

Clinton County Multi-Jurisdictional Multi-Hazard Mitigation Plan

2011

Developed by ECIA, Dubuque, Iowa

Homeland Security and Emergency Management Programs

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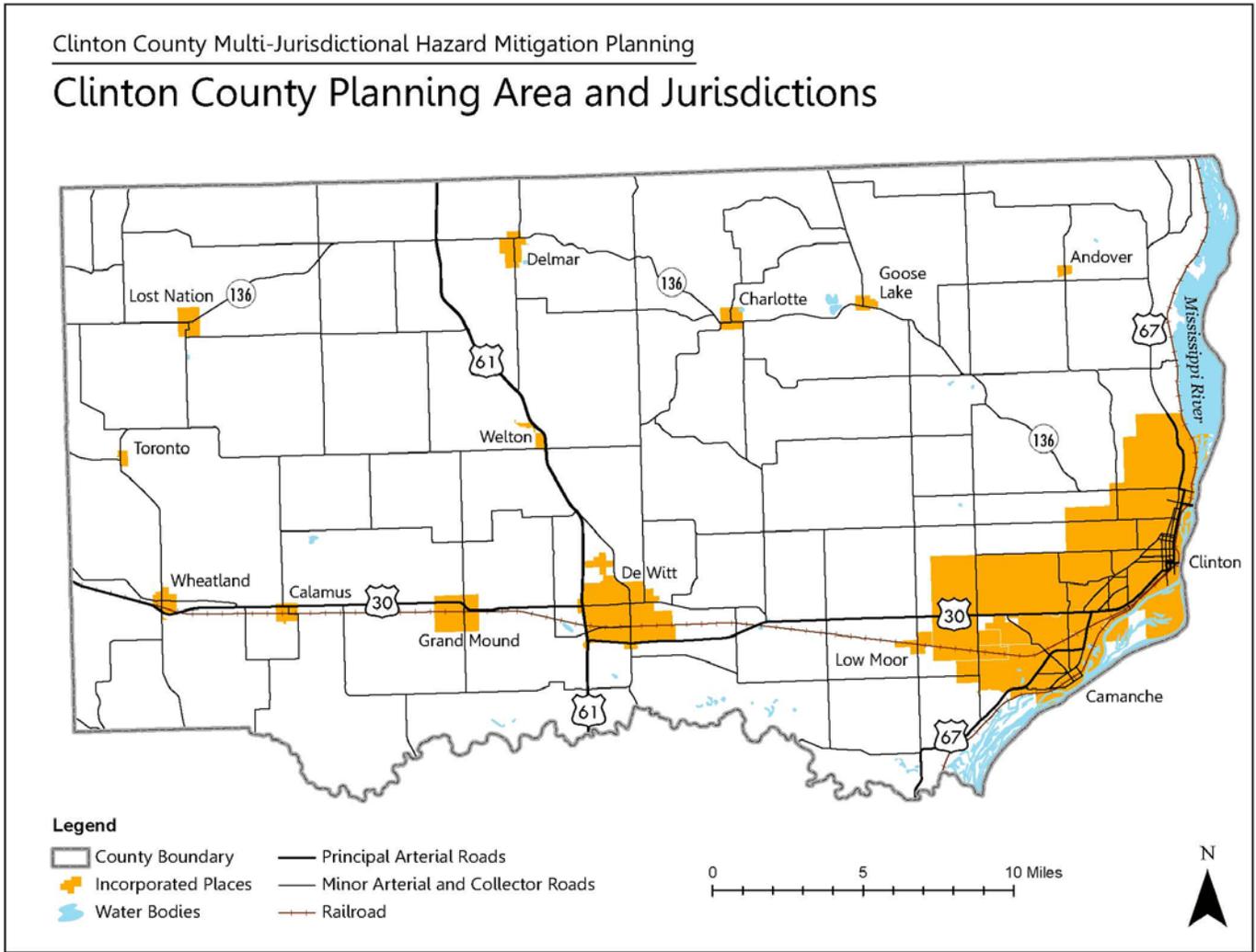
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Clinton County Planning Area and Jurisdictions



