads, bridges, airports, etc.
- Infrastructure for water, wastewater, power, communications, etc.
- Power generation facilities
- Schools
- Businesses that provide necessities like food, fuel, hardware, and money

Every Hardin County jurisdiction is unique so the critical facilities identified for one jurisdiction may be very different from others. Critical facilities from other jurisdictions can be identified, too. An example is a grocery store or gas station. These facilities may not be located in a certain community but residents depend on that grocery store or gas station for their basic needs.

A vulnerable population includes people who may require special assistance or medical care. These people should be identified so their needs are a priority in the event of a disaster. Examples of vulnerable populations include but are not limited to:

- Elderly in their homes, assisted living, or nursing facility
- Disabled in their homes, assisted living, or nursing facility
- Young children in school or daycare

The elderly or disabled people in a jurisdiction may not be able to cope with a disaster as well as others. These people might require help getting to a shelter, boarding up broken windows, buying groceries, or contacting their family.

Ackley

It is important to identify community assets, which may be infrastructure, buildings, activities, or institutions, because it helps residents decide what to protect from the harmful impacts of hazard events. The assets identified for Ackley are below:

1 AGWSR Schools
2 Adventure Plastics
3 Aerobojets
4 Airport
5 Athletic complex
6 Beaver Creek
7 City parks
8 Cougar's Den Daycare
9 Dental Office
10 Depot Museum
11 Drugstore
12 Eichmeier Motors
13 Equalization cell
14 German Band
15 Grocery Store
16 Hiking/Biking Trails
17 Mannequins on city benches
18 New Country Club
19 New Medical Center
20 NRP
21 Pine Lakes LLC
22 Pocket Wetlands
23 Pool
24 Prairie Bridge campground
25 Prairie House
26 Prairie land
27 Prairie Restoration
28 Presbyterian Village (largest employer)
29 Presbyterian Village/Genesis Place
30 Railroads
31 Sailor Ford
32 Sunset Distributing
33 Triple T
34 Water Main Replacement

The critical facilities for the community were also identified. These are the facilities in the community that are important to maintain the health, safety, and welfare of the residents and visitors of the Ackley community. The critical facilities identified for Ackley are below:

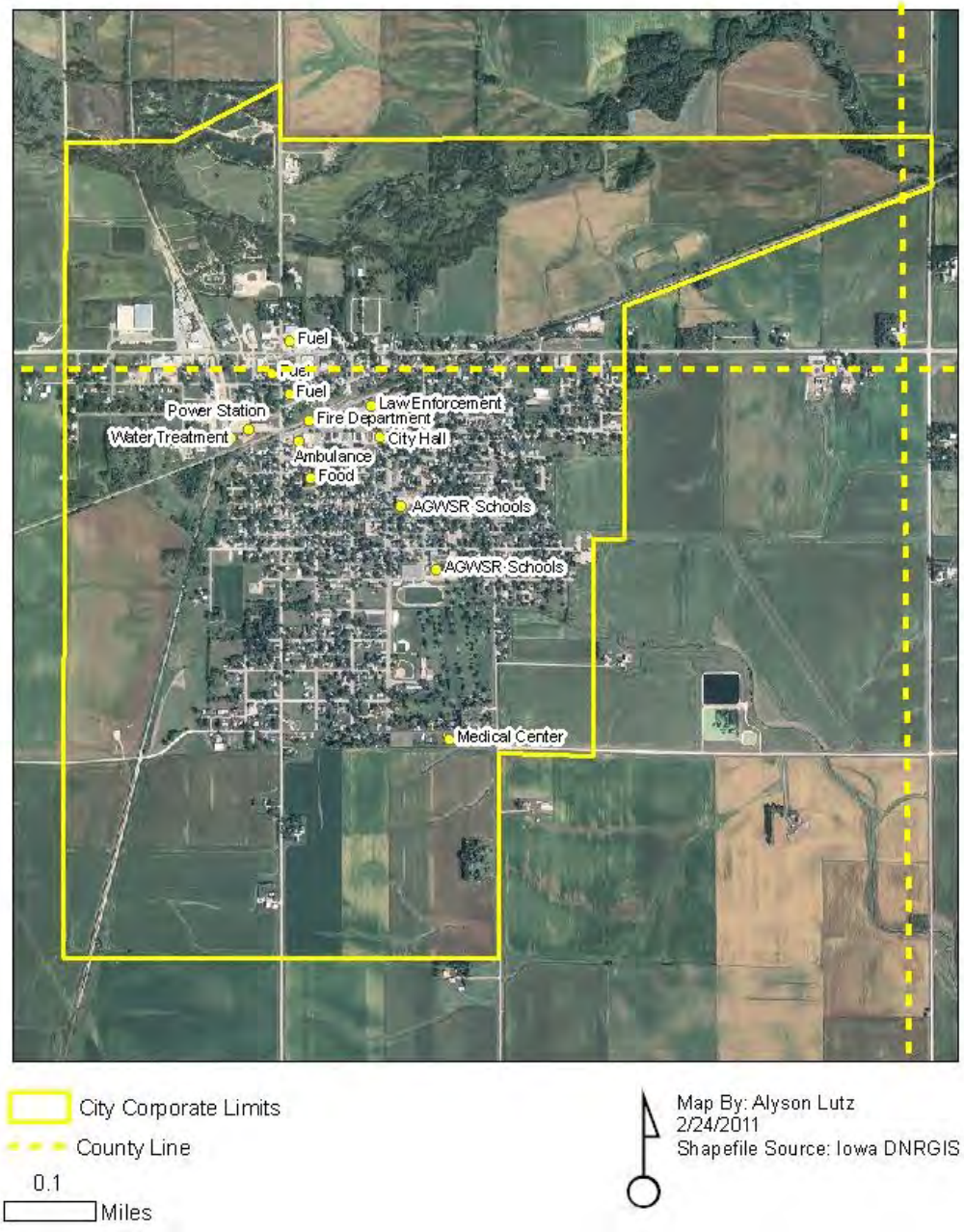
1. City Hall
2. AGWSR Schools
3. Fire Department
4. Ambulance
5. Law Enforcement
6. Medical Center
7. Power Station
8. Water Treatment
9. Fuel
10. Food

These ten facilities were identified for several reasons. The city hall serves as the city command post during disaster events. The medical clinic can help serve those injured in the hazard before, during and following the event. The power station is vital during hazard events, so it is pertinent to protect it. Refer to Figure 4.4.2.7 for each facility's location in Ackley.

The vulnerable populations living in Ackley were also identified. These are the people in the community who may require special assistance or medical care. Vulnerable populations are identified so their needs can be made a priority in the event of a disaster. The vulnerable populations living in the City of Ackley are identified below.

1. Presbyterian Village Nursing Home
2. Cougars Den Day Care
3. Those using Prairie Bridges Park facilities
4. Those using athletic fields and pools
5. Other private day cares

Figure 4.4.2.7: Ackley's Critical Facilities



Alden

Alden's assets were identified by the Planning Team members who volunteered to represent the city. The assets were identified through asset mapping activity at the first countywide hazard mitigation meeting. For this activity, three major asset areas were considered: environment, economy, and social. Alden's assets are listed below.

1 Affordable Housing/Living
2 Ag Services
3 Ag-based employment
4 Alden Days
5 Available housing
6 Churches
7 City parks
8 Elevator
9 Farm Service
10 Gift Shop
11 Good in-town roads
12 Iowa Limestone
13 Iowa River
14 Iowa Select
15 Library
16 Limestone
17 Liquor Store
19 Mid-Iowa Fabrication
20 Restaurant
21 Restaurants
22 Safe
23 Safe Community
24 School Athletic fields
25 School District
26 School Grounds
27 Small Town Values
28 Summit Forums
29 Alden Diesel & Tractor Repair

The city's critical facilities were also identified at this meeting but in a separate activity. A couple of the city's assets were also considered critical facilities. The facilities that need to function immediately following a hazard event are listed below.

1. Hilltop Housing
2. Alden Elevator
3. Alden Elementary School
4. Alden Fire Department/City Hall
5. Alden Library
6. Iowa Limestone
7. Martin –Marietta
8. Alden Water Plant
9. Alden Pump Station/Waste Water
10. County Shed

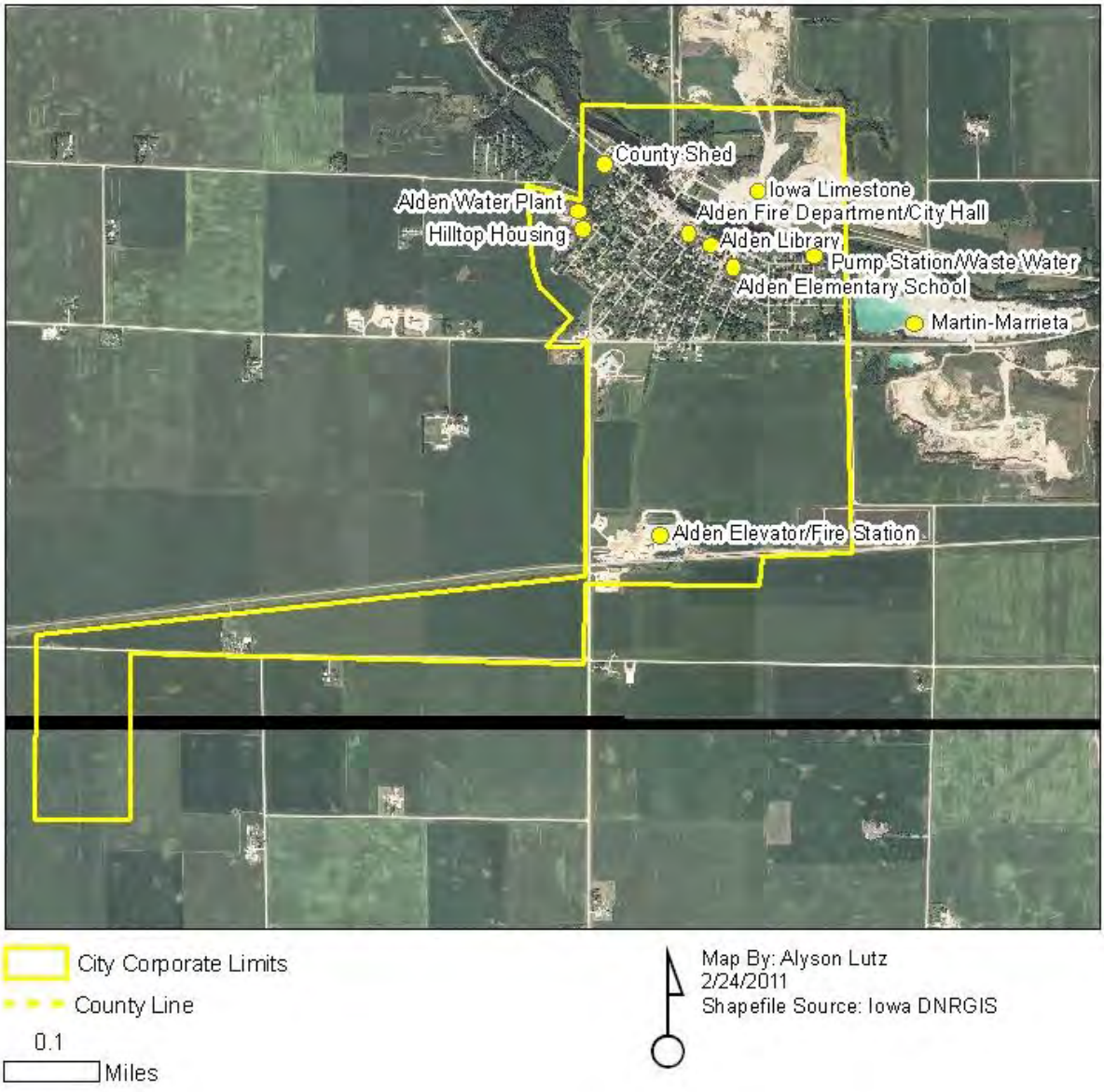
All of these facilities are extremely important to Alden during and after a hazard event. These ten facilities were chosen for many reasons of which some are very obvious. The Fire Department/ City Hall is a command post for City operations and protect important equipment that will most likely be needed immediately following a hazard event. The water plant and pump station are important to help process water during hazard events to ensure the city has a clean water supply. For the location of Alden's critical facilities, refer to Figure 4.4.2.8.

Alden's representative also identified vulnerable populations. These are the people in the community who may need immediate assistance after a hazard event due to special circumstances. The vulnerable populations identified in Alden are listed below.

1. School Children at Alden Elementary
2. Hilltop Housing
3. Daycare Center

Alden representatives expressed concern for the elderly and disabled who live in the retirement homes in town. These people may not have the mobility needed to respond quickly to hazard events.

Figure 4.4.2.8: Alden's Critical Facilities



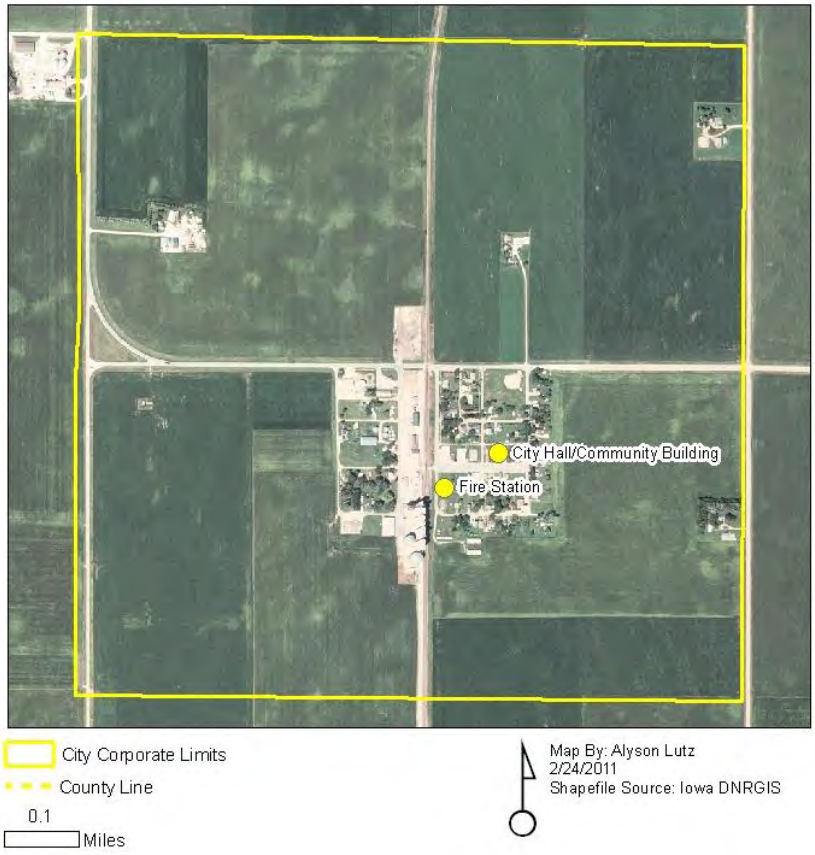
Buckeye

Buckeye's assets were identified by the Planning Team members who volunteered to represent the city. The assets were identified through asset mapping activity. For this activity, three major asset areas were considered: environment, economy, and social. Buckeye's assets are listed below.

1 June 25th Celebration
2 Saw and Tool Sharpening
3 Coop elevator
4 Lutheran Church
5 City Park
6 Shelter House
7 Basketball Court
8 Baseball Diamond
9 Low Property Tax
10 South Fork - IA River
11 Tractor Pull Track
12 Community Building
13 City Hall
14 Fire Station
15 Own wells
16 paved road
17 Highway 20
18 I-35
19 Underground Tiles

Just a few of the commonly identified critical facilities are located in Buckeye for it is a very small jurisdiction. Their critical facilities include a Fire Station and a Community Building/City Hall. Refer to Figure 4.4.2.9 for the location of critical facilities actually located in Buckeye. The only vulnerable population identified for Buckeye is elderly in homes. These individuals may require priority assistance during and immediately following a hazard event.

Figure 4.4.2.9: Buckeye's Critical Facilities



Eldora

Eldora's assets were identified by the Planning Team members who volunteered to represent the city. The assets were identified through asset mapping activity at the first countywide hazard mitigation meeting. For this activity, three major asset areas were considered: environment, economy, and social. Eldora's assets are listed below.

1	Ambulance	23	Iowa Highway 175
2	Aquatic Center	24	Iowa River
3	Available Rail Estate	25	Legion
4	Ball Fields	26	Library
5	Biking/Walking	27	Meals on Wheels
6	Bowling	28	New Filter System
7	Churches	29	New Waste and Storm Water facilities
8	Close Proximity to I-80	30	Nursing Homes
9	Daycare	31	Parks
10	Dorothy Center	32	Peoplerides
11	Down Town Area	33	Pine Lake
12	ENP Performance	34	Race Track
13	Farm Museum	35	Rail Service
14	Fire	36	Reception Center
15	Fishing	37	Rock/Row
16	Golf course	38	Schools
17	Great Farmland	39	Shopping
18	Green Housing	40	Theater
19	Grocery Stores	41	Various manufacturing companies
20	Historic Courthouse	42	Wildlife
21	Industrial Park	43	Wind Energy
22	Inner City/Pine Lake	44	Residential properties rebuilt after hail storm

The critical facilities for the community were also identified. These are the facilities in the community that are important to maintain the health, safety, and welfare of the residents and visitors of the Eldora community. The critical facilities identified for Eldora are below.

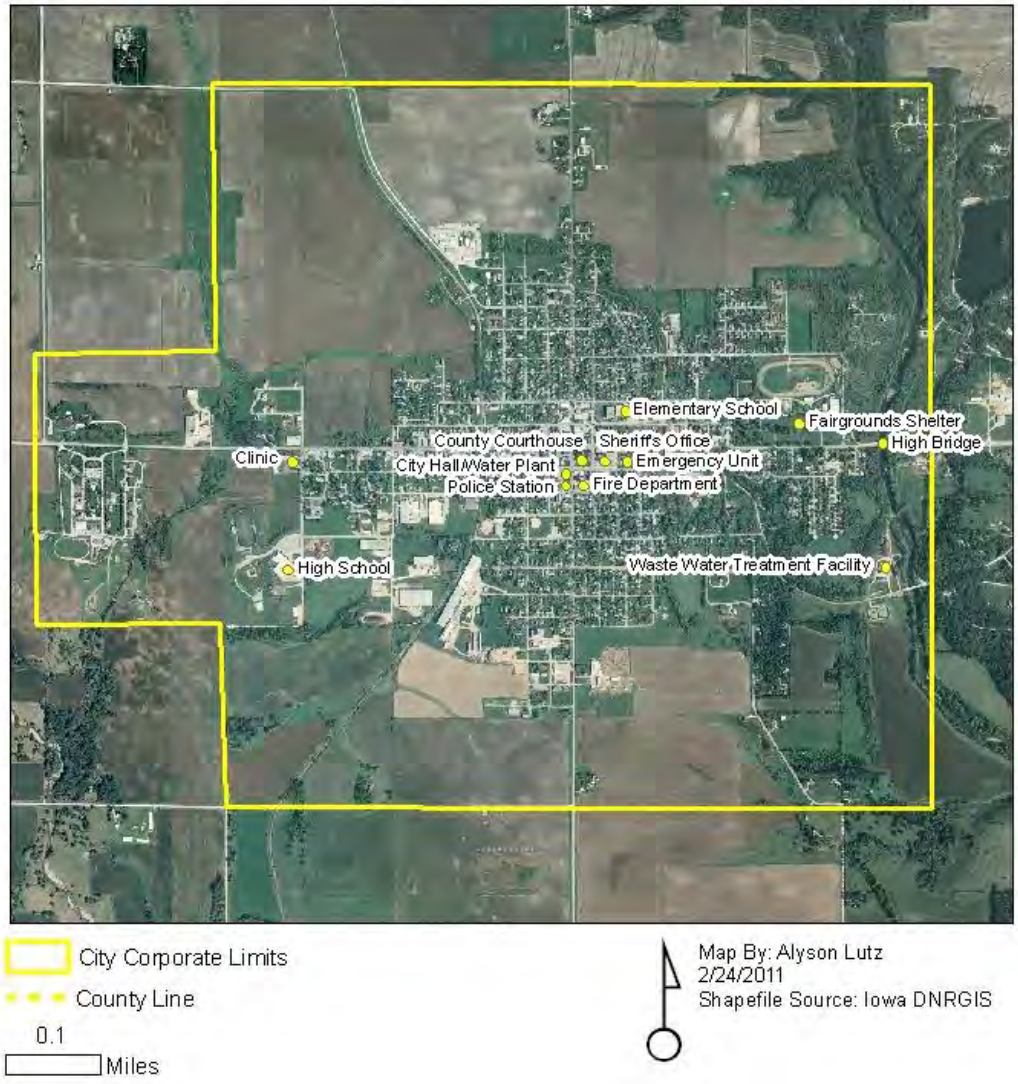
1. Fire Department
2. Sheriff's Office
3. Police Station
4. Clinic
5. Emergency Unit
6. Water Plant
7. Fairgrounds shelter
8. City Hall/Courthouse
9. High Bridge
10. High school/Elementary school

For the most part, Eldora has critical facilities that cannot be found in many other jurisdictions in the county. The water plant is prominent as a critical facility that is very important after such events as flash flooding and river flooding. The locations of Eldora's critical facilities can be viewed in Figure 4.4.2.10.