HAZARD MITIGATION PLANNING TEAM

Participant	Representing
Behr, Dan	City of Grand Mound, Mayor
Birdsley, Dan	Clinton County Sheriff's Office
Bohle, Tom	Clinton Police Department
Bott, Leon	Andover Fire
Brown, Mike	City of Clinton Fire
Burke, Janet	City of Lost Nation, City Clerk
Burken, John	DeWitt Fire
Clay, Melissa	Clinton County
Conklin, Bethaney	Region 6 Public Health Planner
Crosthwaite, Kurt	Grand Mound City Council
Cullen, Michele	CCPH/Genesis VNA
Dash, Eileen	Clinton County Building Maintenance
Davisson, Jill	Clinton County Board of Supervisors
Diercks, Kevin	Citizen
Diesch, Steve	Clinton County Sheriff's Office
Dunkin, Carole	DeWitt City Council
Elkins, Debbie	Clinton County Recorder's Office
Ewoldt, Bruce	Citizen, Clinton County
Fahlbeck, Ken	City of Camanche City Council
Freese, Charles	Cal-Wheat School District
Geltz, Beth	Gateway Area Red Cross
Goldensoph, Thomas	City of Low Moor, Fire
Goodall, Doug	City of Delmar, City Council
Guy, Brian	City of Clinton Police
Hardin, Patty	City of Delmar, Mayor
Harmsen, Wayne	Andover Ambulance
Holm, Rodger	City of Clinton Mayor
Horne, Jeff	City of Clinton City Administration
Hubbart, Kurt	Alliant Energy
Huffman, Jan	City of Welton Mayor
Jahn, Marty	City of Charlotte, Mayor
Jindrich, Sheryl	City of Camanche City Clerk
Johnson, Jason	Andover City Council
Kampe, Gary	City of Camanche City Council
Kinney, Todd	Clinton County Engineer
Kness, Chance	Clinton County Emergency Management Agency
Kopp, Steven	Clinton Police
Koranda, Billy	Welton Fireman, City Councilman
Kramer, Linda	City of Camanche City Council
Lacey, Michael	Calamus Chief Volunteer Fire Department
Laufenberg, Diana	Clinton County Recorder's Office
Laurion, Rick	Clinton County Building Maintenance
Leu, Christy	Clinton County Recorder's Office
Lewis, Roberta	Clinton County Board of Supervisors
Lincoln, Rick	Clinton County Sheriff
Lindner, Steve	DeWitt City Administrator
Lindstrom, Teresa	City of Goose Lake, City Clerk
Martensen, JC	City of Welton Employee and Fireman
McCallister, LeAnn	Welton City Clerk

Clinton County
Multi-Jurisdictional Hazard Mitigation Plan

Participant	Representing
Meland, Richard	City of Low Moor, Mayor
Miller, Lorrie	Human Services
Murphy, David	Mercy Hospital
Naeve, Glenn	Mayor of Andover
Noel, Virgil	Wheatland Mayor & Wheatland Fire Department
Parker, Tom	Camanche School District
Paukner, Jennifer	Clinton County Emergency Management Agency
Peterson, Dan	Central School District
Pfeifle, Pat	Clinton County Recorder's Office
Proctor, Matt	DeWitt Public Works
Regenwether, Mark	City of Clinton Fire
Reynolds, Michael	City of Clinton
Rickertsen, Dave	City of Camanche Public Works
River, Paula	Genesis Medical Center DeWitt
Robertson, Jim	City of Camanche Mayor
Rock, Winston	City of Low Moor, representative
Rohling, Kathy	Wheatland City Council
Roode, Mark	City of Low Moor, Water & Waste Water Supervisor
Roth, Tom	Camanche, City Manager
Sandry, Robert	DeWitt Fire
Schade, Reese	Calamus Volunteer Fire Department
Schellhorn, Gary	City of Clinton Public Works
Schneden, David	City of Delmar, Fire
Schroeder, Jim	City of Lost Nation, Mayor
Schroeder, Leslie	Citizen, Andover
Smith, Charleen	Clinton County Board of Health
Sowle, Vicki	Mercy Hospital Emergency Manager
Staszewski, Ed	Clinton County Veterans Affairs
Staszewski, John	Clinton County Board of Supervisors
Steines, AJ	Archer Daniels Midland Corp.
Steines, Terry	Calamus Mayor
Thiltgen, Don	Mayor of DeWitt
Tibbetts, Lynn	Clinton County Administrative Assistant
Vanlancker, Eric	Clinton County Auditor
Varner, Paul	City of Camanche City Council
Venters, Aaron	Vertex Chemical Company
Wade, Mark	Clinton Community College
Walker, Jennifer	East Central Intergovernmental Association(ECIA)
Weis, Don	Clinton County Sheriff's Office
Wickham, Walt	Clinton County Conservation Director
Wilcke, Marcy	Mercy Medical Center Hospital Preparedness Planner
Wilke, Roger	Andover City Council
Witt, Justin	DeWitt Police

Executive Summary

Each year, natural disasters in the United States take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars each year to help communities, organizations, businesses, and individuals recover from disasters. These losses only partially reflect the true cost of disasters, because additional expense to insurance companies and nongovernmental organizations are not reimbursed by tax dollars. Additionally, many natural disasters are predictable. Many more are repetitive, often with the same results. Many of the damages caused by these events can be alleviated or even eliminated.

FEMA, now a part of the US Department of Homeland Security, has made reducing losses from natural disasters one of its primary goals. Hazard mitigation planning and subsequent implementation of projects, measures, and policies developed through those plans, is the primary mechanism in achieving these goals. Mitigation planning has resulted in the implementation of projects that have successfully reduced disaster damages.

This plan was developed pursuant to the regulations of the Disaster Mitigation Act (DMA) of 2000. The DMA revises the Robert T. Stafford Disaster Relief and Emergency Assistance Act by adding Section 322, which provides new and revitalized emphasis on hazard mitigation, including a new requirement for local mitigation plans. These new local mitigation planning regulations are implemented through 44 CFR Part 201.6.

The DMA requires state and local governments to develop multi-hazard mitigation plans to maintain their eligibility for certain federal disaster assistance and hazard mitigation funding programs. Communities at risk from natural disasters cannot afford to jeopardize this funding.

More importantly, proactive mitigation planning at the local level can help reduce the cost of disaster response and recovery to property owners and government by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruption. Clinton County and its participating jurisdictions have been affected by several disasters in the past and are committed to reducing disaster impacts and maintaining eligibility for federal mitigation grant funding.

Natural hazards mitigation is defined as sustained action taken to reduce or eliminate long-term risk to human life and property from hazards. Natural hazards mitigation planning is the process through which natural hazards that threaten communities are identified, likely impacts of those impacts are determined, prioritized, and implemented. This plan documents the natural hazards mitigation planning process for Clinton County, identifies natural hazards and risks within the vulnerability and make the communities of Clinton County more disaster resistant and sustainable. Information in this plan can be used to help guide and coordinate mitigation activities and local land use decisions.

PREREQUISITES – PARTICIPATION INFORMATION

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. For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.

The following jurisdictions and special districts that meet the FEMA definition of “local government” participated in the development of this plan and have adopted the multi-jurisdictional plan. Resolutions of Adoptions are included on the following pages. (The plan will be adopted and resolutions included for each participating jurisdiction after preliminary approval from the Iowa Homeland Security and Emergency Management Division (IAHSEMD) and the Federal Emergency Management Agency.)

- Clinton County, unincorporated, Lead Agency
- City of Andover
- City of Calamus
- City of Camanche
- City of Charlotte
- City of Clinton
- City of Delmar
- City of DeWitt
- City of Goose Lake
- City of Grand Mound
- City of Low Moor
- City of Lost Nation
- City of Toronto
- City of Welton
- City of Wheatland
- Northeast School District
- Clinton School District
- Cal-Wheat School District
- Central Clinton School District
- Camanche School District
- Delwood School District

CHAPTER 1: 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.

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

The Disaster Mitigation Act of 2000 requires all local governments to assess their risks to natural hazards and identify actions that can be taken in advance to reduce future losses. The law requires all local governments and districts to have an approved Multi-Hazard Mitigation Plan after November 1, 2004, to be eligible for federal disaster assistance and hazard mitigation funding programs.

To assist Clinton County in the preparation of the mitigation plan, the State of Iowa Homeland Security and Emergency Management Division (IAHSEMD) (IDEM) awarded a contract to Clinton County who in turn contracted with East Central Intergovernmental Association (ECIA). ECIA's role is to assist Clinton County with the completion of a FEMA-approved multi-jurisdictional local hazard mitigation plan, meeting the requirements of the Disaster Mitigation Act of 2000.