Vulnerable populations have also been identified for Eldora and are again, somewhat different than other jurisdictions in Hardin County. Not all cities in the county have aquatic centers or trailer parks that are in immediate danger when outdoor disasters strike. The vulnerable populations living in the City of Eldora are identified below.

1 Nursing Homes
2 Assisted Living
3 Tiger Den Day Care
4 Training School for Boys
5 Aquatic Center
6 Trailer Park

Figure 4.4.2.10: Eldora's Critical Facilities



Hubbard

Hubbard's representatives identified 43 major assets in the community. Some assets include agricultural assets, natural features, and social groups so there are not just physical assets but also social assets in this community. The complete list of assets from the asset mapping activity is below.

1 Arboretum
2 Bank
3 Bar
4 Beauty shops
5 Bridge Group
6 C.I.P.C. Manufacturing
7 Car dealerships
8 Car wash
9 Care center
10 Casey's
11 City park
12 Coop
13 Fishing pond
14 Golf course
15 Good auto transportation
16 Good residential
17 Good structures
18 Grocery Store
19 Lawn service
20 Lumbar Yard
21 Mainstreet
22 Medical Clinic
23 Meier Pond and Pool
24 New lagoons
25 New Library
26 New tower
27 New Treatment System
28 Newspaper
29 Peoplerides
30 Phelps
31 Phone/cable/internet
32 Pool
33 Post Office
34 Prairie Land
35 Quilting Group
36 Restaurant
37 School
38 Seed Dealer
39 Social service organizations
40 Tennis and basketball courts
41 Tree service
42 Veterinarian
43 Zoning and Building codes

Since Hubbard is one of the larger communities in Hardin County, basic services like a grocery store are all located in the city. The critical facilities Hubbard identified are listed below. Refer to Figure 4.4.2.11 for the location of the critical facilities in Hubbard.

1. Fire Station/EMS Station
2. Church
3. Hubbard Medical Clinic
4. Water Treatment Facility/Water Tower
5. Lagoon
6. Alliant Transmission
7. School
8. Grocery Store

Of all the types of critical facilities that may be needed the quickest after a hazard event, fire rescue is much more time sensitive than grocery or banking needs.

The vulnerable populations identified in Hubbard are the Hubbard Care Center, and the C. Dove In-Home Daycare. These are commonly identified groups of people in Hardin County. Most cities have older residents and children in care centers. They do not have the mobility to respond quickly during a hazard event.

Figure 4.4.2.11: Hubbard's Critical Facilities

Iowa Falls

Forty-two major assets were identified in Iowa Falls. These assets include both structural and social assets. The full list of identified assets is below:

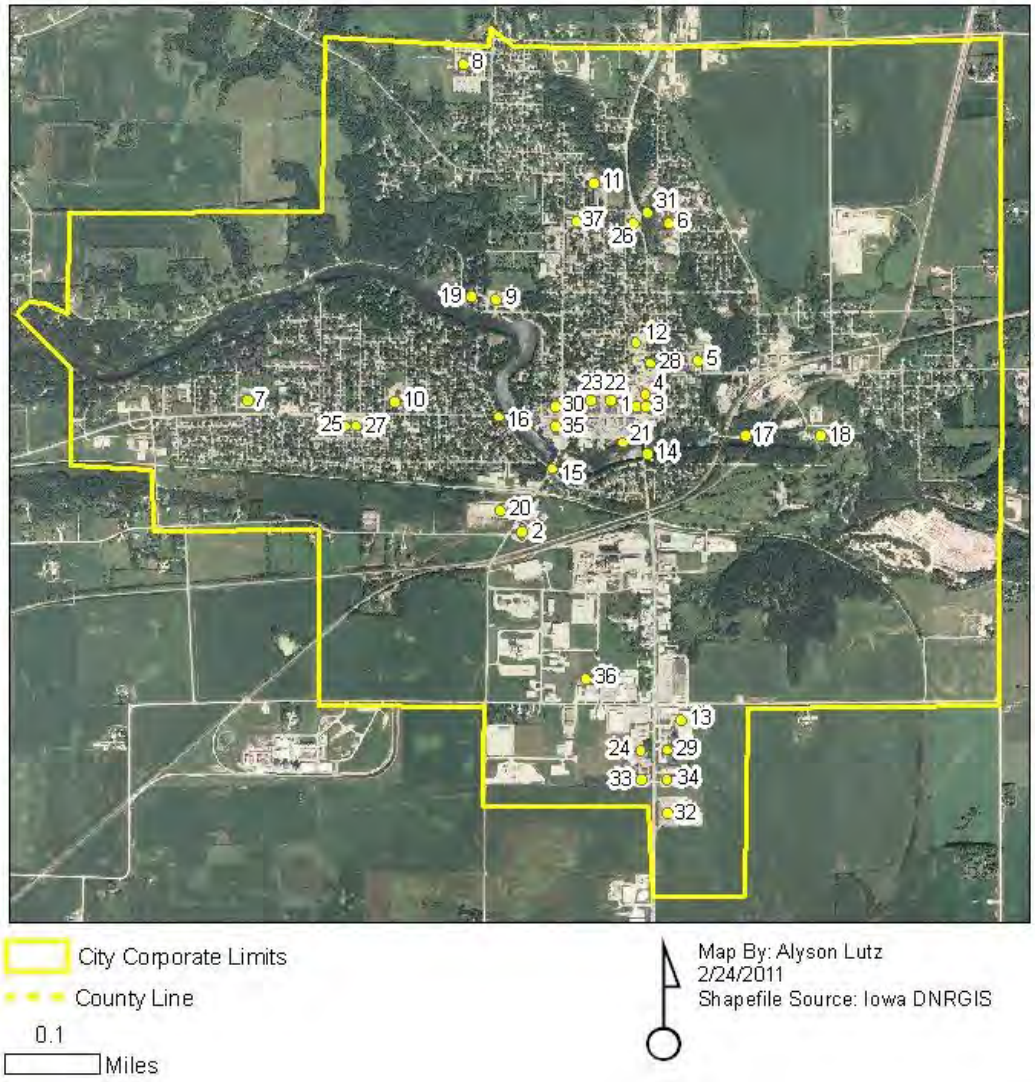
1 Affordable housing
2 All infrastructure services maintained locally
3 Aquatic Center
4 Boat Club Recreation
5 CMC manufacturing
6 CN&UP Intersect in city
7 Commercial Development to south
8 Cross-trained workforce
9 Ellsworth Expansion
10 Equine Center Additions/Expansion
11 Expansion of City Limits
12 Expansion of water system
13 Fuels
14 Greenbelt Community
15 Highway 20
16 Historic Designation for downtown
17 Historical Society
18 Hospital
19 Increasing of support Ag business
20 Library
21 Livestock prices increasing
22 New Hwy 65 Bridge
23 New Track Route
24 New trail development
25 New trails
26 New wells
27 Parks and Rec Department
28 Pat Clark Art Collection
29 Peoplerides
30 Plastics Recycling
31 Rail Transportation
32 Rehabbing Water Tower
33 River band
34 River recreation
35 River with dam
36 School System
37 Schools
38 Stable increase of services
39 Stable market
40 Stable/slight increase in retail
41 Sump pump rehab for infiltration
42 TC

All of the critical facilities identified for Iowa Falls are located within the actual city. Refer to Figure 4.4.2.12 for all of the critical facilities that were identified by the Iowa Falls Planning Team representative, as well as their locations.

The vulnerable populations living in Iowa Falls were also identified. These are the people in the community who may require special assistance or medical care immediately following a hazard event. Vulnerable populations are identified so their needs can be made a priority in the event of a disaster. The vulnerable populations living in Iowa Falls are varied more than most other communities in Hardin County.

1. Scenic Manor
2. Heritage Care
3. Ellsworth Hospital
4. Schools
5. Low Income Housing (mainly on Pierce Street)

Figure 4.4.2.12: Iowa Falls Critical Facilities



1 Police Station
2 Fire Station
3 City Hall
4 AMR Ambulance
5 Ellsworth Hospital
6 Scenic Manor Facility
7 Heritage Care
8 Iowa Falls High School
9 Riverbend Middle School
10 Pineview Elementary School
11 Rock Run Elementary School
12 Fareway
13 Hy-Vee
14 Oak Street Bridge
15 River Street Bridge
16 Washington Ave Bridge
17 Pine Street Water Plant
18 Sewer Treatment Plant
19 Elk Run Water Treatment Plant
20 Street Garage
21 Iowa Falls State Bank
22 Greenbelt Bank
23 Liberty Bank
24 Ackley State Bank
25 Member's 1st Credit Union
26 Casey's (North)
27 Casey's (West)
28 Rock C
29 Handi Stop
30 Kum and Go
31 AgVantage Farm Services
32 Wal-Mart
33 Super 8
34 Americ Inn
35 Library
36 Industrial Park Water Tower
37 Ellsworth Water Tower

New Providence

A large number of assets were identified in the New Providence jurisdiction. Assets include mostly infrastructure and buildings but they also include social assets like the Honey Creek Friends Church, supply stores like the hardware store.

1 Breakfasts
2 Buildings
3 City Location
4 City park
5 Community organizations and club
6 Country Roads
7 Employment out of town
8 Excellent Ag Land
9 Good warning siren
10 Hardware store
11 Honey Creek
12 Honey Creek Friends church
13 Lots of green space
14 Main Street development and appearance
15 Paved streets
16 Post Office
17 Primary Economic Factor (Ag)
18 Q-dale
19 Quaker Historical
20 Roundhouse
21 Roundhouse park
22 School bus system
23 Small manufacturing and businesses
24 US Manufacturing
25 Volunteer Fire Department

Other assets include critical facilities. All of the critical facilities that were identified by New Providence Planning Team representatives are below. Refer to Figure 4.4.2.13 for facility locations in New Providence.

1. Shelter
2. Fire Station
3. City Hall
4. Emergency Operations Center
5. Water Building
6. Water Tower
7. Sewer Treatment Facility
8. Hardware Store

The vulnerable populations living in New Providence were also identified. These populations are identified so their needs can be made a priority in the event of a disaster. The only vulnerable population identified in New Providence was elderly in their homes. Being scattered throughout the community, it may be a challenge to reach all of them and meet their immediate needs during a hazard.

Figure 4.4.2.13: New Providence's Critical Facilities

Radcliffe

Radcliffe's assets were identified by the Planning Team members who volunteered to represent the city. The assets were identified through asset mapping activity at the first countywide hazard mitigation meeting. For this activity, three major asset areas were considered: environment, economy, and social. Radcliffe's assets are listed below.

1	Apartments	14	Matchie Auto
2	Bank	15	Mirenco Manufacturing
3	Bar	16	Museum
4	City park	17	Pearson Metal Art
5	Coop	18	Pedestrian/bike trail
6	Flower shop	19	Rad Ag
7	Golf course	20	Salons
8	Good existing commercial	21	School
9	Good existing drinking water	22	Summerfest
10	Good existing residential	23	Telephone
11	Good existing water system	24	Trails
12	Library	25	Vet
13	Lighted Christmas parade	26	Waste water and storm water system

All basic services are represented through the critical facilities in Radcliffe. Their critical facilities include an airport, bank, water plant, and city service buildings. There is no grocery store in the community, however, there is a Co-mart with a limited selection of goods. The full list of critical facilities is below. Refer to Figure 4.4.2.14 for the location of critical facilities actually located in Radcliffe.

1. Ambulance/Fire Station
2. City Hall
3. Emergency Operations Center
4. Airport
5. Water Plant
6. School
7. Comart
8. Bank
9. Co-op

The Sunrise Housing (for elderly) and the Radcliffe-Hubbard Schools were identified as this jurisdiction's vulnerable population. These individuals may require priority assistance during and immediately following a hazard event.

Figure 4.4.2.14: Radcliffe's Critical Facilities

Steamboat Rock

It is important to identify community assets, which may be infrastructure, buildings, activities, or institutions, because it helps residents decide what to protect from the harmful impacts of hazard events. The assets identified for Steamboat Rock are below:

1	Bank Building	9	Low rent apartment complex
2	Big Trail	10	Quick Trip
3	Café	11	Remodel of old school
4	Camp sites	12	Sac Fox Overlook
5	Canoeing on river	13	School is a designated safety shelter
6	CPA	14	Travel Agency
7	Grain Elevator	15	Tubing on River
8	Junk vehicles	16	Well and Water Tower

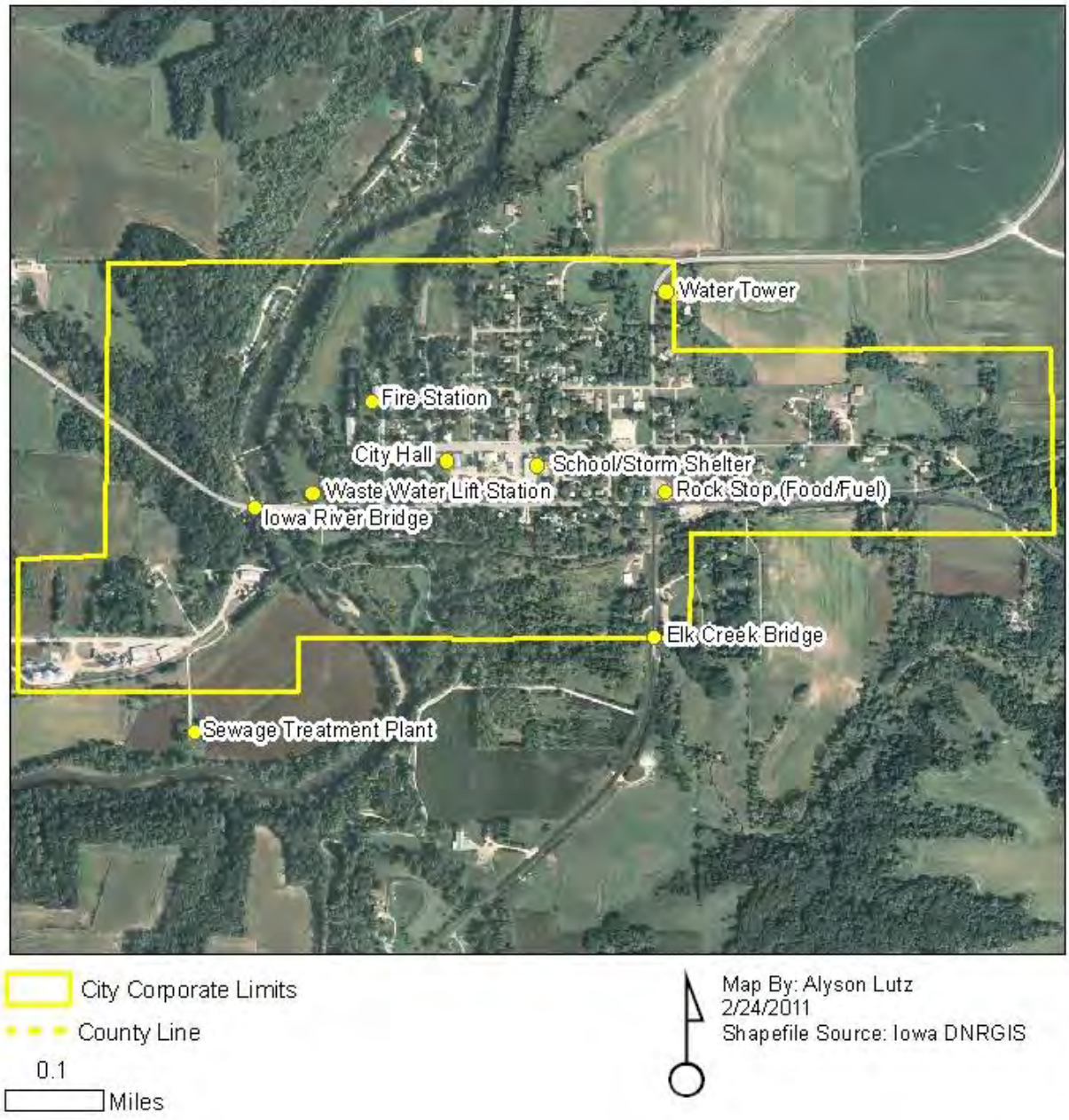
The critical facilities for the community were also identified. These are the facilities in the community that are important to maintain the health, safety, and welfare of the residents and visitors of the Steamboat Rock community. The critical facilities identified for Steamboat Rock are below:

1. School House/Storm Shelter
2. City Hall
3. Fire Station
4. Iowa River Bridge and Elk Creek Bridge
5. Water Tower
6. Waste Water Lift Station
7. Sewage Treatment Plant
8. Rock Stop (Food/Fuel)

These eight facilities were identified for several reasons. The city hall serves as the city command post during disaster events. The school house/storm shelter provides shelter for a vulnerable population before, during and following the event. The water treatment facilities are vital during hazard events, so it is pertinent to protect them. Refer to Figure 4.4.2.15 for each facility's location in Steamboat Rock.

The vulnerable populations living in Steamboat Rock were also identified. These are the people in the community who may require special assistance or medical care. Vulnerable populations are identified so their needs can be made a priority in the event of a disaster. The only vulnerable population identified for Steamboat Rock are those living in low rent housing. Their housing is what's vulnerable for it may not be up to code and able to sustain intense weather hazards.

Figure 4.4.2.15: Steamboat Rock's Critical Facilities



Union

Union's assets were identified by the Planning Team member who volunteered to represent the city. The assets were identified through asset mapping activity at the first countywide hazard mitigation meeting. For this activity, three major asset areas were considered: environment, economy, and social. Union's assets are listed below.

1	4H Club	14	Great School
2	Auto Dealer	15	Iowa River
3	Building new water tower	16	Library
4	Camping Facilities	17	Low-rent Housing
5	Churches	18	Outreach Africa
6	Coop	19	Pool
7	County Parks	20	Restaurants
8	Daycare	21	School System
9	Farmer's Market	22	Tractor Repair Shop
10	Fire Dept	23	Treatment Facility
11	General Store	24	Updated City Park
12	Golf Course	25	Vet
13	Great Lagoon system	26	Welding and Fabrication

The city's critical facilities were also identified at the second countywide meeting. The facilities that need to function immediately following a hazard event are listed below.

1. City Hall
2. Fire Department/Ambulance
3. Northwell Pumphouse
4. Southwell Pumphouse
5. Lagoon
6. School
7. Bank
8. Gingersnap Store
9. Library
10. Emergency Shelter

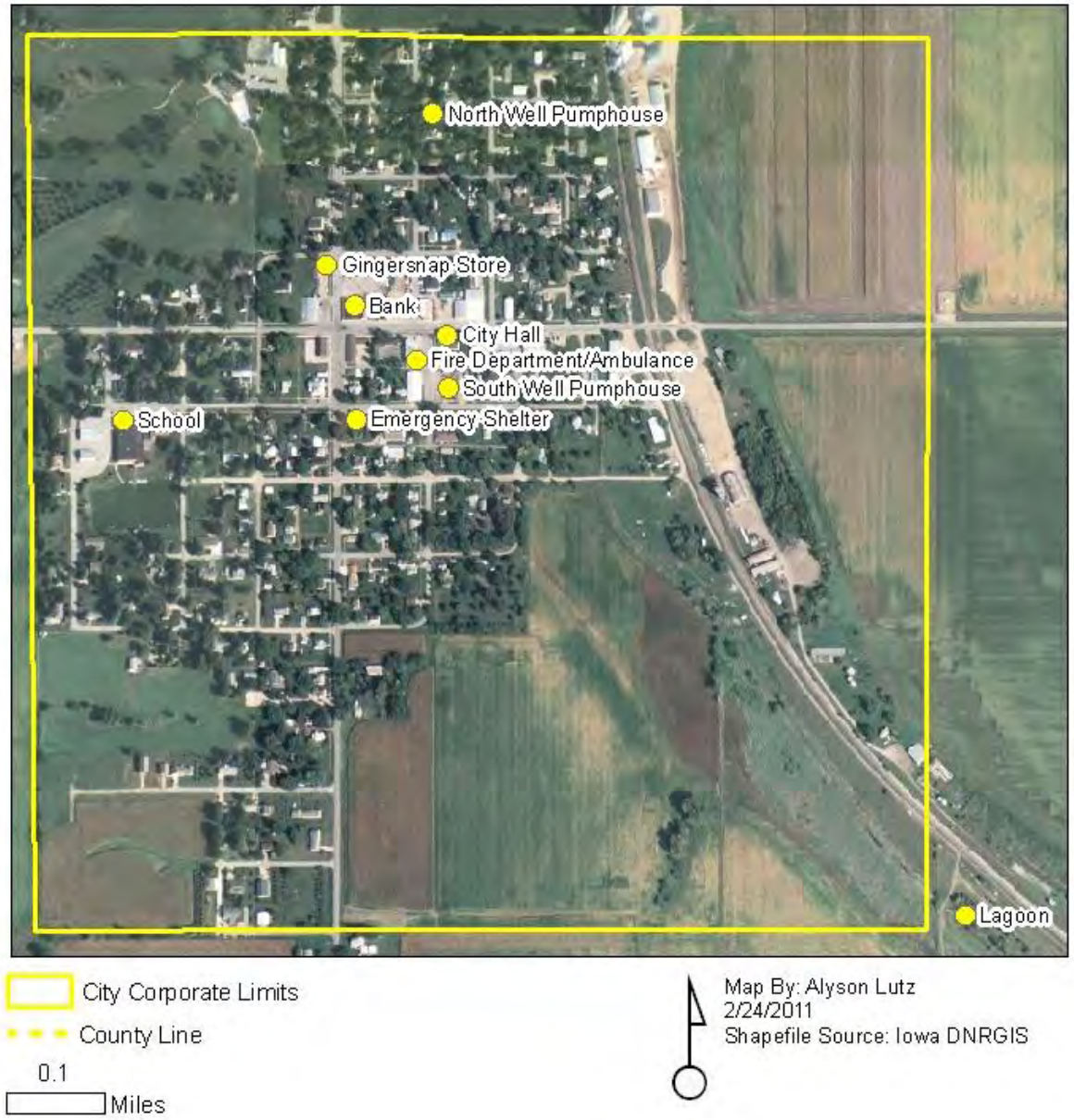
All of these facilities are extremely important to Union during and after a hazard event. These ten facilities were chosen for many reasons, of which some are very obvious. The Fire Station and City Hall are command posts for city operations and protect important equipment that will most likely be needed immediately following a hazard event. The Emergency Shelter is a sheltered space, and the Gingersnap Store is a source for supplies. For the location of Union's critical facilities, refer to Figure 4.4.2.16.