The Clinton County Emergency Management Agency was the point of contact in developing this plan and to assist participating jurisdictions. ECIA has assisted by facilitating the planning process, collecting the necessary data from planning committee members and other sources as indicated throughout the plan, and performing other technical services, including preparation of the risk management assessment and plan document.

ECIA and the Clinton County Emergency Management Agency worked together to establish the framework and process for this planning effort using FEMA's *Multi-Hazard Mitigation Planning Guidance under the Disaster Mitigation Act of 2000* (2004) and the *State and Local Mitigation Planning How-To Guides* (2001), which includes the *Multi-Jurisdictional Mitigation Planning How-To Guide* (2006). The plan is structured around a four-phase process:

- 1) Organize Resources
- 2) Assess Hazards and Risks
- 3) Develop a Mitigation Plan
- 4) Evaluate the Work

The remainder of this chapter provides a narrative description of the steps taken to prepare the hazard mitigation plan.

1.1 Phase 1: Organize Resources

Step 1: Get Organized

It was determined at the onset, that this plan would be a multi-jurisdictional plan with Clinton County Emergency Management Agency serving as the contact agency. ECIA, in conjunction with Clinton County EMA, sent out invitations for the kick-off meetings to all municipalities and special districts within the planning area as well as neighboring jurisdictions that could contribute to the planning process. Each jurisdiction that chose to participate in the planning process and development of the plan was required to meet strict plan participation requirements defined at the beginning of the process, which included the following:

- Designate a representative to serve on the Clinton County Hazard Mitigation Planning Team (HMPT)
- Participate in HMPT meetings
- Provide data and information to complete the plan, identify at least one mitigation action and complete action implementation worksheets
- Review and comment on plan drafts
- Inform the public, local officials, and other interested parties about the planning process and provide an opportunity for them to comment on the plan
- Formally adopt the mitigation plan

The table below shows the attendance of representatives at each HMPT meeting. Sign-in sheets are included in [Appendix A](#).

Table 1.1 Participation in HMPT Meetings

Name	Meeting 1	Meeting 2	Meeting 3	Meeting 4	Meeting 5	Meeting 6	Meeting 7	Meeting 8	Meeting 9	Meeting 10	Meeting 11	Meeting 12	Meeting 13	Meeting 14	Meeting 15	Jurisdiction/ Department
Behr, Dan															X	City of Grand Mound, Mayor
Birdsley, Dan													X			Clinton County Sheriff's Office
Bohle, Tom													X			Clinton Police Department
Bott, Leon												X				Andover Fire
Brown, Mike				X												City of Clinton Fire
Burke, Janet										X						City of Lost Nation, City Clerk
Burken, John							X				X					DeWitt Fire
Clay, Melissa		X														Clinton County
Conklin, Bethaney													X			Region 6 Public Health Planner
Crosthwaite,	X															Grand Mound City

Clinton County
Multi-Jurisdictional Hazard Mitigation Plan

Name	Meeting 1	Meeting 2	Meeting 3	Meeting 4	Meeting 5	Meeting 6	Meeting 7	Meeting 8	Meeting 9	Meeting 10	Meeting 11	Meeting 12	Meeting 13	Meeting 14	Meeting 15	Jurisdiction/ Department
Kurt																Council
Cullen, Michele							X						X			Clinton County Public Health/Genesis VNA
Dash, Eileen			X													Clinton County Building Maintenance
Davisson, Jill			X												X	Clinton County Board of Supervisors
Diercks, Kevin												X				Citizen
Diesch, Steve										X						Clinton County Sheriff's Office
Dunkin, Carole											X					DeWitt City Council
Elkins, Debbie		X	X													Clinton County Recorder's Office
Ewoldt, Bruce									X							Citizen, Clinton County
Fahlbeck, Ken					X											City of Camanche City Council
Freese, Charles		X														Cal-Wheat School District
Geltz, Beth							X						X			American Red Cross
Goldensoph, Thomas								X								City of Low Moor, Fire
Goodall, Doug										X						City of Delmar, City Council
Guy, Brian				X		X							X		X	City of Clinton Police
Hardin, Patty										X					X	City of Delmar, Mayor
Harmsen, Wayne												X				Andover Ambulance
Holm, Rodger				X												City of Clinton Mayor
Horne, Jeff				X		X										City of Clinton City Administrator
Hubbart, Kurt							X									Alliant Energy
Huffman, Jan														X	X	City of Welton, Mayor
Janhn, Marty															X	City of Charlotte, Mayor
Jindrich, Sheryl					X											City of Camanche City Clerk
Johnson, Jason												X				Andover City Council
Kampe, Gary					X											City of Camanche City Council
Kinney, Todd			X													Clinton County Engineer
Kness, Chance	X	X	X	X	X	X	X	X	X	X	X	X		X	X	Clinton County Emergency Management Agency
Kopp, Steven							X									Clinton Police
Koranda, Billy														X		Welton Fireman, City Councilman
Kramer, Linda					X											City of Camanche City Council
Lacey, Michael	X															Calamus Chief Volunteer Fire