Union's representative also identified vulnerable populations. These are the people in the community who may need immediate assistance after a hazard event due to special circumstances. The vulnerable populations identified in Union are listed below.

1. Schools
2. Day Care
3. Elderly

These people may not have the mobility needed to respond quickly to hazard events and this is of more concern considering the great number of people at each facility who would need assistance in an event.

Figure 4.4.2.16: Union's Critical Facilities



Whitten

Whitten's assets were identified by the Planning Team members who volunteered to represent the city. The assets were identified through asset mapping activity at the first countywide hazard mitigation meeting. For this activity, three major asset areas were considered: environment, economy, and social. Whitten's assets are listed below.

1 Bar
2 Baseball Fields
3 Church
4 City Location
5 City Park
6 Close to employment opportunities
7 Fire Department
8 Good drinking water
9 Good Waste and Storm water
10 Harvest Festival
11 Main Street development and appearance
12 School bus system
13 Whitten celebration and
14 Zoning

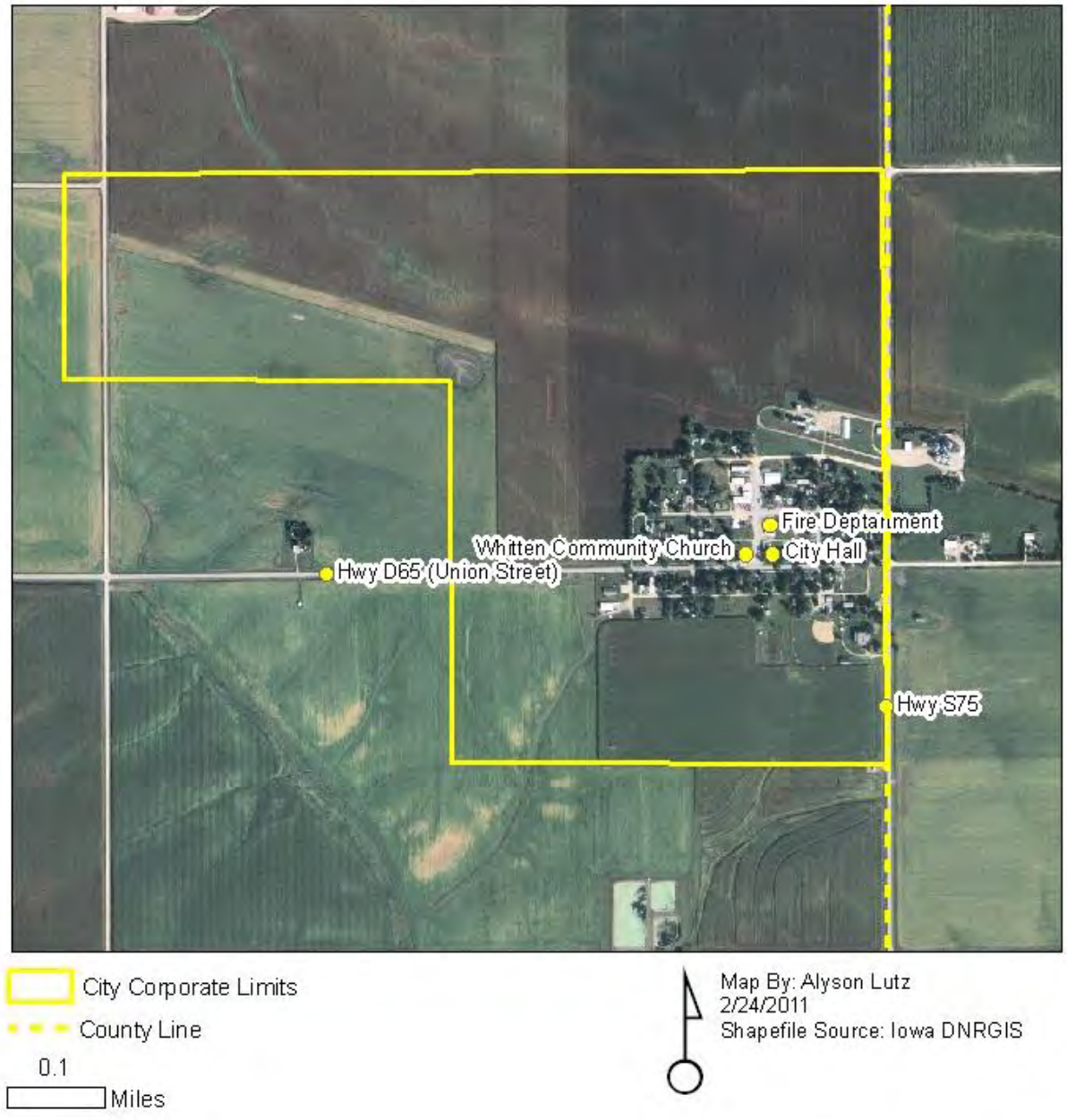
The critical facilities for the community were also identified. These are the facilities in the community that are important to maintain the health, safety, and welfare of the residents and visitors of the Whitten community. The critical facilities identified for Whitten are below.

1. Fire Department
2. City Hall
3. Whitten Community Church
4. Hwy D65 (Union St)
5. Hwy S75

For the most part, Whitten has critical facilities that cannot be found in many other jurisdictions in the county. The roadways identified are a critical facility that is very important during and after such events as flash flooding and river flooding for they are the only ways in and out of town for supplies. The locations of Whitten's critical facilities can be viewed in Figure 4.4.2.17.

Vulnerable populations have also been identified for Whitten. The only vulnerable population identified for the City of Whitten is elderly in private homes.

Figure 4.4.2.17: Whitten's Critical Facilities



Unincorporated Hardin County

The representatives for Hardin County identified thirty-two assets in the county, and there are more than likely dozens more. Refer to the list below for the assets indentified in Hardin County.

1	28E Agreement partnership	17	Good Work Ethic
2	Ag soils	18	Greenbelt
3	Ambulance	19	HAZMAT
4	CLG	20	Iowa River
5	Climate for Ag	21	Lending institutions
6	Community involvement	22	Low Cost and Senior Housing
7	County Landfill	23	Pedestrian/Bicycle trails
8	County Parks	24	Peoplerides
9	County State Road System	25	Pine Lakes
10	Development Alliance	26	Pioneer Cemeteries
11	ECC	27	Police
12	Education system	28	Rail
13	EMC	29	Recycling Center
14	Enterprise Zones for businesses	30	Water drainage
15	Fire	31	Wind Energy
16	Good Ag base	32	Zoning Ordinance

Hardin County has an extensive network of critical facilities that includes several types of infrastructure, businesses, and structures. These are the facilities in the community that are important to maintain the health, safety, and welfare of the residents and visitors of Hardin County so they are especially important during and immediately following a hazard event. A list of Hardin County's critical facilities is below.

1. County government facilities, equipment, and vehicles (courthouse, administration offices and vehicles, sheriff's office, jail, emergency operations center, record storage, vehicle and equipment storage, etc.)
2. Transportation facilities (bridges, major highways, county roads, etc.)
3. Communication infrastructure (county radio towers, cell towers, telephone lines, etc.)
4. Potable water infrastructure (water towers, mains, pumps, wells, treatment facilities, etc.)
5. Major pipelines
6. Electrical infrastructure (power lines, sub stations, etc.)
7. Grocery stores
8. Hardware stores and businesses with disaster supplies
9. Facilities at Pine Lake State Park

These facilities are located throughout Hardin County in both incorporated and unincorporated areas. The condition of these facilities is maintained by their respective operator or whoever is appointed by the county.

Vulnerable populations in unincorporated Hardin County include campers at Pine Lake State Park who may not have immediate access to a shelter in the event of a hazard, elderly in the Quakerdale Home and the unincorporated towns of Gifford and Garden City.

4.4.3 Repetitive Loss Properties

44 CFR Requirement §201.6(c)(2)(ii): *[The risk assessment in all] plans approved after October 1, 2008 must also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged by floods.*

Flooding is a not a major concern in Hardin County. The county does not have any repetitive loss properties, identified by Iowa Homeland Security. Four out of eleven Region 6 member jurisdictions in Hardin County are participating in NFIP. Amongst them, there are 15 policies with a total of $2,335,800 worth of insurance in force, as of 05/31/2009. There have been 5 total paid losses worth $1,613, all together.

5 Mitigation Strategy

44 CFR Requirement §201.6(c)(3): *[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.*

This section presents the mitigation strategy developed by the Planning Team based on the risk assessment. The mitigation strategy was developed through a collaborative group process and consists of general goal statements to guide the jurisdictions in efforts to lessen hazard 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 upon those found in FEMA publication 386-3, *Developing a Mitigation Plan* (2002):

- **Goals** are general guidelines that explain what you want to achieve. Goals are defined before considering how they can be accomplished so they are not dependent on the means of achievement. Goals are long-term and broad in scope.
- **Mitigation actions** are specific actions that may help achieve goals.

These definitions were used to help the Planning Team understand the scope of the goals and mitigations actions that they chose for their respective jurisdiction.

5.1 Goals, Mitigation Actions, and Evaluation

44 CFR 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.*

44 CFR Requirement §201.6(c)(3)(iii): *[The mitigation strategy section shall include] an action plan describing how the actions identified will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.*

Region 6 and the Planning Team developed goals to provide direction for reducing hazard-related losses in Hardin County. These were based on the results of the risk assessment and review of mitigation goals from other state and local plans, specifically the Iowa Hazard Mitigation Plan, 2007, and a past hazard mitigation plan for Hardin County and certain communities in the county. The review was to ensure that this plan's mitigation strategy was integrated or aligned with existing plans and policies.

Initially, Region 6 created four goals for all of Hardin County to serve as a baseline. With these goals, Planning Team members either edited them to fit their jurisdiction's specific needs or disregarded them to form completely different goals that served their jurisdiction's needs. The four basic goals are:

1. Minimize losses to existing and future structures within hazard areas. Critical facilities and identified assets are high priority structures.
2. Protect the health and safety of Hardin County residents and visitors.
3. Educate Hardin County citizens about the dangers of hazards and how they can be prepared.
4. The continuity of county and local operations will not be significantly disrupted by disasters in Hardin County.

Some Planning Team members decided to completely omit certain goals to fit their needs. School districts are the main example because their needs differ quite a bit from cities. Unlike cities, Hardin County had to keep a much broader view in forming their goals because their jurisdiction is large and varies.

At public hazard mitigation meetings in individual jurisdictions, the public was given the chance to voice their concerns and propose potential mitigation ideas for any hazard they deemed to be a concern. Also, at the first planning boundary-wide meeting, Planning Team members shared mitigation ideas for each hazard that can affect their respective jurisdiction. The mitigation ideas from the meetings were compiled into a full list that could be used as a reference when choosing mitigation actions that fulfilled their jurisdiction's goals. This list complemented the results of the risk assessment, allowed idea sharing, and made sure that their community's ideas were considered. The list can be found in Appendix F.

Six types of mitigation actions were considered for this plan. The definition for mitigation action types is based on the definitions provided in the 2003 FEMA publication, *Developing the Mitigation Plan*. The six types of mitigation actions are:

1. **Prevention**. Government administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, building codes, capital improvement programs, open space preservation, and storm water management regulations.

2. **Property Protection**. Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.

3. **Public Education and Awareness**. Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.

4. **Natural Resource Protection**. Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.

5. **Emergency Services**. Actions that protect people and property during and immediately after a disaster or hazard event. Services include warning systems, emergency response services, and protection of critical facilities.

6. **Structural Projects**. Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, levees, seawalls, retaining walls, and safe rooms.

In the following section, each jurisdiction's goals and mitigation actions along with their action plan will be listed and discussed. Several jurisdictions have similar goals and mitigation actions while others are unique to the jurisdiction's specific needs. The variance in hazard coverage, population, and structures require that each jurisdiction determine their own goals and actions rather than determining a set of goals and actions that blanket the entire planning area.

The STAPLEE Evaluation technique that was described in the process section of this plan was used to evaluate each of the mitigation actions identified for all the jurisdictions. The number in parentheses included next to each mitigation action is the STAPLEE score that each project received. The highest score a mitigation action could receive is 23, and the higher the mitigation action's score, the higher priority it will receive when all of the actions are prioritized.

The STAPLEE Evaluation considers not just political support and community acceptance but also the cost and benefits associated with the completion of a project. Some projects may have an intrinsic benefit to the community but the cost of the project may be too large to justify completion. The evaluation ensures that Planning Team members consider the feasibility of the projects chosen for their community. Often times, the cost of a project are what pulls down its evaluation score.

Please note that in many cases, mitigation actions received the same score. Even though these actions are shown in a particular order in the jurisdiction's priorities, no action has more value than another. They are interchangeable at the discretion of the particular jurisdiction. Conditions change allowing one project to take precedence over another like new grant programs, disaster declarations, loss of funding, etc. Also, mitigation actions that receive a negative score should be reconsidered for inclusion in the plan by the jurisdiction during the implementation process.

All of the evaluation sheets for the mitigation actions are included in Appendix G.

Ackley

Goal 1: Protect the health and safety of residents and visitors

Mitigation Action 1.1: Construct a safe room at Prairie Bridges Park (11)

Plan for implementation and administration:	Add a safe room at the Prairie Bridges Park in Ackley
Lead agency:	City of Ackley
Partners:	Community of Ackley, Others to be identified
Potential Funding Source:	FEMA HMGP and PDM, CDBG, and others to be identified
Total cost:	Costs are variable depending on the size of the safe room and whether or not it is a retrofit or newly constructed safe room. For a small safe room in a house the minimum cost is approximately $2,500-$6,000. For a large community shelter, the cost usually ranges from $250,000 to over $1 million depending on the size.
Benefits (loss avoided):	Life safety for residents and visitors to Prairie Bridges Park
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 1.2: Purchase warning siren with battery powered back up (13)

Plan for implementation and administration:	Purchase and install a battery-operated warning siren
Lead agency:	City of Ackley
Partners:	To be identified
Potential Funding Source:	City of Ackley, FEMA HMGP, and others to be identified
Total cost:	Sirens can cost up to $25,000, used sirens are sometimes available for purchase, which helps reduce the cost
Benefits (loss avoided):	Life safety of Ackley residents and visitors
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 1.3: Construct safe rooms at Presbyterian Village (8)

Plan for implementation and administration:	Add safe rooms at the Presbyterian Village Retirement Community
Lead agency:	City of Ackley
Partners:	Community of Ackley, Presbyterian Village, Others to be identified
Potential Funding Source:	CDBG, and others to be identified
Total cost:	Costs are variable depending on the size of the safe room and whether or not it is a retrofit or newly constructed safe room. For a small safe room in a house the minimum cost is approximately $2,500-$6,000. For a large community shelter, the cost usually ranges from $250,000 to over $1 million depending on the size.
Benefits (loss avoided):	Life safety for vulnerable residents and visitors to Presbyterian Village
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 1.4: Alert Radio System for Schools and Presbyterian Village (10)

Plan for implementation and administration:	Create a program or secure funding to provide NOAA All-Hazard Radios to AGWSR Schools and Presbyterian Village Retirement Comm.
Lead agency:	City of Ackley
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	City of Ackley, AGWSR Schools, Presbyterian Village, Hardin County, Iowa Homeland Security, others to be identified
Total cost:	Unknown, depends on how much is spent on the radios or if they are only subsidized to encourage residents to purchase one
Benefits (loss avoided):	Ackley's Vulnerable populations will be informed of approaching hazards and updates throughout a hazard event
Completion Date:	1 year from when funds are secured

Goal 2: The continuity of operations will not be significantly disrupted by disasters in Ackley

Mitigation Action 2.1: Purchase generators (10)

Plan for implementation and administration:	Purchase portable generators for Ackley's 10 identified critical facilities
Lead agency:	City of Ackley
Partners:	AGWSR Schools, Emergency Services, Others to be Identified
Potential Funding Source:	City of Ackley, FEMA HMGP, and others to be identified
Total cost:	Depending on wattage, fuel source, and type—standby or portable—a generator may cost from $500 to $15,000 plus wiring and switch installation costs also standby requires a permanent fuel source
Benefits (loss avoided):	Power generation to maintain the function of critical facilities
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 2.2: Purchase new communication equipment (10)

Plan for implementation and administration:	Update or replace substandard communication equipment in all City departments
Lead agency:	City of Ackley
Partners:	Local fire and EMS, Others to be indentified
Potential Funding Source:	City of Ackley, others to be identified
Total cost:	Unknown until equipment is assessed and new equipment is priced
Benefits (loss avoided):	Ackley City personnel will have reliable communication capabilities
Completion Date:	Possibly ongoing or 1 year from when funds are secured

Goal 3: Minimize physical losses to existing and future structures within hazard areas. Critical facilities and identified assets are high priority structures

Mitigation Action 3.1: Create detention basins (10)

Plan for implementation and administration:	Create pocket wetlands east of Butler/south of the Otter Creek, south of Tenth Avenue, and west of Blue Earth Street.
Lead agency:	City of Ackley
Partners:	Region 6 Planning Commission
Potential Funding Source:	FEMA HMPG
Total cost:	Unknown until areas are assessed for feasibility of project
Benefits (loss avoided):	Mitigating the flooding of city infrastructure during and immediately following a hazard event
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 3.2: Add lift station (18)

Plan for implementation and administration:	Add a lift station to the City's sanitary sewer when and where it is needed.
Lead agency:	City of Ackley
Partners:	To be identified
Potential Funding Source:	FEMA HMGP, City of Ackley, and others to be identified
Total cost:	Depending on the type and capacity of the lift station, approximately $120,000 to $500,000 plus operation and maintenance cost over the lift station's useful life
Benefits (loss avoided):	Eliminate potential sanitary sewer backups into structures
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 3.3: Emergency equipment upgrades (14)

Plan for implementation and administration:	Update or replace substandard emergency equipment in emergency departments
Lead agency:	City of Ackley
Partners:	Local fire and EMS, Others to be indentified
Potential Funding Source:	City of Ackley, Local fire and EMS, others to be identified
Total cost:	Unknown until equipment is assessed and new equipment is priced
Benefits (loss avoided):	Emergency personnel will have reliable communication capabilities
Completion Date:	Possibly ongoing or 1 year from when funds are secured

Goal 4: Educate Ackley citizens about the dangers of hazards and how they can be prepared.

Mitigation Action 4.1: Public education program (10)

Plan for implementation and administration:	Create a program to educate Ackley residents about the dangers of hazard and how to prepare through informational flyers, meetings, or other interactive media like drills and workshops
Lead agency:	City of Ackley
Partners:	To be identified, possibly other Hardin County jurisdictions
Potential Funding Source:	City of Ackley and others to be identified
Total cost:	Unknown, this project may be of little cost depending on the medium used
Benefits (loss avoided):	Life safety of Ackley residents and visitors
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 4.2: Distribute NOAA All-Hazard Radios to all Ackley residents (10)

Plan for implementation and administration:	Create a program or secure funding to provide NOAA All-Hazard Radios to all Ackley residents
Lead agency:	City of Ackley
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	City of Ackley, Hardin County, Iowa Homeland Security, others to be identified
Total cost:	Unknown, depends on how much is spent on the radios or if they are only subsidized to encourage residents to purchase one
Benefits (loss avoided):	Ackley residents will be informed of approaching hazards and updates throughout a hazard event
Completion Date:	1 year from when funds are secured

Ackley Mitigation Action Prioritization

1. **Mitigation Action 3.2:** Add lift station (18)
2. **Mitigation Action 3.3:** Emergency equipment upgrades (14)
3. **Mitigation Action 1.2:** Purchase warning siren with battery powered back up (13)
4. **Mitigation Action 1.1:** Construct a safe room at Prairie Bridges Park (11)
5. **Mitigation Action 1.4**: Alert Radio System for Schools and Presbyterian Village (10)
6. **Mitigation Action 2.1**: Purchase generators (10)
7. **Mitigation Action 2.2:** Purchase new communication equipment (10)
8. **Mitigation Action 3.1**: Create detention basins (10)
9. **Mitigation Action 4.1:** Public education program (10)
10. **Mitigation Action 4.2:** Distribute NOAA All-Hazard Radios to all Ackley residents (10)
11. **Mitigation Action 1.3:** Construct safe rooms at Presbyterian Village (8)

Alden

Goal 1: Minimize losses to existing and future structures within hazard areas. Critical facilities and identified assets are high priority structures.

Mitigation Action 1.1: Purchase generators (14)

Plan for implementation and administration:	Purchase a generators for city use in critical facilities
Lead agency:	City of Alden
Partners:	To be identified
Potential Funding Source:	FEMA HMGP, and others to be identified
Total cost:	Depending on wattage, fuel source, and type—standby or portable—a generator may cost from $500 to $15,000 plus wiring and switch installation costs also standby requires a permanent fuel source
Benefits (loss avoided):	Power generation to maintain the function of critical facilities
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 1.2: Create and store sandbags (14)

Plan for implementation and administration:	Create and store sandbags for use during flood situations
Lead agency:	City of Alden
Partners:	To be identified
Potential Funding Source:	City of Alden, and others to be identified
Total cost:	To be determined once supplies are priced and needs assessed
Benefits (loss avoided):	Supplies on hand to mitigate flooding
Completion Date:	Ongoing

Goal 2: Protect the health and safety of Alden residents and visitors.

Mitigation Action 2.1: Distribute NOAA All-Hazard Radios to all Alden residents (14)

Plan for implementation and administration:	Create a program or secure funding to provide NOAA All-Hazard Radios to all Alden residents
Lead agency:	City of Alden
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	City of Alden, Hardin County, Iowa Homeland Security, others to be identified
Total cost:	Unknown, depends on how much is spent on the radios or if they are only subsidized to encourage residents to purchase one
Benefits (loss avoided):	Alden residents will be informed of approaching hazards and updates throughout a hazard event
Completion Date:	1 year from when funds are secured

Mitigation Action 2.2: Purchase extra warning siren (14)

Plan for implementation and administration:	Purchase and install extra warning siren
Lead agency:	City of Alden
Partners:	To be identified
Potential Funding Source:	City of Alden, FEMA HMGP, and others to be identified
Total cost:	Sirens can cost up to $25,000, used sirens are sometimes available for purchase, which helps reduce the cost
Benefits (loss avoided):	Life safety of Alden residents and visitors
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 2.3: Portable radios for city use (14)

Plan for implementation and administration:	Create a program or secure funding to provide portable radios to city departments and employees
Lead agency:	City of Alden
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	City of Alden, Hardin County, Iowa Homeland Security, others to be identified
Total cost:	Unknown, depends on how much is spent on the radios
Benefits (loss avoided):	Alden employees will be able to communicate during a hazard
Completion Date:	1 year from when funds are secured

Goal 3: Educate Alden citizens about the dangers of hazards and how they can be prepared.

Mitigation Action 3.1: Public fire prevention education program (13)

Plan for implementation and administration:	Create a program to educate Alden residents about the dangers of fire hazards and how to prepare through informational meetings, and interactive media like drills and workshops
Lead agency:	City of Alden
Partners:	Local emergency responders, possibly other Hardin County jurisdictions
Potential Funding Source:	City of Alden, and others to be identified
Total cost:	Unknown, this project may be of little cost depending on the medium used
Benefits (loss avoided):	Life safety of Alden residents and visitors
Completion Date:	Ongoing

Mitigation Action 3.2: Education and training for emergency responders (13)

Plan for implementation and administration:	Hold session to train emergency personnel to identify weather-related hazards and proper response
Lead agency:	Hardin County Emergency Management
Partners:	Local emergency responders, Others to be indentified
Potential Funding Source:	Hardin County, others to be identified
Total cost:	This may be of little cost since it is an information session
Benefits (loss avoided):	Personnel will serve better in events with proper training
Completion Date:	Ongoing starting when a course can be formulated and possible funding secured

Goal 4: The continuity of operations will not be significantly disrupted by disasters in Alden.

Mitigation Action 4.1: Write an emergency plan for city departments' use (23)

Plan for implementation and administration:	Complete a plan for use if the city's functions are disabled
Lead agency:	City of Alden
Partners:	Hardin County Emergency Management, local fire, law enforcement, and emergency response personnel
Potential Funding Source:	City of Alden, others to be identified
Total cost:	This may be of little cost besides printing
Benefits (loss avoided):	A crisis plan will be set in place so the city offices will be prepared for crises and regain control of city operations as soon as possible
Completion Date:	At such time the plan is complete, possible ongoing updates

Alden Mitigation Action Prioritization

1. **Mitigation Action 4.1:** Write an emergency plan for city departments' use (23)
2. **Mitigation Action 1.1:** Purchase generators (14)
3. **Mitigation Action 1.2:** Create and store sandbags (14)
4. **Mitigation Action 2.1:** Distribute NOAA All-Hazard Radios to all Alden residents (14)
5. **Mitigation Action 2.2:** Purchase extra warning siren (14)
6. **Mitigation Action 2.3:** Portable radios for city use (14)
7. **Mitigation Action 3.1:** Public fire prevention education program (13)
8. **Mitigation Action 3.2:** Education and training for emergency responders (13)

Buckeye

Goal 1: Demolish unneeded buildings in the City of Buckeye

Mitigation Action 1.1: Demolition of a former county shed (6)

Plan for implementation and administration:	Demolition of former county shed in the City
Lead agency:	City of Buckeye
Partners:	Region 6 Planning Commission, Others to be identified
Potential Funding Source:	City of Buckeye, FEMA HMGP, others to be identified
Total cost:	To be determined
Benefits (loss avoided):	Remove unsafe structures from the community
Completion Date:	1 year from when funds are secured

Mitigation Action 1.2: Demolition of abandoned residential properties (6)

Plan for implementation and administration:	Demolition of abandoned buildings
Lead agency:	City of Buckeye
Partners:	Region 6 Planning Commission, Others to be identified
Potential Funding Source:	City of Buckeye, FEMA HMGP, Neighborhood Stabilization Program
Total cost:	To be determined
Benefits (loss avoided):	Remove unsafe structures and blight from the community
Completion Date:	1 year from when funds are secured

Goal 2: Minimize losses to existing and future structures within hazard areas. Critical facilities and identified assets are high priority structures.

Mitigation Action 2.1: Retrofit fire station, as a community shelter (8)

Plan for implementation and administration:	Maintain structural integrity of fire station/shelter for the public (heat and cool events)
Lead agency:	City of Buckeye
Partners:	City of Buckeye, Others to be identified
Potential Funding Source:	FEMA HMGP and PDM, City of Buckeye, CDBG, and Assistance to Firefighters Grants
Total cost:	Costs are variable depending on the size of the shelter and whether or not it is a retrofit or newly constructed shelter.
Benefits (loss avoided):	Life safety of Buckeye residents and visitors
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Goal 3: Maintain sewer system.

Mitigation Action 3.1: Individual Leach Fields (5)

Plan for implementation and administration:	Create individual leach fields for sewage
Lead agency:	City of Buckeye
Partners:	To be identified
Potential Funding Source:	City of Buckeye, FEMA HMGP, others to be identified
Total cost:	Unknown
Benefits (loss avoided):	Prevent damages due to possible sewer issues
Completion Date:	One year from when funds are secured or within time allotted by funding source

Mitigation Action 3.2: Sewer improvements (5)

Plan for implementation and administration:	Improve existing storm & sanitary sewer/ Collection system improvements. Increase capacity.
Lead agency:	City of Buckeye
Partners:	To be identified
Potential Funding Source:	City of Buckeye, FEMA HMGP, others to be identified
Total cost:	Unknown
Benefits (loss avoided):	Prevent damages due to possible sewer issues
Completion Date:	One year from when funds are secured or within time allotted by funding source

Mitigation Action 3.3: Upgrade to rural water (5)

Plan for implementation and administration:	Create a program or secure funding to help upgrade individual resident's systems
Lead agency:	City of Buckeye
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	City of Buckeye, Hardin County, others to be identified
Total cost:	Unknown, depends on how much is spent on the upgrades or if they are only subsidized to help residents upgrade
Benefits (loss avoided):	Buckeye residents will have safe rural water and will reduce the risk of drinking water being affected by flooding hazards
Completion Date:	1 year from when funds are secured

Buckeye Mitigation Action Prioritization

1. **Mitigation Action 2.1:** Retrofit fire station, as a community shelter (8)
2. **Mitigation Action 1.1**: Demolition of a former county shed (6)
3. **Mitigation Action 1.2**: Demolition of abandoned residential properties (6)
4. **Mitigation Action 3.1:** Individual Leach Fields (5)
5. **Mitigation Action 3.2:** Sewer improvements (5)
6. **Mitigation Action 3.3:** Upgrade to rural water (5)

Eldora

Goal 1: Protect the health and safety of Eldora residents and visitors.

Mitigation Action 1.1: Construct a new fire station, retrofitted as a community shelter (8)

Plan for implementation and administration:	New fire station/shelter for the public (heat and cool events)
Lead agency:	City of Eldora
Partners:	City of Eldora, Hardin Conservation, others to be identified
Potential Funding Source:	FEMA HMGP and PDM, Eldora, CDBG, and Assistance to Firefighters Grants
Total cost:	Costs are variable depending on the size of the shelter and whether or not it is a retrofit or newly constructed shelter.
Benefits (loss avoided):	Life safety of Eldora residents and visitors
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 1.2: Update fire rescue equipment (8)

Plan for implementation and administration:	Purchase new and update equipment as needed for fire department
Lead agency:	City of Eldora
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	City of Eldora, Fire Department, and Assistance to Firefighters Grants
Total cost:	Unknown until needs are assessed and equipment purchased
Benefits (loss avoided):	Up-to-date equipment for fire department in Eldora
Completion Date:	Ongoing, starting 1 year from when funds are secured or within time allotted by funding source

Goal 2: Ensure clearance and safety of transportation in hazard events.

Mitigation Action 2.1: Storm drainage improvements (17)

Plan for implementation and administration:	Complete storm drainage improvements
Lead agency:	City of Eldora
Partners:	To be identified
Potential Funding Source:	City of Eldora, others to be identified
Total cost:	Unknown
Benefits (loss avoided):	Prevent flash flooding
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 2.2: Purchase emergency watercrafts (8)

Plan for implementation and administration:	Purchase watercrafts for use during flooding hazards
Lead agency:	City of Eldora
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	City of Eldora, Emergency Departments, others to be identified
Total cost:	Unknown until needs are assessed and equipment purchased
Benefits (loss avoided):	Equipment for unique hazards
Completion Date:	Ongoing, starting 1 year from when funds are secured or within time allotted by funding source

Mitigation Action 2.3: Purchase debris removal equipment (-7)

Plan for implementation and administration:	Purchase debris removal equipment
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County Sanitarian
Potential Funding Source:	City of Eldora
Total cost:	Unknown until needs are assessed and equipment purchased
Benefits (loss avoided):	Restore safety of city infrastructure immediately following a hazard event
Completion Date:	1 year after funds are secured or the time allotted by funding source

Goal 3: Educate Eldora citizens about hazard dangers, preparations, and procedures.

Mitigation Action 3.1: Update communication system, purchase back-up system (13)

Plan for implementation and administration:	Update communication system, purchase back-up system
Lead agency:	City of Eldora
Partners:	To be identified
Potential Funding Source:	City of Eldora, and others to be identified
Total cost:	Unknown until updates and new equipment are priced
Benefits (loss avoided):	Life safety of Eldora residents and visitors
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 3.2: Create informative hazard literature or use FEMA's free literature (16)

Plan for implementation and administration:	Educate Eldora residents about the dangers of hazard and how to prepare through informational literature
Lead agency:	City of Eldora
Partners:	Hardin County Emergency Management, To be identified
Potential Funding Source:	City of Eldora and others to be identified
Total cost:	Depends on printing costs
Benefits (loss avoided):	Life safety of Eldora residents and visitors
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 3.3: Distribute Portable NOAA All-Hazard Radios to Eldora residents (14)

Plan for implementation and administration:	Create a program or secure funding to provide portable NOAA All-Hazard Radios to all Eldora residents
Lead agency:	City of Eldora
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	City of Eldora, Hardin County, Iowa Homeland Security, others to be identified
Total cost:	Unknown, depends on how much is spent on the radios or if they are only subsidized to encourage residents to purchase one
Benefits (loss avoided):	Eldora residents will be informed of approaching hazards and updates throughout a hazard event
Completion Date:	1 year from when funds are secured

Eldora Mitigation Action Prioritization

1. **Mitigation Action 2.1:** Storm drainage improvements (17)
2. **Mitigation Action 3.2:** Create informative hazard literature or use FEMA's free literature (16)
3. **Mitigation Action 3.3:** Distribute Portable NOAA All-Hazard Radios to Eldora residents (14)
4. **Mitigation Action 3.1:** Update communication system, purchase back-up system (13)
5. **Mitigation Action 1.1:** Construct a new fire station, retrofitted as a community shelter (8)
6. **Mitigation Action 1.2:** Update fire rescue equipment (8)
7. **Mitigation Action 2.2:** Purchase emergency watercrafts (8)
8. **Mitigation Action 2.3**: Purchase debris removal equipment (-7)

Hubbard

Goal 1: Minimize losses to existing and future structures within hazard areas. Critical facilities and identified assets are high priority structures.

Mitigation Action 1.1: Purchase new warning siren (13)

Plan for implementation and administration:	Purchase and install warning siren
Lead agency:	City of Hubbard
Partners:	Hardin County Emergency Management
Potential Funding Source:	City of Hubbard, FEMA HMGP, and others to be identified
Total cost:	Sirens can cost up to $25,000, used sirens are sometimes available for purchase, which helps reduce the cost
Benefits (loss avoided):	Life safety of Hubbard residents and visitors
Completion Date:	1 year after funds are secured or the time allotted by funding source

Goal 2: Protect the health and safety of Hubbard residents and visitors.

Mitigation Action 2.1: Retrofit City Hall to double as a shelter (18)

Plan for implementation and administration:	Retrofit City Hall to double as a shelter
Lead agency:	City of Hubbard
Partners:	City of Hubbard, others to be identified
Potential Funding Source:	FEMA HMGP and PDM, Hubbard, CDBG, and others to be identified
Total cost:	Costs are variable depending on the size of the shelter and whether or not it is a retrofit or newly constructed shelter.
Benefits (loss avoided):	Life safety of Hubbard residents and visitors
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 2.2: Purchase infrared scope for Fire Department (16)

Plan for implementation and administration:	Purchase infrared scope for Fire Department
Lead agency:	City of Hubbard
Partners:	Hardin County Emergency Management
Potential Funding Source:	City of Hubbard, Assistance to Firefighters Grants
Total cost:	Unknown until equipment is priced
Benefits (loss avoided):	Assist the fire department in emergency situations
Completion Date:	1 year after funds are secured or the time allotted by funding source

Goal 3: Educate Hubbard citizens about the dangers of hazards and how they can be prepared.

Mitigation Action 3.1: Public education program (14)

Plan for implementation and administration:	Create a program to educate Hubbard residents about the dangers of hazard and how to prepare through informational flyers, meetings, or other interactive media like drills and workshops
Lead agency:	City of Hubbard
Partners:	To be identified, possibly other Hardin County jurisdictions
Potential Funding Source:	City of Hubbard and others to be identified
Total cost:	Unknown, this project may be of little cost depending on the medium used
Benefits (loss avoided):	Life safety of Hubbard residents and visitors
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 3.2: Utilize alternate methods of educating citizens on hazard safety (14)

Plan for implementation and administration:	Utilize local cable TV channel to educate citizens
Lead agency:	City of Hubbard
Partners:	Local Cable Channel, Possibly other Hardin County jurisdictions
Potential Funding Source:	City of Hubbard and others to be identified
Total cost:	Unknown, this project may be costly due to the mediums used
Benefits (loss avoided):	Life safety of Hubbard residents and visitors and education of some rare hazards
Completion Date:	Ongoing, 1 year after funds are secured or the time allotted by funding source

Goal 4: The continuity of operations will not be significantly disrupted by disasters in Hubbard

Mitigation Action 4.1: Purchase generators (14)

Plan for implementation and administration:	Purchase portable generators for Hubbard's identified critical facilities
Lead agency:	City of Hubbard
Partners:	Hubbard-Radcliffe Schools, Emergency Services, Others to be Identified
Potential Funding Source:	City of Hubbard, FEMA HMGP, and others to be identified
Total cost:	Depending on wattage, fuel source, and type—standby or portable—a generator may cost from $500 to $15,000 plus wiring and switch installation costs also standby requires a permanent fuel source
Benefits (loss avoided):	Power generation to maintain the function of critical facilities
Completion Date:	1 year after funds are secured or the time allotted by funding source

Hubbard Goal Prioritization

1. **Mitigation Action 2.1:** Retrofit City Hall to double as a shelter (18)
2. **Mitigation Action 2.2**: Purchase infrared scope for Fire Department (16)
3. **Mitigation Action 3.1:** Public education program (14)
4. **Mitigation Action 3.2:** Utilize alternate methods of educating citizens on hazard safety (14)
5. **Mitigation Action 4.1**: Purchase generators (14)
6. **Mitigation Action 1.1:** Purchase new warning siren (13)

Iowa Falls

Goal 1: Minimize losses to existing and future structures within hazard areas. Critical facilities and identified assets are high priority structures.

Mitigation Action 1.1: Sewer improvements (7)

Plan for implementation and administration:	Improve existing storm & sanitary sewer/ Collection system improvements. Increase capacity.
Lead agency:	City of Iowa Falls
Partners:	To be identified
Potential Funding Source:	City of Iowa Falls, FEMA HMGP, others to be identified
Total cost:	Unknown
Benefits (loss avoided):	Prevent damages due to possible sewer issues
Completion Date:	One year from when funds are secured or within time allotted by funding source

Mitigation Action 1.2: Install Emergency Pumps to Sewer System (9)

Plan for implementation and administration:	Install Emergency Pumps to redirect overflow
Lead agency:	City of Iowa Falls
Partners:	Hardin County Sanitarian, Others to be identified
Potential Funding Source:	City of Iowa Falls, FEMA HMGP, others to be identified
Total cost:	Unknown
Benefits (loss avoided):	Prevent damages due to possible sewer issues
Completion Date:	One year from when funds are secured or within time allotted by funding source

Mitigation Action 1.3: Create storm water detention basins (9)

Plan for implementation and administration:	Create storm water detention basins
Lead agency:	City of Iowa Falls
Partners:	Region 6 Planning Commission
Potential Funding Source:	City of Ackley, FEMA HMPG, others to be identified
Total cost:	Unknown until areas are assessed for feasibility of project
Benefits (loss avoided):	Mitigating the flooding of city infrastructure during and immediately following a hazard event
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 1.4: Training for emergency responders (14)

Plan for implementation and administration:	Hold session to train emergency personnel to identify hazards and proper response
Lead agency:	Hardin County Emergency Management
Partners:	Local emergency responders, Others to be indentified
Potential Funding Source:	Hardin County, others to be identified
Total cost:	This may be of little cost since it is an information session
Benefits (loss avoided):	Personnel will serve better in events with proper training
Completion Date:	Ongoing starting when a course can be formulated and possible funding secured

Mitigation Action 1.5: Update Railroad Crossings (14)

Plan for implementation and administration:	Update the run down railroad crossings in town
Lead agency:	City of Iowa Falls
Partners:	Hardin County Engineer, Rail line owners, Others to be indentified
Potential Funding Source:	City of Iowa Falls, others to be identified
Total cost:	Unknown
Benefits (loss avoided):	Crossings will be safer for residents and visitors
Completion Date:	Ongoing

Goal 2: The continuity of county and local operations will not be significantly disrupted by disasters in the City of Iowa Falls.