Clinton County
Multi-Jurisdictional Hazard Mitigation Plan

Name	Meeting 1	Meeting 2	Meeting 3	Meeting 4	Meeting 5	Meeting 6	Meeting 7	Meeting 8	Meeting 9	Meeting 10	Meeting 11	Meeting 12	Meeting 13	Meeting 14	Meeting 15	Jurisdiction/ Department
																Department
Laufenberg, Diana			X													Clinton County Recorder's Office
Laurion, Rick		X	X													Clinton County Building Maintenance
Leu, Christy		X	X													Clinton County Recorder's Office
Lewis, Roberta		X	X													Clinton County Board of Supervisors
Lincoln, Rick													X		X	Sheriff
Lindner, Steve	X										X					DeWitt City Administrator
Lindstrom, Teresa															X	City of Goose Lake, City Clerk
Martensen, JC														X		City of Welton Employee and Fireman
McCallister, LeAnn														X		Welton City Clerk
Meland, Rick								X								City of Low Moor, Mayor
Miller, Lorrie													X			Human Services
Murphy, David													X			Mercy Hospital
Naeve, Glenn												X				Mayor of Andover
Noel, Virgil	X								X						X	Wheatland Mayor & Wheatland Fire Department
Parker, Tom					X											Camanche School District
Paukner, Jennifer	X	X	X	X		X	X						X		X	Clinton County Emergency Management Agency
Peterson, Dan		X														Central School District
Pfeifle, Pat		X	X													Clinton County Recorder's Office
Proctor, Matt	X										X					DeWitt Public Works
Regenwether, Mark						X	X									City of Clinton Fire
Reynolds, Michael				X		X										City of Clinton
Rickertsen, Dave					X											City of Camanche Public Works
River, Paula							X									Genesis Medical Center DeWitt
Robertson, Jim					X										X	City of Camanche Mayor
Rock, Winston															X	City of Low Moor, Representative
Rohling, Kathy									X						X	Wheatland City Council
Roode, Mark								X								City of Low Moor, Water & Waste Water Supervisor

Name	Meeting 1	Meeting 2	Meeting 3	Meeting 4	Meeting 5	Meeting 6	Meeting 7	Meeting 8	Meeting 9	Meeting 10	Meeting 11	Meeting 12	Meeting 13	Meeting 14	Meeting 15	Jurisdiction/ Department
Roth, Tom		X			X											Camanche, City Manager
Sandry, Robert											X					DeWitt Fire
Schade, Reese	X															Calamus Volunteer Fire Department
Schellhorn, Gary				X		X										City of Clinton Public Works
Schneden, David										X						City of Delmar, Fire
Schroeder, Jim															X	City of Lost Nation, Mayor
Schroeder, Leslie		X										X				Citizen, Andover
Smith, Charleen													X			Clinton County Board of Health
Sowle, Vicki													X			Mercy Hospital Emergency Manager
Staszewski, Ed			X													Clinton County Veterans Affairs
Staszewski, John		X	X				X						X			Clinton County Board of Supervisors
Steines, AJ							X									Archer Daniels Midland Corp.
Steines, Terry	X								X						X	Calamus Mayor
Thiltgen, Don							X						X		X	Mayor of DeWitt
Tibbetts, Lynn			X													Clinton County Administrative Assistant
Vanlancker, Eric													X			Clinton County Auditor
Varner, Paul		X			X											City of Camanche City Council
Venters, Aaron							X									Vertex
Wade, Mark			X													Clinton Community College
Walker, Jennifer	X	X	X	X	X	X	X	X	X	X	X	X		X	X	East Central Intergovernmental Association(ECIA)
Weis, Don										X						Clinton County Sheriff's Office
Wiekham, Walt			X													Clinton County Conservation Director
Wilike, Marcy							X									Mercy Medical Center Hospital Preparedness Planner
Wilke, Roger												X				Andover City Council
Witt, Justin											X					DeWitt Police