Mitigation Action 2.1: Improve communication systems (3)

Plan for implementation and administration:	Update or replace substandard communication equipment in all City departments
Lead agency:	City of Iowa Falls
Partners:	Local fire and EMS, Others to be indentified
Potential Funding Source:	City of Iowa Falls, others to be identified
Total cost:	Unknown until equipment is assessed and new equipment is priced
Benefits (loss avoided):	Iowa Falls City personnel will have reliable communication capabilities
Completion Date:	Possibly ongoing or 1 year from when funds are secured

Mitigation Action 2.2: Purchase generators (6)

Plan for implementation and administration:	Purchase a generators for city use in critical facilities
Lead agency:	City of Iowa Falls
Partners:	To be identified
Potential Funding Source:	FEMA HMGP, City of Iowa Falls, and others to be identified
Total cost:	Depending on wattage, fuel source, and type—standby or portable—a generator may cost from $500 to $15,000 plus wiring and switch installation costs also standby requires a permanent fuel source
Benefits (loss avoided):	Power generation to maintain the function of critical facilities
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 2.3: Offsite computer backup systems (2)

Plan for implementation and administration:	Establish an offsite backup computer system for the city.
Lead agency:	City of Iowa Falls
Partners:	To be indentified
Potential Funding Source:	City of Iowa Falls, others to be identified
Total cost:	Unknown until new equipment is priced
Benefits (loss avoided):	City personnel will have reliable communication capabilities in case the main system goes down during a hazard
Completion Date:	Possibly ongoing or 1 year from when funds are secured

Mitigation Action 2.4: Improve and update emergency operations center (3)

Plan for implementation and administration:	Improve and update emergency operations center
Lead agency:	City of Iowa Falls
Partners:	Hardin County Emergency Management, Others to be indentified
Potential Funding Source:	City of Iowa Falls, Hardin County, others to be identified
Total cost:	Unknown until new center is assessed
Benefits (loss avoided):	City personnel will have reliable equipment and systems in place for a hazard event
Completion Date:	Possibly ongoing or 1 year from when funds are secured

Goal 3: Maintain communications between Iowa Falls citizens and authorities before and during a hazard event.

Mitigation Action 3.1: Public education program (7)

Plan for implementation and administration:	Create a program to educate Iowa Falls residents about the dangers of hazards and how to prepare through informational flyers, meetings, or other interactive media like drills and workshops
Lead agency:	City of Iowa Falls
Partners:	To be identified, possibly other Hardin County jurisdictions
Potential Funding Source:	City of Iowa Falls and others to be identified
Total cost:	Unknown, this project may be of little cost depending on the medium used
Benefits (loss avoided):	Life safety of Iowa Falls residents and visitors
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 3.2: Distribute NOAA All-Hazard Radios to all Iowa Falls residents (3)

Plan for implementation and administration:	Create a program or secure funding to provide NOAA All-Hazard Radios to all Iowa Falls residents
Lead agency:	City of Iowa Falls
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	City of Iowa Falls, Hardin County, Iowa Homeland Security, others to be identified
Total cost:	Unknown, depends on how much is spent on the radios or if they are only subsidized to encourage residents to purchase one
Benefits (loss avoided):	Iowa Falls residents will be informed of approaching hazards and updates throughout a hazard event
Completion Date:	1 year from when funds are secured

Mitigation Action 3.3: Expand warning system programs (5)

Plan for implementation and administration:	Purchase an additional warning siren with backup power capability
Lead agency:	City of Iowa Falls
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	City of Iowa Falls, FEMA HMGP and PDM, others to be identified
Total cost:	New sirens can cost up to $25,000, used sirens are sometimes available for purchase, which helps reduce the cost. Depending on wattage, fuel source, and type—standby or portable—a generator may cost from $500 to $15,000 plus wiring and switch installation costs - standby requires a permanent fuel source
Benefits (loss avoided):	Life safety of Iowa Falls residents and visitors, use of siren even if there is a power outage
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 3.4: Write an emergency communications plan for city departments' use (4)

Plan for implementation and administration:	Complete a plan for use if the city's communication functions are disabled
Lead agency:	City of Iowa Falls
Partners:	Hardin County Emergency Management, local fire, law enforcement, and emergency response personnel
Potential Funding Source:	City of Iowa Falls, others to be identified
Total cost:	Staff time and printing costs
Benefits (loss avoided):	A communication plan will be set in place so the city offices will be prepared for crises and regain control of city communications as soon as possible
Completion Date:	At such time the plan is complete, possible ongoing updates

Iowa Falls Mitigation Action Prioritization

1. **Mitigation Action 1.4:** Training for emergency responders (14)
2. **Mitigation Action 1.5:** Update Railroad Crossings (14)
3. **Mitigation Action 1.2:** Install Emergency Pumps to Sewer System (9)
4. **Mitigation Action 1.3**: Create storm detention basins (9)
5. **Mitigation Action 1.1:** Sewer improvements (7)
6. **Mitigation Action 3.1:** Public education program (7)
7. **Mitigation Action 2.2:** Purchase generators (6)
8. **Mitigation Action 3.3:** Expand warning system programs (5)
9. **Mitigation Action 3.4:** Write an emergency communications plan for city departments' use (4)
10. **Mitigation Action 2.1:** Improve communication systems (3)
11. **Mitigation Action 2.4:** Improve and update emergency operations center (3)
12. **Mitigation Action 3.2:** Distribute NOAA All-Hazard Radios to all Iowa Falls residents (3)
13. **Mitigation Action 2.3:** Offsite computer backup systems (2)

New Providence

Goal 1: Protect the health and safety of New Providence residents and visitors.

Mitigation Action 1.1: Construct community shelters with basic services (2)

Plan for implementation and administration:	Assess where needed most, construct a shelter to serve the community and one for those in recreational areas
Lead agency:	City of New Providence
Partners:	City of New Providence, Hardin Conservation, others to be identified
Potential Funding Source:	City of New Providence, CDBG, and others to be identified
Total cost:	Unknown
Benefits (loss avoided):	Life safety of New Providence residents and visitors
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 1.2: Purchase generator for new community shelter (2)

Plan for implementation and administration:	Purchase a generator to use in the community shelter during power outages, generator hook up capabilities need to be installed
Lead agency:	City of New Providence
Partners:	Others to be identified
Potential Funding Source:	City of New Providence, FEMA HMGP, others to be identified
Total cost:	Depending on wattage, fuel source, and type—standby or portable—a generator may cost from $500 to $15,000 plus wiring and switch installation costs - standby requires a permanent fuel source
Benefits (loss avoided):	Continuation of shelter functions during a power outage
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Goal 2: Minimize losses to existing and future structures within hazard areas. Critical facilities and identified assets are high priority structures.

Mitigation Action 2.1: Fire-proof homes and businesses (2)

Plan for implementation and administration:	Purchase materials to protect homes and businesses during fire hazard events
Lead agency:	City of New Providence
Partners:	Local volunteer fire department
Potential Funding Source:	City of New Providence
Total cost:	Unknown until needs are assessed and materials priced
Benefits (loss avoided):	Reduce damage to homes and businesses during fire events
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 2.2: Hazard-proof homes and businesses to withstand hailstorms/tornados (2)

Plan for implementation and administration:	Purchase materials to protect homes and businesses (such as storm shutters) during hazard events
Lead agency:	City of New Providence
Partners:	To be identified
Potential Funding Source:	City of New Providence
Total cost:	Unknown until needs are assessed and materials priced
Benefits (loss avoided):	Reduce damage to homes and businesses during storm events
Completion Date:	1 year after funds are secured or the time allotted by funding source

Goal 3: Educate New Providence citizens about the dangers of hazards and how they can be prepared.

Mitigation Action 3.1: Create an emergency phone tree. (9)

Plan for implementation and administration:	Hold a meeting for all those who wish to be included on the phone tree, especially the elderly and those with small children
Lead agency:	City of New Providence
Partners:	All City Departments, Hardin County Emergency Management, and others to be identified
Potential Funding Source:	City of New Providence, other to be identified
Total cost:	Staff time and Printing cost
Benefits (loss avoided):	Ensuring all vulnerable populations and citizens will be notified and taken care of in an event. Regular updates will be needed.
Completion Date:	Ongoing from the publication of the call tree

Mitigation Action 3.2: Create a community website. (9)

Plan for implementation and administration:	Create a city website for general city use as well as a portion designated for hazard information and alerts
Lead agency:	City of New Providence
Partners:	All City Departments, and others to be identified
Potential Funding Source:	City of New Providence, others to be identified
Total cost:	Purchasing a web address and maintaining the site will be of some cost.
Benefits (loss avoided):	Hazard information/alert source for those who own a computer
Completion Date:	Ongoing from the publication of the website

New Providence Mitigation Action Prioritization

1. **Mitigation Action 3.1:** Create an emergency phone tree. (9)
2. **Mitigation Action 3.2:** Create a community website. (9)
3. **Mitigation Action 1.1:** Construct a community shelter with basic services (2)
4. **Mitigation Action 1.2:** Purchase generator for new community shelter (2)
5. **Mitigation Action 2.1**: Fire-proof homes and businesses (2)
6. **Mitigation Action 2.2**: Hazard-proof homes and businesses to withstand hailstorms/tornados (2)

Radcliffe

Goal 1: Minimize losses to existing and future structures within hazard areas. Critical facilities and identified assets are high priority structures.

Mitigation Action 1.1: Acquisition and elevation of structures (2)

Plan for implementation and administration:	Acquisition and elevation of structures in flood plains and flood-prone areas
Lead agency:	City of Radcliffe
Partners:	Hardin County Emergency Management
Potential Funding Source:	FEMA HMGP and PDM, CDBG, City of Radcliffe, others to be identified
Total cost:	Unknown until structures can be evaluated
Benefits (loss avoided):	Life safety for Radcliffe residents and visitors
Completion Date:	1 year from when funds are secured or time allotted by funding source

Mitigation Action 1.2: Purchase /update snow removal equipment (12)

Plan for implementation and administration:	Purchase/update snow removal equipment for use following a severe winter storm
Lead agency:	City of Radcliffe
Partners:	Hardin County Emergency Management, Others to be indentified
Potential Funding Source:	City of Radcliffe, others to be identified
Total cost:	Unknown until equipment is assessed and new equipment priced
Benefits (loss avoided):	Restore safety of city infrastructure immediately following a hazard event, as well as ensuring efficiency of equipment
Completion Date:	Ongoing or 1 year from when funds are secured

Mitigation Action 1.3: Sewer improvements (13)

Plan for implementation and administration:	New sewer lines
Lead agency:	City of Radcliffe
Partners:	County Sanitarian, Others to be identified
Potential Funding Source:	City of Radcliffe, FEMA HMGP, CDBG, others to be identified
Total cost:	Unknown until project is priced
Benefits (loss avoided):	Prevent damages due to sewer backup
Completion Date:	One year from when funds are secured or within time allotted by funding source

Goal 2: Protect the safety of Radcliffe residents and visitors.

Mitigation Action 2.1: Construct a safe room (9)

Plan for implementation and administration:	Construct a safe room
Lead agency:	City of Radcliffe
Partners:	Hardin County Emergency Management, Others to be identified
Potential Funding Source:	City of Radcliffe, FEMA HMGP and PDM, CDBG, others to be identified
Total cost:	Costs are variable depending on the size of the safe room and whether or not it is a retrofit or newly constructed safe room. For a small safe room in a house the minimum cost is approximately $2,500-$6,000. For a large community shelter, the cost usually ranges from $250,000 to over $1 million depending on the size.
Benefits (loss avoided):	Life safety of Radcliffe residents and visitors
Completion Date:	1 year from funding or within the time allotted by funding source

Mitigation Action 2.2: Create a communication strategy (10)

Plan for implementation and administration:	Create a communication strategy between city and citizens.
Lead agency:	City of Radcliffe
Partners:	Hardin County Emergency Management, Others to be identified
Potential Funding Source:	City of Radcliffe
Total cost:	To be determined, may be of little cost
Benefits (loss avoided):	Citizens will be informed before, during and after hazard events
Completion Date:	Ongoing

Mitigation Action 2.3: Demolition of abandoned buildings (9)

Plan for implementation and administration:	Demolition of abandoned buildings
Lead agency:	City of Radcliffe
Partners:	Region 6 Planning Commission, Others to be identified
Potential Funding Source:	City of Radcliffe, FEMA HMGP, NSP, others to be identified
Total cost:	To be determined
Benefits (loss avoided):	Remove unsafe structures from the community
Completion Date:	1 year from when funds are secured

Goal 3: Educate Radcliffe citizens about hazard dangers, preparations, and procedures.

Mitigation Action 3.1: Create a public information session and conservation (water) program for Radcliffe (16)

Plan for implementation and administration:	Create a public information and conservation (water) program
Lead agency:	City of Radcliffe
Partners:	Hardin County Conservation, Others to be identified
Potential Funding Source:	City of Radcliffe
Total cost:	Unknown, this project may be of little cost besides a water stockpile
Benefits (loss avoided):	Giving information about drought hazards and being prepared with the necessary supplies in case of an event
Completion Date:	1 year from when political and public support is leveraged

Mitigation Action 3.2: Create a public information session about insurance coverage and regulations (13)

Plan for implementation and administration:	Create a public information session to inform citizens of ways to protect themselves and their property
Lead agency:	City of Radcliffe
Partners:	Region 6 Planning Commission, Others to be identified
Potential Funding Source:	City of Radcliffe
Total cost:	Unknown, this project may be of little cost
Benefits (loss avoided):	Giving information about ways to protect themselves and their property
Completion Date:	Ongoing

Goal 4: The continuity of local operations and maintenance of infrastructure will not be significantly disrupted by disasters in Radcliffe.

Mitigation Action 4.1: Purchase generators for critical facilities (11)

Plan for implementation and administration:	Purchase generators for use in critical facilities
Lead agency:	City of Radcliffe
Partners:	To be identified
Potential Funding Source:	City of Radcliffe, FEMA HMGP, others to be identified
Total cost:	Depending on wattage, fuel source, and type—standby or portable—a generator may cost from $500 to $15,000 plus wiring and switch installation costs - standby requires a permanent fuel source
Benefits (loss avoided):	The ability to power critical facilities, shelters, and warning devices during a power outage
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 4.2: Create disaster preparation and cleanup plan (19)

Plan for implementation and administration:	Create a plan for pre disaster preparation (sandbags) and post disaster clean up
Lead agency:	City of Radcliffe
Partners:	To be identified
Potential Funding Source:	City of Radcliffe, others to be identified
Total cost:	May be of little cost besides printing and staff time
Benefits (loss avoided):	Prepare city efficiently for a disaster and restore safety of city infrastructure immediately following a hazard event
Completion Date:	Ongoing

Radcliffe Mitigation Action Prioritization

1. **Mitigation Action 4.2:** Create disaster preparation and cleanup plan (19)
2. **Mitigation Action 3.1:** Create a public information session and conservation (water) program for Radcliffe (16)
3. **Mitigation Action 1.3:** Sewer improvements (13)
4. **Mitigation Action 3.2:** Create a public information session about insurance coverage and regulations (13)
5. **Mitigation Action 1.2:** Purchase/ update snow removal equipment (12)
6. **Mitigation Action 4.1:** Purchase generators for critical facilities (11)
7. **Mitigation Action 2.2:** Create a communication strategy (10)
8. **Mitigation Action 2.1:** Construct a safe room (9)
9. **Mitigation Action 2.3**: Demolition of abandoned buildings (9)
10. **Mitigation Action 1.1:** Acquisition and elevation of structures (2)

Steamboat Rock

Goal 1: Minimize losses to existing and future structures within hazard areas. Critical facilities and identified assets are high priority structures.

Mitigation Action 1.1: Water tower modification (-1)

Plan for implementation and administration:	Water tower modifications to ensure efficiency and working order for during emergencies where safe water is needed, like flooding
Lead agency:	City of Steamboat Rock
Partners:	To be identified
Potential Funding Source:	City of Steamboat Rock, others to be identified
Total cost:	Unknown until structure can be evaluated
Benefits (loss avoided):	Ensure efficiency of tower and cleanliness of water from the tower
Completion Date:	1 year from when funds are secured or time allotted by funding source

Mitigation Action 1.2: Update sewer treatment plant (6)

Plan for implementation and administration:	Improve existing storm & sanitary sewer/ collection system improvements. Increase capacity.
Lead agency:	City of Steamboat Rock
Partners:	To be identified
Potential Funding Source:	City of Steamboat Rock, FEMA HMGP, others to be identified
Total cost:	Unknown until updates can be priced
Benefits (loss avoided):	Prevent damages due to sewer backup
Completion Date:	One year from when funds are secured or within time allotted by funding source

Mitigation Action 1.3: Add lift station (7)

Plan for implementation and administration:	Add a lift station to the City's sanitary sewer when and where it is needed.
Lead agency:	City of Steamboat Rock
Partners:	To be identified
Potential Funding Source:	FEMA HMGP, City of Steamboat Rock, and others to be identified
Total cost:	Depending on the type and capacity of the lift station, approximately $120,000 to $500,000 plus operation and maintenance cost over the lift station's useful life
Benefits (loss avoided):	Eliminate potential sanitary sewer backups into structures
Completion Date:	1 year after funds are secured or the time allotted by funding source

Steamboat Rock Mitigation Action Prioritization

1. **Mitigation Action 1.3:** Add lift station (7)
2. **Mitigation Action 1.2:** Update sewer treatment plant (6)
3. **Mitigation Action 1.1:** Water tower modification (-1)

Union

Goal 1: Protect the safety of Union residents and visitors.

Mitigation Action 1.1: Construct a safe room (-8)

Plan for implementation and administration:	Construct a safe room
Lead agency:	City of Union
Partners:	Hardin County Emergency Management, Others to be identified
Potential Funding Source:	City of Union, FEMA HMGP and PDM, CDBG, others to be identified
Total cost:	Costs are variable depending on the size of the safe room and whether or not it is a retrofit or newly constructed safe room. For a small safe room in a house the minimum cost is approximately $2,500-$6,000. For a large community shelter, the cost usually ranges from $250,000 to over $1 million depending on the size.
Benefits (loss avoided):	Life safety of Union residents and visitors
Completion Date:	1 year from funding or within the time allotted by funding source

Mitigation Action 1.2: Purchase generators for critical facilities (-1)

Plan for implementation and administration:	Purchase generators for use in critical facilities
Lead agency:	City of Union
Partners:	To be identified
Potential Funding Source:	City of Union, FEMA HMGP, others to be identified
Total cost:	Depending on wattage, fuel source, and type—standby or portable—a generator may cost from $500 to $15,000 plus wiring and switch installation costs - standby requires a permanent fuel source
Benefits (loss avoided):	The ability to power critical facilities, shelters, and warning devices during a power outage
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 1.3: Purchase new fire truck (8)

Plan for implementation and administration:	Purchase new fire truck
Lead agency:	City of Union
Partners:	To be identified
Potential Funding Source:	City of Union, Assistance to Firefighters Grants, others to be identified
Total cost:	Unknown
Benefits (loss avoided):	Ensure the city has a proper vehicle and equipment to fight fires
Completion Date:	Ongoing

Goal 2: Educate Union citizens about hazard dangers, preparations, and procedures.

Mitigation Action 2.1: Public education program (0)

Plan for implementation and administration:	Create a program to educate Union residents about the dangers of hazards and how to prepare through informational flyers, meetings, or other interactive media like drills and workshops
Lead agency:	City of Union
Partners:	To be identified, possibly other Hardin County jurisdictions
Potential Funding Source:	City of Union and others to be identified
Total cost:	Unknown, this project may be of little cost depending on the medium used
Benefits (loss avoided):	Life safety of Union residents and visitors
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 2.2: Distribute NOAA All-Hazard Radios to all Union residents (-2)

Plan for implementation and administration:	Create a program or secure funding to provide NOAA All-Hazard Radios to all Union residents
Lead agency:	City of Union
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	City of Union, Hardin County, Iowa Homeland Security, others to be identified
Total cost:	Unknown, depends on how much is spent on the radios or if they are only subsidized to encourage residents to purchase one
Benefits (loss avoided):	Union residents will be informed of approaching hazards and updates throughout a hazard event
Completion Date:	1 year from when funds are secured

Goal 3: Maintain communication abilities during hazard events.

Mitigation Action 3.1: Coordinate city public awareness and emergency plan (-1)

Plan for implementation and administration:	Create a communication strategy between city and citizens.
Lead agency:	City of Union
Partners:	Hardin County Emergency Management, Others to be identified
Potential Funding Source:	City of Union
Total cost:	To be determined, may be of little cost
Benefits (loss avoided):	Citizens will be informed before, during and after hazard events
Completion Date:	Ongoing

Mitigation Action 3.2: Create an emergency phone tree. (3)

Plan for implementation and administration:	Hold a meeting for all those who wish to be included on the phone tree, especially the elderly and those with small children
Lead agency:	City of Union
Partners:	All City Departments, Hardin County Emergency Management, and others to be identified
Potential Funding Source:	City of Union, other to be identified
Total cost:	Printing will be of some cost, as well as staff time
Benefits (loss avoided):	Ensuring all vulnerable populations and citizens will be notified and taken care of in an event. Regular updates will be needed.
Completion Date:	Ongoing from the publication of the call tree

Union Mitigation Action Prioritization

1. **Mitigation Action 1.3**: Purchase new fire truck (8)
2. **Mitigation Action 3.2:** Create an emergency phone tree. (3)
3. **Mitigation Action 2.1:** Public education program (0)
4. **Mitigation Action 1.2:** Purchase generators for critical facilities (-1)
5. **Mitigation Action 3.1:** Coordinate city public awareness and emergency plan (-1)
6. **Mitigation Action 2.2:** Distribute NOAA All-Hazard Radios to all Union residents (-2)
7. **Mitigation Action 1.1:** Construct a safe room (-8)

Whitten

Goal 1: Minimize losses to existing and future structures within hazard areas. Critical facilities and identified assets are high priority structures.

Mitigation Action 1.1: Acquisition and elevation of structures (17)

Plan for implementation and administration:	Acquire or elevate structures that are damaged by flooding
Lead agency:	City of Whitten
Partners:	Region 6 Planning Commission
Potential Funding Source:	FEMA HMPG
Total cost:	Over $100,000
Benefits (loss avoided):	Reduce flood damage
Completion Date:	Unknown till structures are assessed

Mitigation Action 1.2: Purchase generators for critical facilities (17)

Plan for implementation and administration:	Purchase generators for use in critical facilities
Lead agency:	City of Whitten
Partners:	To be identified
Potential Funding Source:	City of Whitten, FEMA HMGP, others to be identified
Total cost:	Depending on wattage, fuel source, and type—standby or portable—a generator may cost from $500 to $15,000 plus wiring and switch installation costs - standby requires a permanent fuel source
Benefits (loss avoided):	The ability to power critical facilities, shelters, and warning devices during a power outage
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 1.3: Plant windbreaks (14)

Plan for implementation and administration:	Plant windbreaks around town
Lead agency:	City of Whitten
Partners:	To be identified
Potential Funding Source:	City of Whitten, others to be identified
Total cost:	Unknown till area can be assessed
Benefits (loss avoided):	Protect town from excess wind and snow from surrounding fields
Completion Date:	Ongoing

Mitigation Action 1.4: Create fuel storage in city (15)

Plan for implementation and administration:	Install fuel storage facility in city
Lead agency:	City of Whitten
Partners:	To be identified
Potential Funding Source:	City of Whitten, others to be identified
Total cost:	Unknown until storage units are priced
Benefits (loss avoided):	Larger fuel supply available for city residents during/after an event
Completion Date:	1 year after funds are secured or the time allotted by funding source

Goal 2: Protect the safety of Whitten residents and visitors

Mitigation Action 2.1: Construct a safe room (14)

Plan for implementation and administration:	Construct a safe room
Lead agency:	City of Whitten
Partners:	Hardin County Emergency Management, Others to be identified
Potential Funding Source:	City of Whitten, FEMA HMGP and PDM, CDBG, others to be identified
Total cost:	Costs are variable depending on the size of the safe room and whether or not it is a retrofit or newly constructed safe room. For a small safe room in a house the minimum cost is approximately $2,500-$6,000. For a large community shelter, the cost usually ranges from $250,000 to over $1 million depending on the size.
Benefits (loss avoided):	Life safety of Whitten residents and visitors
Completion Date:	1 year from funding or within the time allotted by funding source

Mitigation Action 2.2: Portable generators for vulnerable population residents and structures (14)

Plan for implementation and administration:	Purchase generators for use in vulnerable population homes and structures
Lead agency:	City of Whitten
Partners:	To be identified
Potential Funding Source:	City of Whitten, FEMA HMGP, others to be identified
Total cost:	Depending on wattage, fuel source, and type—standby or portable—a generator may cost from $500 to $15,000 plus wiring and switch installation costs - standby requires a permanent fuel source
Benefits (loss avoided):	The ability to power homes of elderly or disabled when impossible to get them to a shelter or safe room during a power outage
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 2.3: Construct a community shelter (14)

Plan for implementation and administration:	Construct a community shelter
Lead agency:	City of Whitten
Partners:	Hardin County Emergency Management, Others to be identified
Potential Funding Source:	City of Whitten, FEMA HMGP and PDM, CDBG, others to be identified
Total cost:	Unknown
Benefits (loss avoided):	Life safety of Whitten residents and visitors
Completion Date:	1 year from funding or within the time allotted by funding source

Mitigation Action 2.4: Identify back up communication equipment to be purchased for a communications failure (14)

Plan for implementation and administration:	Identify back up communication equipment to be purchased for widespread breakdown or disruption of normal communication system capabilities including loss of or long-term interruption of local government radio facilities and major telephone outages due to mechanical failure, traffic accidents, power failure, line severance, and weather.
Lead agency:	City of Whitten
Partners:	Hardin County Emergency Management
Potential Funding Source:	City of Whitten, others to be identified
Total cost:	To be determined once an assessment of equipment can be finalized
Benefits (loss avoided):	Ensure a redundant system so no communication is lost during a failure
Completion Date:	1 year from when funds are secured and the system is established or within time allotted by funding source

Goal 3: Educate Whitten citizens about hazard dangers, preparations, and procedures.

Mitigation Action 3.1: Distribute NOAA All-Hazard Radios to all Whitten residents (6)

Plan for implementation and administration:	Create a program or secure funding to provide NOAA All-Hazard Radios to all Whitten residents
Lead agency:	City of Whitten
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	City of Whitten, Hardin County, Iowa Homeland Security, others to be identified
Total cost:	Unknown, depends on how much is spent on the radios or if they are only subsidized to encourage residents to purchase one
Benefits (loss avoided):	Whitten residents will be informed of approaching hazards and updates throughout a hazard event
Completion Date:	1 year from when funds are secured

Mitigation Action 3.2: Promote home disaster preparedness (6)

Plan for implementation and administration:	Create a program to educate Whitten residents about the dangers of hazards and how to prepare through informational flyers, meetings, or other interactive media like drills and workshops
Lead agency:	City of Whitten
Partners:	To be identified, possibly other Hardin County jurisdictions
Potential Funding Source:	City of Whitten and others to be identified
Total cost:	Unknown, this project may be of little cost depending on the medium used
Benefits (loss avoided):	Life safety of Whitten residents and visitors
Completion Date:	Ongoing

Mitigation Action 3.3: Create an emergency, strategic plan of action for disasters i.e. announce shelter, food, and water locations. (6)

Plan for implementation and administration:	Create a plan of action for disasters to announce shelter, food and water locations
Lead agency:	City of Whitten
Partners:	All City Departments, Hardin County Emergency Management, and others to be identified
Potential Funding Source:	City of Whitten, other to be identified
Total cost:	Unknown, planning may be at little to no cost
Benefits (loss avoided):	No time lost in opening a shelter, residents will have access as soon as possible if the shelter is needed
Completion Date:	To be identified

Goal 4: The continuity of local operations and maintenance of infrastructure will not be significantly disrupted by disasters in Whitten.

Mitigation Action 4.1: NOAA radios for city buildings (6)

Plan for implementation and administration:	Create a program or secure funding to provide NOAA All-Hazard Radios to city buildings
Lead agency:	City of Whitten
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	City of Whitten, All city departments, Hardin County, Iowa Homeland Security, others to be identified
Total cost:	Unknown, depends on how much is spent on the radios or if they are only subsidized
Benefits (loss avoided):	Whitten's city workers will be informed of approaching hazards and updates throughout a hazard event and be able to help citizens
Completion Date:	1 year from when funds are secured

Mitigation Action 4.2: Start community food, water, and clothing shelf (9)

Plan for implementation and administration:	Start community shelf to provide essentials in hazard events
Lead agency:	City of Whitten
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	City of Whitten, local businesses and others to be identified
Total cost:	May be of little cost if donations are provided for shelter contents
Benefits (loss avoided):	Citizens will have a source of basic needs in the event that a hazard effects people's homes or critical supply facilities like grocery stores
Completion Date:	Ongoing

Mitigation Action 4.3: Filtration equipment and first aid (9)

Plan for implementation and administration:	Purchase a Berkey water filtration system. Purchase and store first aid equipment at fire station and enroll one fireman and one City council member or resident in a class on first aid.
Lead agency:	City of Whitten
Partners:	To be identified
Potential Funding Source:	City of Whitten
Total cost:	Unknown
Benefits (loss avoided):	Equipment for producing potable drinking water can purify water collected from the rain or from some other source, independent from the main water system. First aid supplies would be available and some citizens with expertise present in the City.
Completion Date:	Ongoing

Whitten Mitigation Action Prioritization

1. **Mitigation Action 1.1:** Acquisition and elevation of structures (17)
2. **Mitigation Action 1.2:** Purchase generators for critical facilities (17)
3. **Mitigation Action 1.4:** Create fuel storage in city (15)
4. **Mitigation Action 1.3:** Plant windbreaks (14)
5. **Mitigation Action 2.1:** Construct a safe room (14)
6. **Mitigation Action 2.2:** Portable generators for vulnerable population residents and structures (14)
7. **Mitigation Action 2.3:** Construct a community shelter (14)
8. **Mitigation Action 2.4:** Identify back up communication equipment to be purchased for a communications failure (14)
9. **Mitigation Action 4.2**: Start community food, water, and clothing shelf (9)
10. **Mitigation Action 4.3**: Filtration equipment and first aid (9)
11. **Mitigation Action 3.1:** Distribute NOAA All-Hazard Radios to all Whitten residents (6)
12. **Mitigation Action 3.2:** Promote home disaster preparedness (6)
13. **Mitigation Action 3.3:** Create an emergency, strategic plan of action for disasters i.e. announce shelter, food, and water locations. (6)
14. **Mitigation Action 4.1**: NOAA radios for city buildings (6)

Goal 1: Continuity of county and local operations will not be significantly disrupted by disasters in Hardin County.

Mitigation Action 1.1: Establish emergency operations center (19)

Plan for implementation and administration:	Establish emergency operations center for the county
Lead agency:	Hardin County Emergency Management
Partners:	To be indentified
Potential Funding Source:	Hardin County, others to be identified
Total cost:	Unknown until needs are assessed
Benefits (loss avoided):	All county emergency response will have a hub that's well equipped
Completion Date:	1 year from when funds are secured and the system is established or within time allotted by funding source

Mitigation Action 1.2: Work on communications network (19)

Plan for implementation and administration:	Continue work on communication network's interoperability
Lead agency:	Hardin County Emergency Management
Partners:	To be identified
Potential Funding Source:	FEMA HMGP, Hardin County, others to be identified
Total cost:	To be determined once the project status is known
Benefits (loss avoided):	Ensure an interoperable network be present in hazard events

Mitigation Action 1.3: Purchase generator system for courthouse (19)

Plan for implementation and administration:	Purchase generator system to be used in courthouse during an extended power outage
Lead agency:	Hardin County Emergency Management
Partners:	Other Hardin County departments
Potential Funding Source:	FEMA HMPG, Hardin County, others to be identified
Total cost:	Depending on wattage, fuel source, and type—standby or portable—a generator may cost from $500 to $15,000 plus wiring and switch installation costs also standby requires a permanent fuel source
Benefits (loss avoided):	Avoid loss of critical facilities' function and prevent damages to critical facilities and other structures associated with an extended power outage and heating failure due to electrical stoppage causing burst water pipes
Completion Date:	1 year from when funding is secured or within time allotted by funding source

Mitigation Action 1.4: Create a water use ordinance (23)

Plan for implementation and administration:	Create a water use ordinance and hold an information session on conservation
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County Conservation, Iowa DNR, cities in Hardin County
Potential Funding Source:	Hardin County
Total cost:	Unknown, this project may be of little cost besides
Benefits (loss avoided):	Monitoring the county's conservation and giving information about drought hazards
Completion Date:	1 year from when political and public support is leveraged

Mitigation Action 1.5: Identify back up communication equipment to be purchased for a communications failure (23)

Plan for implementation and administration:	Identify back up communication equipment to be purchased for widespread breakdown or disruption of normal communication system capabilities including loss of or long-term interruption of local government radio facilities and major telephone outages due to mechanical failure, traffic accidents, power failure, line severance, and weather.
Lead agency:	Hardin County Emergency Management
Partners:	To be identified
Potential Funding Source:	FEMA HMGP, Hardin County, others to be identified
Total cost:	To be determined once an assessment of equipment can be finalized
Benefits (loss avoided):	Ensure a redundant system so no communication is lost during a failure

Goal 2: Protect health and safety of Hardin County residents and visitors.

Mitigation Action 2.1: Construct safe rooms in critical facilities (19)

Plan for implementation and administration:	Construct safe rooms in critical facilities and in outdoor parks with campsites
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County Conservation Board
Potential Funding Source:	FEMA HMGP and PDM, CDBG, and others to be identified
Total cost:	Costs are variable depending on the size of the safe room/shelter and whether or not it is a retrofit or newly constructed safe room/shelter. For a small safe room in a house the minimum cost is approximately $2,500-$6,000. For a large community shelter, the cost usually ranges from $250,000 to over $1 million depending on the size.
Benefits (loss avoided):	Life safety of residents and visitors
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 2.2: Create and store sandbags (19)

Plan for implementation and administration:	Create and store sandbags for use during flood situations
Lead agency:	Hardin County Emergency Management
Partners:	To be identified
Potential Funding Source:	Hardin County, and others to be identified
Total cost:	To be determined once supplies are priced and needs assessed
Benefits (loss avoided):	Supplies on hand to protect people and buildings from flooding
Completion Date:	Ongoing

Mitigation Action 2.3: NOAA All-Hazard Radios for county use (19)

Plan for implementation and administration:	Secure funding to provide NOAA All-Hazard Radios to all county buildings
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County, Region 6 Planning Commission, others to be identified
Potential Funding Source:	Hardin County, Iowa Homeland Security, others to be identified
Total cost:	Unknown, depends on how much is spent on the radios
Benefits (loss avoided):	All county departments will be informed of approaching hazards and updates throughout a hazard event and help residents accordingly
Completion Date:	1 year from when funds are secured

Mitigation Action 2.4: Public education program (19)

Plan for implementation and administration:	Create a program to educate County residents about the dangers of hazard and how to prepare through informational flyers, meetings, or other interactive media like drills and workshops
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County Emergency personnel, others to be identified
Potential Funding Source:	Hardin County and others to be identified
Total cost:	Unknown, this project may be of little cost depending on the medium used
Benefits (loss avoided):	Life safety of County residents and visitors
Completion Date:	Ongoing from when program is created

Mitigation Action 2.5: Laminated glass for use during hailstorms (23)

Plan for implementation and administration:	Secure funding to put up laminated glass to protect county buildings during hailstorms
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County, Region 6 Planning Commission, others to be identified
Potential Funding Source:	Hardin County, Others to be identified
Total cost:	Unknown until needs are assessed and product priced
Benefits (loss avoided):	All county buildings will be properly protected during a hailstorm
Completion Date:	1 year from when funds are secured

Mitigation Action 2.6: Ground water protection (23)

Plan for implementation and administration:	Facilitate ground water protection measures to avoid damages due to sink holes
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County, Hardin County Conservation, Others to be identified
Potential Funding Source:	Hardin County, Others to be identified
Total cost:	Unknown
Benefits (loss avoided):	Prevent damages due to sink hole hazards
Completion Date:	One year from when funds are secured or within time allotted by funding source

Mitigation Action 2.7: Evacuation Planning (23)

Plan for implementation and administration:	Create a master evacuation plan for use in a severe hazard event
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County Sherriff's Department, local emergency responders, National Guard, others to be identified
Potential Funding Source:	Hardin County, Others to be identified
Total cost:	This may be of little cost depending on whether staff or a consultant prepare the plan
Benefits (loss avoided):	Quick response during flash flood and other severe or unexpected hazard events
Completion Date:	Ongoing with plan updates

Mitigation Action 2.8: Public warnings of dam failures (23)

Plan for implementation and administration:	Communicate to residents using different media to warn of an imminent dam failure
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County Sherriff's Department, local emergency responders, others to be identified
Potential Funding Source:	Hardin County, Others to be identified
Total cost:	Unknown, this project may be of little cost depending on the medium used
Benefits (loss avoided):	Immediate warning for residents downstream of dams and other vulnerable areas of the county
Completion Date:	Ongoing starting after residents are identified

Mitigation Action 2.9: Animal and Human Disease Epidemic planning and training (23)

Plan for implementation and administration:	Hold session to train emergency personnel to identify animal/crop/plant disease and human epidemic disease outbreaks and proper response, Create county plan to deal with outbreaks
Lead agency:	Hardin County Emergency Management
Partners:	Local emergency responders, County Veterinarian, Others to be indentified
Potential Funding Source:	Hardin County, others to be identified
Total cost:	This may be of little cost since it is an information session and document
Benefits (loss avoided):	Personnel will serve better in events with proper training and instruction
Completion Date:	Ongoing starting when a course can be formulated, possible funding secured, and plan written, may require updates

Goal 3: Minimize losses to existing and future structures within hazard areas. Critical facilities and identified assets are high priority structures.

Mitigation Action 3.1: Create a drainage district (15)

Plan for implementation and administration:	Complete storm drainage district for the county
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County Sanitarian, Others to be identified
Potential Funding Source:	Hardin County, others to be identified
Total cost:	Unknown until situation is assessed
Benefits (loss avoided):	Prevent flash flooding
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 3.2: Repair roads and bridges (20)

Plan for implementation and administration:	Repair roads and bridges in need throughout the county
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County Engineer, Others to be identified
Potential Funding Source:	Hardin County, DOT funds through Region 6, others to be identified
Total cost:	Unknown until situation is assessed
Benefits (loss avoided):	Prevent excess damage to infrastructure, caused by flooding
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 3.3: Elevate roads (20)

Plan for implementation and administration:	Elevate all County roads or those that are identified as problematic or critical during and immediately following flood events
Lead agency:	Hardin County Emergency Management
Partners:	Iowa Department of Transportation, Hardin County Engineer, others to be identified
Potential Funding Source:	FEMA HMGP, Hardin County, and others to be identified
Total cost:	Unknown, most likely very expensive, need an engineering report to determine cost
Benefits (loss avoided):	Prevent road and vehicle damage and preserve the mobility of County residents during and immediately following a flood event
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 3.4: Protect and clean up county parks (23)

Plan for implementation and administration:	Create a plan to determine protection measures and clean up procedures for county parks
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County Conservation Board, others to be identified
Potential Funding Source:	Hardin County, and others to be identified
Total cost:	Unknown, may be of little cost
Benefits (loss avoided):	Consistency of protection and cleanliness of county parks
Completion Date:	Ongoing with updates

Mitigation Action 3.5: Uniform building codes (23)

Plan for implementation and administration:	Modify all jurisdictions' building codes by adding requirements that may help to reduce the adverse effects hazards may have on new buildings
Lead agency:	Hardin County Planning and Zoning
Partners:	Hardin County Emergency Management, Hardin County Supervisors
Potential Funding Source:	Hardin County
Total cost:	Unknown, this project may be of little cost
Benefits (loss avoided):	Prevent unnecessary damage to new buildings during hazard events
Completion Date:	1 year from when political and public support is leveraged

Mitigation Action 3.6: Public information session on Agricultural practices (9)

Plan for implementation and administration:	Hold information session to inform local farmers about agriculture practices to reduce risk of flash floods in the county
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County Conservation, Others to be identified
Potential Funding Source:	Hardin County
Total cost:	Unknown, this project may be of little cost
Benefits (loss avoided):	Responsible ag practices to help prevent flash flooding
Completion Date:	Ongoing

Mitigation Action 3.7: Update zoning codes (17)

Plan for implementation and administration:	Update zoning in critical areas of the county i.e. discouraging development in floodplain or flood-prone areas, ensure proper development near critical facilities, etc.
Lead agency:	Hardin County
Partners:	To be identified
Potential Funding Source:	Hardin County
Total cost:	Unknown, this project may be of little cost
Benefits (loss avoided):	Prevent undesirable land uses that can lead to unnecessary damages, increased runoff, etc.
Completion Date:	1 year from when political and public support is leveraged

Mitigation Action 3.8: Train fire departments for grass fires and maintain needed equipment (23)

Plan for implementation and administration:	Create a program or incentives for firemen to be trained for grass fires and purchase or maintain the needed equipment
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County Sherriff's Department, city fire departments, others to be identified
Potential Funding Source:	Assistance to Firefighters Grant, others to be identified
Total cost:	Unknown
Benefits (loss avoided):	Quick and proper response in grass fire situations
Completion Date:	1 year from when funding is secured or within time allotted by funding

Mitigation Action 3.9: Identify pipelines and inform and educate land owners (23)

Plan for implementation and administration:	Locate pipelines in Hardin County and hold information session for landowners to educate on dangers and actions to prevent possible incidents
Lead agency:	Hardin County Emergency Management
Partners:	Emergency Departments
Potential Funding Source:	Hardin County, local fire departments, others to be identified
Total cost:	Unknown, project may be of little cost
Benefits (loss avoided):	Land owners are aware of risks and possible incidents
Completion Date:	Ongoing

Goal 4: Educate Hardin County citizens about the dangers of hazards and how they can be prepared.