Step 2: Plan for Public Involvement

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

At the initial kickoff meetings, attendees discussed methods that are routinely used to engage the public in Clinton County. Examples included e-mail to parents of students in the public school districts and informational notes included on local utility bills. Many members of the group also suggested the use of websites and newsletters.

During the drafting of the plan, HMPT members provided their constituents with information about the plan's progress including goals and objectives and the hazard ranking.

The public was also given an opportunity to provide input on a draft of the complete plan prior to its submittal to the State and FEMA. Clinton County placed an announcement in the Clinton Herald and the DeWitt Observer newspapers that notified area residents that the plan draft was available for review and comment at the Clinton County Emergency Management Agency office from October 20, 2010 to November 20, 2010. The announcements are provided in [Appendix B](#).

Step 3: Coordinate with Other Departments and Agencies

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

Involvement of Key Stakeholders

Key federal, state, and local stakeholders were involved from the beginning of the process. Federal FEMA officials and State Agency Representatives were invited to HMPT meetings and offered the opportunity to provide input. Representatives from the surrounding Iowa counties of Cedar, Jackson, Jones and Scott were invited to attend the kickoff meetings as well as leaders from the public school districts and Eastern Iowa Community College District/Clinton Community College.

Existing Plans, Studies, Reports and Technical Information

At each of the local meetings of the HMPT, members reviewed information of the local area, including dams, bridges, utility infrastructure and floodplain. Each community also reviewed previous Hazard Mitigation Plans, NCDC Data, Clinton County Tax Assessor Records, and US Census Data as well as the State of Iowa Hazard Mitigation Plan. Information from these plans and studies has been incorporated in the plan where appropriate.

1.2 Phase 2: Assess Hazards and Risk

Step 4: Identify the Hazards

ECIA assisted the HMPT in a process to identify the natural hazards that have or could impact communities in Clinton County. The HMPT reviewed the 16 natural hazards that can occur in Iowa as indicated in the September 2007 State of Iowa Hazard Mitigation Plan. During the kickoff meetings, participants identified which hazards that *have occurred, potentially could occur* or are *unlikely to occur* within Clinton County. Once the lists were compared and found equal, the HMPT determined that only those hazards that have occurred or potentially could occur would be further profiled and rated in the HM plan.

Step 5: Profile the Hazards

At the kickoff meetings, ECIA distributed data collection worksheets to be completed and shared by each member of the HMPT. This allowed for collection of information on historic hazard events that have impacted the planning area. In addition, the information provided by the HMPT, research was completed using the internet, existing reports and plans, and existing geographic information systems (GIS) layers to research past hazard events and determine the location, extent, magnitude, and future probability of all hazards identified in step 4 above. The individual hazard profiles can be found in Section 3.

Step 6: Inventory of Assets

Participating jurisdictions inventoried their assets at risk to natural hazards – overall and in identified hazard areas. During meetings with individual jurisdictions, the communities were asked to identify inventory of their specific assets. After profiling the hazards that could affect Clinton County, the HMPT collected information to describe the likely impacts of future hazard events on the participating jurisdictions. This step included two parts: a vulnerability assessment and a capability assessment.

Vulnerability Assessment – Participating jurisdictions inventoried their assets at risk to natural hazards – overall and in identified hazard areas. These assets included total number and value of structures; critical facilities and infrastructure; historic and cultural assets; economic assets; and vulnerable populations. The HMPT also analyzed development trends in hazard areas. FEMA’s loss estimation computer software,

HAZUS-MH was used to estimate potential losses due to a 100-year flood in Clinton County streams that receive drainage from 10 square miles or more.