Mitigation Action 4.1: Maintain Code Red Participation (19)

Plan for implementation and administration:	Renew subscription and maintain participation in the program to encourage all county and city residents to register and keep their contact information up to date
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County, All cities in the county
Potential Funding Source:	Hardin County, All cities in the county
Total cost:	Approximately $717 each year, rate is $0.55 per capita
Benefits (loss avoided):	County and city residents can be kept up-to-date on hazards and other dangerous situations
Completion Date:	Ongoing

Mitigation Action 4.2: Create hazardous materials removal plan (23)

Plan for implementation and administration:	Develop a plan to remove hazardous materials efficiently from a hazard event site
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County
Potential Funding Source:	Hardin County, Others to be identified
Total cost:	Unknown, may be of little cost
Benefits (loss avoided):	Restore safety of county during a hazardous materials incident
Completion Date:	Ongoing with updates

Mitigation Action 4.3: Public education program on structural fires (23)

Plan for implementation and administration:	Create a program to educate Hardin County residents about the dangers of structural fires and how to prepare through informational flyers, meetings, or other interactive media like drills and workshops
Lead agency:	Hardin County
Partners:	Hardin County Emergency Management, Hardin County Sheriff's Department, City Fire Departments
Potential Funding Source:	Hardin County, Others to be identified
Total cost:	Unknown, this project may be of little cost depending on the medium used
Benefits (loss avoided):	Life safety of Hardin County residents and visitors
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 4.4: Provide specialized training for fire department and maintain needed equipment (23)

Plan for implementation and administration:	Create a program or incentives for firemen to be trained for rare and specialized situations and purchase or maintain the needed equipment
Lead agency:	Hardin County Emergency Management
Partners:	Hardin County Sherriff's Department, city fire departments, others to be identified
Potential Funding Source:	Assistance to Firefighters Grant, others to be identified
Total cost:	Unknown
Benefits (loss avoided):	Quick and proper response in unusual situations
Completion Date:	1 year from when funding is secured or within time allotted by funding

Mitigation Action 4.5: Public education program on hail storms (23)

Plan for implementation and administration:	Create a program to educate Hardin County residents about the dangers of hail storms and how to prepare through informational flyers, meetings, or other interactive media like drills and workshops
Lead agency:	Hardin County
Partners:	Hardin County Emergency Management
Potential Funding Source:	Hardin County, Others to be identified
Total cost:	Unknown, this project may be of little cost depending on the medium used
Benefits (loss avoided):	Life safety of Hardin County residents and visitors
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 4.6: Identify alternate advance warning systems for storms (23)

Plan for implementation and administration:	Identify alternate systems such as radios or backup sirens
Lead agency:	Hardin County Emergency Management
Partners:	To be identified
Potential Funding Source:	FEMA HMGP, Hardin County, others to be identified
Total cost:	Sirens can cost up to $25,000, used sirens are sometimes available for purchase, which helps reduce the cost
Benefits (loss avoided):	Life safety of residents and visitors by ensuring a redundant warning system
Completion Date:	1 year from when funds are secured and the system is established or within time allotted by funding source

Unincorporated Hardin County Mitigation Action Prioritization

1. **Mitigation Action 1.4:** Create a water use ordinance (23)
2. **Mitigation Action 1.5:** Identify back up communication equipment to be purchased for a communications failure (23)
3. **Mitigation Action 2.5:** Laminated glass for use during hailstorms (23)
4. **Mitigation Action 2.6:** Ground water protection (23)
5. **Mitigation Action 2.7:** Evacuation Planning (23)
6. **Mitigation Action 2.8:** Public warnings of dam failures (23)
7. **Mitigation Action 2.9:** Animal and Human Disease Epidemic planning and training (23)
8. **Mitigation Action 3.4:** Protect and clean up county parks (23)
9. **Mitigation Action 3.5:** Uniform building codes (23)
10. **Mitigation Action 3.8:** Train fire departments for grass fires and maintain needed equipment (23)
11. **Mitigation Action 3.9:** Identify pipelines and inform and educate land owners (23)
12. **Mitigation Action 4.2**: Create hazardous materials removal plan (23)
13. **Mitigation Action 4.3**: Public education program on structural fires (23)
14. **Mitigation Action 4.4:** Provide specialized training for fire department and maintain needed equipment (23)
15. **Mitigation Action 4.5**: Public education program on hail storms (23)
16. **Mitigation Action 4.6:** Identify alternate advance warning systems for storms (23)
17. **Mitigation Action 3.2:** Repair roads and bridges (20)
18. **Mitigation Action 3.3:** Elevate roads (20)
19. **Mitigation Action 1.1:** Establish emergency operations center (19)
20. **Mitigation Action 1.2:** Work on communications network (19)
21. **Mitigation Action 1.3:** Purchase generator system for courthouse (19)
22. **Mitigation Action 2.1:** Construct safe rooms in critical facilities (19)
23. **Mitigation Action 2.2:** Create and store sandbags (19)
24. **Mitigation Action 2.3:** NOAA All-Hazard Radios for county use (19)
25. **Mitigation Action 2.4:** Public education program (19)
26. **Mitigation Action 4.1:** Maintain Code Red Participation (19)
27. **Mitigation Action 3.7:** Update zoning codes (17)
28. **Mitigation Action 3.1:** Create a drainage district (15)
29. **Mitigation Action 3.6:** Public information session on Agricultural practices (9)

Goal 1: Protect the health and safety of students and staff.

Mitigation Action 1.1: Construct a safe room in the high school and middle school (4)

Plan for implementation and administration:	Construct a safe room for students and visitors to use during severe weather
Lead agency:	AGWSR Schools
Partners:	Others to be identified
Potential Funding Source:	AGWSR Schools, FEMA HMGP and PDM, CDBG, others to be identified
Total cost:	Costs are variable depending on the size of the safe room and whether or not it is a retrofit or newly constructed safe room. For a small safe room in a house the minimum cost is approximately $2,500-$6,000. For a large community shelter, the cost usually ranges from $250,000 to over $1 million depending on the size.
Benefits (loss avoided):	Life safety of AGWSR Schools students and visitors
Completion Date:	1 year from funding or within the time allotted by funding source

Mitigation Action 1.2: Review of safety drill procedures (10)

Plan for implementation and administration:	Review and possibly update the current safety drills at the AGWSR schools
Lead agency:	AGWSR Schools
Partners:	Hardin County Emergency Response, others to be identified
Potential Funding Source:	AGWSR Schools, others to be identified
Total cost:	May not be of much cost except any possible re-printing
Benefits (loss avoided):	AGWSR students will be moved more efficiently in the event of a hazard
Completion Date:	Ongoing

Mitigation Action 1.3: Advanced alert system (7)

Plan for implementation and administration:	Install an advanced alert system at all AGWSR schools
Lead agency:	AGWSR Schools
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	AGWSR Schools, others to be identified
Total cost:	Unknown until systems are researched
Benefits (loss avoided):	AGWSR students and staff will be alerted quickly in event of a hazard
Completion Date:	1 year from funding or within the time allotted by funding source

Goal 2: The continuity of school operations and maintenance of buildings and offices will not be significantly disrupted by disasters.

Mitigation Action 2.1: Purchase generators for school buildings (11)

Plan for implementation and administration:	Purchase generators (one portable) for use in school buildings and offices
Lead agency:	AGWSR Schools
Partners:	To be identified
Potential Funding Source:	AGWSR Schools, FEMA HMGP, others to be identified
Total cost:	Depending on wattage, fuel source, and type—standby or portable—a generator may cost from $500 to $15,000 plus wiring and switch installation costs - standby requires a permanent fuel source
Benefits (loss avoided):	The ability to power school buildings and offices in a hazard event
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 2.2: Identify back up communication equipment to be purchased for a communications failure (12)

Plan for implementation and administration:	Identify back up communication equipment to be purchased for widespread breakdown or disruption of normal communication system capabilities including loss of or long-term interruption of local government radio facilities and major telephone outages due to mechanical failure, traffic accidents, power failure, line severance, and weather.
Lead agency:	AGWSR Schools
Partners:	To be identified
Potential Funding Source:	AGWSR Schools, FEMA HMGP, Hardin County, others to be identified
Total cost:	To be determined once an assessment of equipment can be finalized
Benefits (loss avoided):	Ensure a redundant system so no communication is lost during a failure
Completion Date:	1 year from when funds are secured and the system is established or within time allotted by funding source

Goal 3: Minimize losses to existing and future structures within hazard areas. School facilities and offices are high priority structures.

Mitigation Action 3.1: Create debris removal plan (15)

Plan for implementation and administration:	Develop a plan to remove debris and obstructions from school grounds immediately following a hazard event
Lead agency:	AGWSR Schools
Partners:	Hardin County Emergency Management
Potential Funding Source:	AGWSR Schools, Others to be identified
Total cost:	Unknown, may be of little cost
Benefits (loss avoided):	Restore safety of school grounds and infrastructure immediately following a hazard event
Completion Date:	Ongoing with updates

Mitigation Action 3.2: Create hazardous materials removal plan (15)

Plan for implementation and administration:	Develop a plan to remove hazardous materials from school grounds during an event
Lead agency:	AGWSR Schools
Partners:	Northeast Iowa Response Group
Potential Funding Source:	AGWSR Schools, Others to be identified
Total cost:	Unknown, may be of little cost
Benefits (loss avoided):	Restore safety of school grounds during a hazardous materials incident
Completion Date:	Ongoing with updates

Mitigation Action 3.3: Update schools with fire marshal recommendations (15)

Plan for implementation and administration:	Install fire marshal recommendations for school upgrades like fire doors
Lead agency:	AGWSR Schools
Partners:	Hardin County Fire Marshal
Potential Funding Source:	AGWSR Schools, Others to be identified
Total cost:	Unknown until recommendations are assessed and projects picked.
Benefits (loss avoided):	Ensure safety of school against fires
Completion Date:	Ongoing, 1 year from funding allotment

Goal 4: Educate students, parents and staff about hazard dangers, preparations, and procedures.

Mitigation Action 4.1: Complete required hazard drills every year (19)

Plan for implementation and administration:	Complete required practice drills for the school district, including: bus evacuation, tornado, and fire drills
Lead agency:	AGWSR Community School District
Partners:	Hardin County Emergency Management, local fire, law enforcement, and emergency response personnel
Potential Funding Source:	AGWSR Community School District, others to be identified
Total cost:	Unknown, may be of little cost
Benefits (loss avoided):	Students will know proper procedures and exits during a hazard
Completion Date:	Ongoing

Mitigation Action 4.2: Promote home disaster preparedness (13)

Plan for implementation and administration:	Create a program to educate AGWSR students and parents about the dangers of hazards and how to prepare through informational flyers, meetings, or other interactive media like drills and workshops
Lead agency:	AGWSR Schools
Partners:	To be identified, possibly other Hardin County jurisdictions
Potential Funding Source:	AGWSR Schools and others to be identified
Total cost:	Unknown, this project may be of little cost depending on the medium used
Benefits (loss avoided):	Life safety of AGWSR students and parents
Completion Date:	Ongoing

AGWSR Mitigation Action Prioritization

1. **Mitigation Action 4.1:** Complete required hazard drills every year (19)
2. **Mitigation Action 3.1**: Create debris removal plan (15)
3. **Mitigation Action 3.2**: Create hazardous materials removal plan (15)
4. **Mitigation Action 3.3**: Update schools with fire marshal recommendations (15)
5. **Mitigation Action 4.2:** Promote home disaster preparedness (13)
6. **Mitigation Action 2.2:** Identify back up communication equipment to be purchased for a communications failure (12)
7. **Mitigation Action 2.1:** Purchase generators for school buildings (11)
8. **Mitigation Action 1.2:** Review of safety drill procedures (10)
9. **Mitigation Action 1.3:** Advanced alert system (7)
10. **Mitigation Action 1.1:** Construct a safe room in the high school and middle school (4)

Alden Community School District

Goal 1: Protect the health and safety of students, employees, and visitors to district buildings and outdoor facilities.

Mitigation Action 1.1: Develop/build a safe rooms in school building (9)

Plan for implementation and administration:	Build a safe room for students, staff, and community members in the elementary school
Lead agency:	Alden Community School District
Partners:	Alden Schools, City of Alden, and Hardin County
Potential Funding Source:	FEMA HMPG and PDM, Alden Community School District, city, county, CDBG, and others to be identified
Total cost:	Costs are variable depending on the size of the safe room and whether or not it is a retrofit or newly constructed safe room. For a small safe room in a house the minimum cost is approximately $2,500-$6,000. For a large community shelter, the cost usually ranges from $250,000 to over $1 million depending on the size.
Benefits (loss avoided):	Life safety of students, staff, and community
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 1.2: Purchase updated snow removal equipment (14)

Plan for implementation and administration:	Purchase updated snow removal equipment
Lead agency:	Alden Community School District
Partners:	Hardin County Emergency Management, Others to be indentified
Potential Funding Source:	Alden Schools, others to be identified
Total cost:	Unknown until equipment is priced
Benefits (loss avoided):	Restore safety of schools' infrastructure immediately following a hazard event, as well as ensuring efficiency of equipment
Completion Date:	Ongoing or 1 year from when funds are secured

Goal 2: Minimize losses to buildings, equipment, motorized vehicles, and outdoor facilities.

Mitigation Action 2.1: Install air conditioning in school building (12)

Plan for implementation and administration:	Add air conditioning to elementary school building for year round use
Lead agency:	Alden Community School District
Partners:	To be identified
Potential Funding Source:	FEMA HMGP, Alden Community School District
Total cost:	Unknown –includes unit(s)
Benefits (loss avoided):	Protect students, staff, and equipment from heat related injuries
Completion Date:	Ongoing, starting when funding is secured and unit(s) are installed

Mitigation Action 2.2: Purchase and install security cameras at school building (12)

Plan for implementation and administration:	Purchase and install security cameras at main and other prominent entrances of school buildings
Lead agency:	Alden Community School District
Partners:	To be identified
Potential Funding Source:	Alden Schools, Hardin County, others to be identified
Total cost:	To be determined once cameras, equipment, and labor are priced
Benefits (loss avoided):	Catch suspicious activity near schools and protect property
Completion Date:	1 year from when funds are secured and the system is established or within time allotted by funding source

Alden Community School District Mitigation Action Prioritization

Mitigation Action 1.2: Purchase updated snow removal equipment (14)
Mitigation Action 2.1: Install air conditioning in school building (12)
Mitigation Action 2.2: Purchase and install security cameras at school building (12)
Mitigation Action 1.1: Develop/build a safe rooms in school building (9)

BCLUW Community School District

Goal 1: Protect the health and safety of students and staff.

Mitigation Action 1.1: Construct a safe room in all school buildings (16)

Plan for implementation and administration:	Construct safe rooms in all school buildings for students and visitors to use during severe weather
Lead agency:	BCLUW Schools
Partners:	Others to be identified
Potential Funding Source:	BCLUW Schools, FEMA HMGP and PDM, CDBG, others to be identified
Total cost:	Costs are variable depending on the size of the safe room and whether or not it is a retrofit or newly constructed safe room. For a small safe room in a house the minimum cost is approximately $2,500-$6,000. For a large community shelter, the cost usually ranges from $250,000 to over $1 million depending on the size.
Benefits (loss avoided):	Life safety of BCLUW Schools students and visitors
Completion Date:	1 year from funding or within the time allotted by funding source

Goal 2: Minimize losses to existing and future structures within hazard areas. Critical facilities and identified assets are high priority structures.

Mitigation Action 2.1: Purchase generators for district buildings (12)

Plan for implementation and administration:	Purchase generators for all district buildings
Lead agency:	BCLUW Schools
Partners:	BCLUW Schools, Others to be identified
Potential Funding Source:	BCLUW Schools, FEMA HMGP, and others to be identified
Total cost:	Depending on wattage, fuel source, and type—standby or portable—a generator may cost from $500 to $15,000 plus wiring and switch installation costs also standby requires a permanent fuel source
Benefits (loss avoided):	Power generation to maintain the function of school facilities
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 2.2: Structural inspections of school buildings (21)

Plan for implementation and administration:	Hire a consultant to complete a structural study to survey the state of the structures in the school district
Lead agency:	BCLUW Schools
Partners:	Engineering Companies, County Engineer, Others to be identified
Potential Funding Source:	FEMA HMGP, others to be identified
Total cost:	Unknown till consultants are profiled and their services priced
Benefits (loss avoided):	Problems with the critical structures in town will be identified
Completion Date:	Within the time allotted by funding source

Goal 3: Educate BCLUW students, employees, and visitors about the dangers of hazards and how they can be prepared.

Mitigation Action 3.1: NOAA All-Hazard Radios in all BCLUW buildings (16)

Plan for implementation and administration:	Secure funding to provide NOAA All-Hazard Radios to all BCLUW school and district buildings
Lead agency:	BCLUW Schools
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	BCLUW Schools, Hardin County, Iowa Homeland Security, others to be identified
Total cost:	Unknown, depends on how much is spent on the radios
Benefits (loss avoided):	BCLUW administration will be informed of approaching hazards and updates throughout a hazard event and help the students accordingly
Completion Date:	1 year from when funds are secured

Mitigation Action 3.2: Create an emergency, strategic plan of action for disasters i.e. determine who opens the shelters, when should the shelters be opened, etc. (12)

Plan for implementation and administration:	Create a plan of action for disasters determining who opens the shelter, when should the shelter be opened, etc.
Lead agency:	BCLUW Community School District
Partners:	Hardin County Emergency Management, and others to be identified
Potential Funding Source:	BCLUW Schools, other to be identified
Total cost:	Unknown, planning may be at little to no cost
Benefits (loss avoided):	No time lost in opening a shelter, students, employees and visitors will have access as soon as possible if the shelter is needed
Completion Date:	To be identified

Mitigation Action 3.3: Recruit storm spotters and encourage storm spotter training (14)

Plan for implementation and administration:	Recruit storm spotters and encourage storm spotter training as another warning system
Lead agency:	BCLUW Community School District
Partners:	Hardin County Emergency Management, and others to be identified
Potential Funding Source:	BCLUW Schools, other to be identified
Total cost:	Unknown, may be of little cost depending on the training
Benefits (loss avoided):	More ways to warn citizens of impending storms
Completion Date:	1 year from when funding is secured

Goal 4: Enhance Communications between authorities and citizens during disasters.

Mitigation Action 4.1: Alert Radio System for Schools (16)

Plan for implementation and administration:	Create a program or secure funding to provide NOAA All-Hazard Radios to BCLUW Schools
Lead agency:	BCLUW Schools
Partners:	Hardin County Emergency Management, others to be identified
Potential Funding Source:	BCLUW Schools, Hardin County, Iowa Homeland Security, others to be identified
Total cost:	Unknown, depends on how much is spent on the radios or if they are only subsidized to encourage residents to purchase one
Benefits (loss avoided):	School personnel will be informed of approaching hazards and updates throughout a hazard event
Completion Date:	1 year from when funds are secured

Mitigation Action 4.2: Create an emergency phone tree for all parents and families associated with the school. (7)

Plan for implementation and administration:	Hold a meeting for all those who wish to be included on the phone tree
Lead agency:	BCLUW Schools
Partners:	School Board, Hardin County Emergency Management, and others to be identified
Potential Funding Source:	BCLUW Schools, other to be identified
Total cost:	Printing will be of some cost.
Benefits (loss avoided):	Ensuring students' families will be notified that their children taken care of in an event. Regular updates will be needed.
Completion Date:	Ongoing from the publication of the call tree

Mitigation Action 4.3: Identify back up communication equipment to be purchased for a communications failure between school buildings (10)

Plan for implementation and administration:	Identify back up communication equipment to be purchased for widespread breakdown or disruption of normal communication system capabilities including loss of or long-term interruption of local government radio facilities and major telephone outages due to mechanical failure, traffic accidents, power failure, line severance, and weather.
Lead agency:	BCLUW Schools
Partners:	Hardin County Emergency Management
Potential Funding Source:	BCLUW Schools, FEMA HMGP, Hardin County, others to be identified
Total cost:	To be determined once an assessment of equipment can be finalized
Benefits (loss avoided):	Ensure a redundant system so no communication is lost during a failure
Completion Date:	1 year from when funds are secured and the system is established or within time allotted by funding source

BCLUW Mitigation Action Prioritization

1. **Mitigation Action 2.2:** Structural inspections of school buildings (21)
2. **Mitigation Action 1.1:** Construct a safe room in all school buildings (16)
3. **Mitigation Action 3.1:** NOAA All-Hazard Radios in all BCLUW buildings (16)
4. **Mitigation Action 4.1**: Alert Radio System for Schools (16)
5. **Mitigation Action 3.3:** Recruit storm spotters and encourage storm spotter training (14)
6. **Mitigation Action 2.1**: Purchase generators for district buildings (12)
7. **Mitigation Action 3.2:** Create an emergency, strategic plan of action for disasters i.e. determine who opens the shelters, when should the shelters be opened, etc. (12)
8. **Mitigation Action 4.3:** Identify back up communication equipment to be purchased for a communications failure between school buildings (10)
9. **Mitigation Action 4.2:** Create an emergency phone tree for all parents and families associated with the school. (7)

Goal 1: Protect the health and safety of students and staff.

Mitigation Action 1.1: Improve designated shelter areas in all school buildings (6)

Plan for implementation and administration:	Study existing areas used for this purpose (tornado drill areas, etc.) and receive recommendations for improvements to provide improved shelter areas within buildings
Lead agency:	E-NP Schools
Partners:	Others to be identified
Potential Funding Source:	E-NP Schools, others to be identified
Total cost:	Unknown
Benefits (loss avoided):	Life safety of E-NP Schools students and visitors
Completion Date:	1 year from funding or within the time allotted by funding source

Mitigation Action 1.2: Purchase and install security cameras at all schools (12)

Plan for implementation and administration:	Purchase and install security cameras at main and other entrances of the E-NP Schools
Lead agency:	E-NP Schools
Partners:	To be identified
Potential Funding Source:	E-NP Schools, Hardin County, others to be identified
Total cost:	To be determined once cameras, equipment, and labor are priced
Benefits (loss avoided):	Catch suspicious activity and intruders near school buildings
Completion Date:	1 year from when funds are secured and the system is established or within time allotted by funding source

Mitigation Action 1.3: Door security hardware (12)

Plan for implementation and administration:	Replace and upgrade door security (locking) hardware
Lead agency:	E-NP Schools
Partners:	Others to be identified
Potential Funding Source:	E-NP Schools, others to be identified
Total cost:	To be determined once doors are assessed and parts priced
Benefits (loss avoided):	Life safety of E-NP Schools students and visitors
Completion Date:	1 year from funding or within the time allotted by funding source

Goal 2: Minimize losses to existing and future structures of the Eldora-New Providence Community School District.

Mitigation Action 2.1: Storm drainage improvements (12)

Plan for implementation and administration:	Complete storm drainage improvements at both High School and Elementary campuses
Lead agency:	E-NP Schools
Partners:	Hardin County Sanitarian, Others to be identified
Potential Funding Source:	E-NP Schools, others to be identified
Total cost:	Unknown until situation is assessed
Benefits (loss avoided):	Prevent flash flooding at schools
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 2.2: Plant windbreaks (13)

Plan for implementation and administration:	Replacement of trees as shelter/wind barrier at the Elementary School Campus to replace trees that were damaged by August 9, 2009 hail and wind storm
Lead agency:	E-NP Schools
Partners:	To be identified
Potential Funding Source:	E-NP Schools, others to be identified
Total cost:	Unknown till areas can be assessed
Benefits (loss avoided):	Protect schools from excess wind and blowing snow
Completion Date:	Ongoing

Mitigation Action 2.3: Demolition of abandoned buildings (12)

Plan for implementation and administration:	Demolition of 1916 abandoned building
Lead agency:	E-NP Schools
Partners:	Region 6 Planning Commission, Others to be identified
Potential Funding Source:	E-NP Schools, FEMA HMGP, others to be identified
Total cost:	To be determined
Benefits (loss avoided):	Remove unsafe structures from the community
Completion Date:	1 year from when funds are secured

Goal 3: Improve communication with other Hardin County agencies to enhance hazard mitigation efforts.

Mitigation Action 3.1: Establish uniform communication protocols (12)

Plan for implementation and administration:	Hold a meeting with Hardin County emergency agencies to create uniform communication protocol for hazard events
Lead agency:	E-NP Schools
Partners:	Hardin County Emergency Management, Local emergency responders, Others to be indentified
Potential Funding Source:	E-NP Schools, others to be identified
Total cost:	This may be of little cost since it is a planning meeting
Benefits (loss avoided):	Schools and personnel will be better in sync during hazard events
Completion Date:	Ongoing starting when a protocol can be formulated and possible funding secured

Mitigation Action 3.2: Purchase hand held radios (6)

Plan for implementation and administration:	Purchase hand held radios capable of using a common frequency for use by multiple agencies
Lead agency:	E-NP Schools
Partners:	Hardin County Emergency Management, Local emergency responders, Others to be indentified
Potential Funding Source:	E-NP Schools, FEMA HMGP, Hardin County, others to be identified
Total cost:	To be determined once a product is secured and need coordinated amongst emergency agencies
Benefits (loss avoided):	Coordination of relief effort during and after a hazard event
Completion Date:	1 year from when funds are secured and the system is established or within time allotted by funding source

Goal 4: Assist in the education of Eldora-New Providence students, faculty, staff and community members concerning potential hazards and response.

Mitigation Action 4.1: Provide facilities for hazard education (18)

Plan for implementation and administration:	Make school facilities available for hazard presentations to community and students
Lead agency:	E-NP Schools
Partners:	Hardin County Emergency Management, Local emergency responders, Others to be indentified
Potential Funding Source:	E-NP Schools, others to be identified
Total cost:	May be of little cost
Benefits (loss avoided):	Provide an adequate meeting space to accommodate large audiences
Completion Date:	Ongoing

Mitigation Action 4.2: Participate in hazard mitigation drills (2)

Plan for implementation and administration:	Require practice drills based on hazard events for the school district
Lead agency:	E-NP Schools
Partners:	Hardin County Emergency Management, local fire, law enforcement, and emergency response personnel
Potential Funding Source:	E-NP Schools, others to be identified
Total cost:	May be of little cost
Benefits (loss avoided):	Students and staff will be prepared for crises and respond correctly and quickly
Completion Date:	At such time the plan is complete, possible ongoing updates

Eldora-New Providence Mitigation Action Prioritization

1. **Mitigation Action 4.1:** Provide facilities for hazard education (18)
2. **Mitigation Action 2.2:** Plant windbreaks (13)
3. **Mitigation Action 1.2:** Purchase and install security cameras at all schools (12)
4. **Mitigation Action 1.3:** Door security hardware (12)
5. **Mitigation Action 2.1:** Storm drainage improvements (12)
6. **Mitigation Action 2.3**: Demolition of abandoned buildings (12)
7. **Mitigation Action 3.1:** Establish uniform communication protocols (12)
8. **Mitigation Action 1.1:** Improve shelter areas in all school buildings (6)
9. **Mitigation Action 3.2:** Purchase hand held radios (6)
10. **Mitigation Action 4.2:** Participate in hazard mitigation drills (2)

Hubbard-Radcliffe Community School District

Goal 1: Minimize losses to existing and future structures within School District.

Mitigation Action 1.1: Purchase and install security cameras at all schools (17)

Plan for implementation and administration:	Purchase and install security cameras at main and other entrances of the H-R Schools
Lead agency:	H-R Schools
Partners:	To be identified
Potential Funding Source:	H-R Schools, Hardin County, others to be identified
Total cost:	To be determined once cameras, equipment, and labor are priced
Benefits (loss avoided):	Catch suspicious activity and intruders near school buildings
Completion Date:	1 year from when funds are secured and the system is established or within time allotted by funding source

Mitigation Action 1.2: Purchase /update snow removal equipment (20)

Plan for implementation and administration:	Purchase/update snow removal equipment for use following a severe winter storm
Lead agency:	H-R Schools
Partners:	Hardin County Emergency Management, Others to be indentified
Potential Funding Source:	H-R Schools, others to be identified
Total cost:	Unknown until equipment is assessed and new equipment priced
Benefits (loss avoided):	Restore safety of city infrastructure immediately following a hazard event, as well as ensuring efficiency of equipment
Completion Date:	Ongoing or 1 year from when funds are secured

Mitigation Action 1.3: Adopt a facility safety plan (21)

Plan for implementation and administration:	Write a facility safety plan to ensure the safety of students, faculty, and staff
Lead agency:	H-R Schools
Partners:	To be identified
Potential Funding Source:	H-R Schools
Total cost:	Unknown, this project may be of little cost
Benefits (loss avoided):	Staff will be trained to move children safely and efficiently in the event of a hazard and parents, officials, and the public would be aware of the school's plan
Completion Date:	1 year from when program is established and funding is secured

Goal 2: Protect health and safety of Hubbard-Radcliffe students, employees and visitors.

Mitigation Action 2.1: Construct a safe room in all schools (19)

Plan for implementation and administration:	Construct a safe room at each of the 3 schools in the district
Lead agency:	H-R Schools
Partners:	Hardin County
Potential Funding Source:	FEMA HMPG and PDM, H-R Schools, Hardin County, CDBG, and others to be identified
Total cost:	Costs are variable depending on the size of the safe room and whether or not it is a retrofit or newly constructed safe room. For a small safe room in a house the minimum cost is approximately $2,500-$6,000. For a large community shelter, the cost usually ranges from $250,000 to over $1 million depending on the size.
Benefits (loss avoided):	Life safety of students, employees and visitors during hazard events
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 2.2: Purchase carbon monoxide and fire detectors (19)

Plan for implementation and administration:	Purchase carbon monoxide and fire detectors for each of the 3 schools in the district
Lead agency:	H-R Schools
Partners:	Hardin County
Potential Funding Source:	H-R Schools, Others to be identified
Total cost:	Unknown until need is assessed and detectors priced
Benefits (loss avoided):	Life safety of students, employees and visitors during hazard events
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 2.3: Ensure safety of playground equipment during extreme heat events (20)

Plan for implementation and administration:	Conduct safety evaluations of the playground equipment on hot days
Lead agency:	H-R Schools
Partners:	Hardin County
Potential Funding Source:	H-R Schools, Others to be identified
Total cost:	Unknown, may be of little cost
Benefits (loss avoided):	Life safety of students on recess during hot days
Completion Date:	Ongoing

Goal 3: Educate Hubbard-Radcliffe students and employees about the dangers of hazards and how they can be prepared.

Mitigation Action 3.1: Create an information session for Hubbard-Radcliffe students and employees on the subject of drought and severe cold (23)

Plan for implementation and administration:	Educate students and employees on water conservation and heat saving ideas
Lead agency:	H-R Schools
Partners:	Hardin County Conservation, Hardin County Emergency Management
Potential Funding Source:	H-R Schools
Total cost:	Unknown, this project may be of little cost
Benefits (loss avoided):	Giving information about drought hazards and extreme winter weather
Completion Date:	Ongoing

Mitigation Action 3.2: Create an information session for Hubbard-Radcliffe students and employees on the subject of severe winter storms (20)

Plan for implementation and administration:	Educate students and employees on what to do in the event of a severe winter storm
Lead agency:	H-R Schools
Partners:	Hardin County Emergency Management
Potential Funding Source:	H-R Schools
Total cost:	Unknown, this project may be of little cost
Benefits (loss avoided):	Giving information about severe winter storms
Completion Date:	Ongoing

Mitigation Action 3.3: Promote home disaster preparedness (20)

Plan for implementation and administration:	Create a program to educate H-R students and employees about the dangers of hazards and how to prepare during assemblies through interactive media like drills and workshops.
Lead agency:	H-R Schools
Partners:	Hardin County Emergency Management, Local emergency response
Potential Funding Source:	H-R Schools
Total cost:	Unknown, this project may be of little cost depending on the medium used
Benefits (loss avoided):	Life safety and education of H-R students and employees
Completion Date:	Ongoing

Goal 4: Continuity of school operations will not be significantly disrupted by disasters in Hardin County.

Mitigation Action 4.1: Purchase generators for school buildings (21)

Plan for implementation and administration:	Purchase generators for each of the 3 school buildings
Lead agency:	H-R Schools
Partners:	Cities of Hubbard and Radcliffe, Others to be identified
Potential Funding Source:	H-R Schools, FEMA HMGP, and others to be identified
Total cost:	Depending on wattage, fuel source, and type—standby or portable—a generator may cost from $500 to $15,000 plus wiring and switch installation costs also standby requires a permanent fuel source
Benefits (loss avoided):	Power generation to maintain the function of school facilities
Completion Date:	1 year after funds are secured or the time allotted by funding source

Mitigation Action 4.2: Purchase early warning system (20)

Plan for implementation and administration:	Purchase a better early warning system
Lead agency:	H-R Schools
Partners:	To be identified
Potential Funding Source:	FEMA HMGP, Hardin County, others to be identified
Total cost:	Sirens can cost up to $25,000, used sirens are sometimes available for purchase, which helps reduce the cost
Benefits (loss avoided):	Life safety of students and employees by ensuring a redundant warning system
Completion Date:	1 year from when funds are secured and the system is established or within time allotted by funding source

Mitigation Action 4.3: Inform students, employees and visitors of designated shelters (21)

Plan for implementation and administration:	Inform via school assemblies, regular PA announcements, and informational sheets in classrooms and hallways
Lead agency:	H-R Schools
Partners:	Hardin County Emergency Management
Potential Funding Source:	H-R Schools
Total cost:	None (printing costs may be an exception)
Benefits (loss avoided):	Order and quick response during and immediately following hazard events for a large vulnerable population
Completion Date:	Ongoing

Hubbard-Radcliffe Mitigation Action Prioritization

1. **Mitigation Action 3.1:** Create an information session for Hubbard-Radcliffe students and employees on the subject of drought and severe cold (23)
2. **Mitigation Action 1.3:** Adopt a facility safety plan (21)
3. **Mitigation Action 4.1**: Purchase generators for school buildings (21)
4. **Mitigation Action 4.3:** Inform students, employees and visitors of designated shelters (21)
5. **Mitigation Action 1.2:** Purchase/ update snow removal equipment (20)
6. **Mitigation Action 2.3:** Ensure safety of playground equipment during extreme heat events (20)
7. **Mitigation Action 3.2:** Create an information session for Hubbard-Radcliffe students and employees on the subject of severe winter storms (20)
8. **Mitigation Action 3.3:** Promote home disaster preparedness (20)
9. **Mitigation Action 4.2:** Purchase early warning system (20)
10. **Mitigation Action 2.1:** Construct a safe room in all schools (19)
11. **Mitigation Action 2.2:** Purchase carbon monoxide and fire detectors (19)
12. **Mitigation Action 1.1:** Purchase and install security cameras at all schools (17)

Iowa Falls Community School District

Goal 1: Protect the health and safety of students, employees, and visitors to district buildings and outdoor facilities.

Mitigation Action 1.1: Develop/build a safe rooms in all school buildings (9)

Plan for implementation and administration:	Build a safe room for students, staff, and visitors in the Iowa Falls Schools
Lead agency:	Iowa Falls Community School District
Partners:	IAF Schools, City of Iowa Falls, City of Alden, and Hardin County
Potential Funding Source:	FEMA HMPG and PDM, Iowa Falls Community School District, city, county, CDBG, and others to be identified
Total cost:	Costs are variable depending on the size of the safe room and whether or not it is a retrofit or newly constructed safe room. For a small safe room in a house the minimum cost is approximately $2,500-$6,000. For a large community shelter, the cost usually ranges from $250,000 to over $1 million depending on the size.
Benefits (loss avoided):	Life safety of students, staff, and community
Completion Date:	1 year from when funds are secured or within time allotted by funding source

Mitigation Action 1.2: Purchase updated snow removal equipment (14)

Plan for implementation and administration:	Purchase updated snow removal equipment
Lead agency:	Iowa Falls Community School District
Partners:	Hardin County Emergency Management, Others to be indentified
Potential Funding Source:	IAF Schools, others to be identified
Total cost:	Unknown until equipment is priced
Benefits (loss avoided):	Restore safety of schools' infrastructure immediately following a hazard event, as well as ensuring efficiency of equipment
Completion Date:	Ongoing or 1 year from when funds are secured

Goal 2: Minimize losses to buildings, equipment, motorized vehicles, and outdoor facilities.

Mitigation Action 2.1: Purchase and install security cameras at school buildings (12)

Plan for implementation and administration:	Purchase and install security cameras at main and other prominent entrances of school buildings
Lead agency:	Iowa Falls Community School District
Partners:	To be identified
Potential Funding Source:	IAF Schools, Hardin County, others to be identified
Total cost:	To be determined once cameras, equipment, and labor are priced
Benefits (loss avoided):	Catch suspicious activity near schools and protect property

Completion Date:	1 year from when funds are secured and the system is established or within time allotted by funding source

Goal 3: The continuity of school operations and maintenance of buildings and offices will not be significantly disrupted by disasters.

Mitigation Action 3.1: Air conditioning (12)

Plan for implementation and administration:	Add air conditioning to school buildings for year round use
Lead agency:	Iowa Falls Community School District
Partners:	To be identified
Potential Funding Source:	FEMA HMGP, Iowa Falls Community School District
Total cost:	Unknown –includes unit(s)
Benefits (loss avoided):	Prevent loss of instructional time during extreme heat events, as well as technological damage
Completion Date:	Ongoing, starting when funding is secured and unit(s) are installed

Iowa Falls Community School District Mitigation Action Prioritization

Mitigation Action 1.2: Purchase updated snow removal equipment (14)
Mitigation Action 2.1: Purchase and install security cameras at school buildings (12)
Mitigation Action 3.1: Air conditioning (12)
Mitigation Action 1.1: Develop/build a safe rooms in all school buildings (9)

6 Plan Maintenance Process

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

6.1 Monitoring, Evaluating, and Updating the Plan

44 CFR Requirement 201.6(c)(4): *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 the adoption of this plan, the Planning Team (members may vary over time) agrees to monitor, evaluate, and maintain the plan. The Planning Team will meet once each year to monitor and evaluate the plan. The Hardin County Emergency Manager will coordinate the meeting time and place and notify other members. Other organizations may be of some assistance in this process. The participating jurisdictions and agencies, led by Hardin County Emergency Management, will do the following:

- 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
- Pursue the implementation of high priority, low- or no cost mitigation actions
- Maintain vigilant monitoring of multi-objective, cost-share, and other funding opportunities to help the county and other jurisdictions implement the plans mitigation actions for which no current funding exists
- Monitor and assist in implementation and updating 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 recommend changes to the Hardin County Board of Supervisors and governing bodies of participating jurisdictions
- Inform and solicit input from the public

The primary duty of the Planning Team is to see that the plan is successfully carried out and to report to the 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, and passing concerns on to appropriate entities.

Evaluation of progress can be achieved by monitoring changes and 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
- Increased vulnerability as a result of new development or annexation

Updates to the 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 such as Digital Flood Insurance Rate Maps
- Incorporate new capabilities or changes in capabilities
- Incorporate growth and development-related changes to inventories
- Incorporate new action recommendations or changes in action prioritization

In order to best evaluate any changes in vulnerability as a result of plan implementation, the participating jurisdictions will undergo the following process:

- A representative from the jurisdiction will be responsible for tracking and reporting 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 frame, 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 of future implementation. Updating of the plan, every five years as a minimum, will be enacted through written changes and submissions, as Hardin County Emergency Management deems appropriate and necessary, and as approved by the Hardin County Board of Supervisors or the governing board of the participating jurisdictions.

6.2 Incorporation into Existing Planning Mechanisms

44 CFR 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, plan participants will use existing plans and/or programs to implement hazard mitigation actions. This plan builds upon the some of the previous related efforts and recommends implementing actions, where possible, through the following means:

- General or related plans of participating jurisdictions
- Ordinances of participating jurisdictions
- Building codes
- Capital improvements plans and budgets
- School district facilities plans
- Mutual aid agreement (28E Agreement)
- Other community plans within the county either in existence or developed in the future such as water conservation plans, storm water management plans, and parks and recreation plans

The governing bodies of the jurisdictions adopting this plan will encourage all other relevant planning mechanisms under their authority to consult this plan to ensure minimization of risk to natural and manmade hazards as well as coordination of activities.

The Planning Team involved in the plan update will be responsible for encouraging the integration of the findings actions of the mitigation plan as appropriate. The Planning Team is also responsible for monitoring this integration and incorporating the appropriate information into the five-year update of the plan.

6.3 Continued Public Involvement

44 CFR 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 the local newspaper concerning projects and the annual hazard mitigation meeting that will be held. The public will be invited to attend the annual hazard mitigation meeting where the Planning Team will meet to monitor and evaluate the plan. The public will have to chance to participate and interact with their respective jurisdiction representative in order to have a stake in the outcome of plan implementation and update. Planning Team members will be invited by invitation to the annual meeting and the public will be invited through a public notice in the local newspapers and flyer(s) posted in their jurisdiction by the City or administration.

7 Recommendations

Aside from the goals and projects each jurisdiction identified to mitigate hazards, the writers of the plan would also like to use the knowledge acquired during plan research, training, observation, and writing to make some general recommendations to Hardin County and participating jurisdictions. These recommendations may be considered during the five-year life of this plan or in the plan update. Our recommendations include the following:

- Jurisdictions should encourage businesses and care facilities especially those that were identified as critical facilities to complete continuity plans so there is little interruption in service and economic losses can be avoided.

- The jurisdictions that already have generator(s) should complete the needed changes to make the generators usable. The generator(s) should also be tested on a regular basis to ensure that they will function during a power outage.

- Jurisdictions with mobile homes should require tie-downs to prevent flying large debris that may be a danger during severe weather that involves high speed winds. Also, jurisdictions should consider providing or requiring some sort of shelter for residents of mobile homes to use during severe weather.