Capability Assessment – This assessment consisted of identifying the existing mitigation capabilities of participating jurisdictions. This involved collecting information about existing government programs, policies, regulations, ordinances, and plans that mitigate or could be used to mitigate risk to disasters. Participating jurisdictions collected information on their regulatory, personnel, fiscal, and technical capabilities, as well as ongoing initiatives related to interagency coordination and public outreach. This information is included in Chapter 3.

Step 7: Estimate Losses

Where sufficient information was available, a variety of methods was used to estimate losses for each profiled hazard that received a Priority 1 or Priority 2. For the flood hazard, FEMA’s loss estimation computer software, HAZUZ-MH was utilized to estimate losses in the planning area as a result of a 100-year flood event. The methodology is described in detail for each hazard analysis that included a loss estimate. This information can be found in Section 3.2.

Results of the risk assessment were presented and comments discussed at the meeting of the HMPT on September 30, 2010.

1.3 Phase 3: Develop the Mitigation Plan

Step 8: Identify Goals and Objectives

Once the HMPT had completed the tasks of profiling hazards and estimating their potential losses, goals were developed. During each meeting, the committee reviewed the results of the risk assessment, focusing on the key issues identified in Section 3.2 that focused on specific problems and trends and patterns identified through the review of previous hazard events. With the profiles hazards and their potential impacts in mind, the committee began a brainstorming session to identify the goals and objectives of the mitigation strategy for the planning area. After sharing ideas among the group, consensus was achieved on four goals. Detailed information on these goals and the associated objectives that were selected to steer the committee toward appropriate mitigation actions can be found in Section 4.3.

Step 9: Develop Potential Mitigation Actions

During the Goals and Objectives meeting of the HMPT, committee members were provided with example mitigation actions and asked to complete mitigation project worksheets at the meeting. Each committee member was encouraged to take the forms back to their constituents to discuss ongoing mitigation projects and future needs. At the final HMPT meeting, participants reviewed all the proposed projects and held a discussion regarding additional projects that might benefit Clinton County. The potential projects were sorted into the appropriate goal and objective to ensure that each was

covered by appropriate mitigation actions. The group utilized the STAPLEE criteria (Socially, Technically, Administratively, Politically, Legally, Economically and Environmentally rated benefits of a goal) to evaluate and rank each potential mitigation project. Each participating jurisdiction provided at least one, unique mitigation activity. There is at least one mitigation activity to support each goal and objective. The modified STAPLEE criteria form and a table showing the results of the STAPLEE analysis for each project can be found in [Appendix C](#).

1.4 Phase 4: Evaluate the Work

Step 10: Draft of the Mitigation Plan

A complete draft of the plan was made available in hard copy for review and comment by the public and other agencies and interested stakeholders at the Clinton County Emergency Management Agency offices from October 20, 2010 to November 20, 2010. Methods for inviting interested parties and the public to review and comment on the plan were discussed in Steps 2 and 3. Comments were integrated into a final draft for submittal to the Iowa Homeland Security and Emergency Management Division (IAHSEMD) and FEMA Region VII.

Step 11: Adopt the Plan

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

Step 12: Implement and Maintain the Plan

The HMPT developed and agreed upon an overall strategy for plan implementation and for monitoring and maintaining the plan over time during the September 30, 2010 meeting. This strategy is described in Chapter 5.

CHAPTER 2: PLANNING AREA DESCRIPTIONS & CAPABILITIES

2.1 Clinton County Planning Area

History

The City of Clinton is the county seat of Clinton County, Iowa. The City and County were named in honor of the seventh governor of New York, DeWitt Clinton.

Geography

According to the U.S. Census Bureau, the county has a total area of 710 square miles (1,839 km²), of which 695 square miles (1,800 km²) is land and 15 square miles (39 km²) (2.14%) is water. It includes the easternmost point in the state of Iowa, on the Mississippi River in Elk River Township in the northeast section of the county.

Major highways

US Highway 30 crosses east west generally parallel to the south border. US Highway 61, running north south, bisects the county. US Highway 67 runs north and south through the county. State Highway 136 begins in Clinton to the east and runs northwest west to the county border. Numerous paved county roads connect all of the incorporated cities and unincorporated villages throughout the county.

-  U.S. Route 30
-  U.S. Route 61
-  U.S. Route 67
-  Iowa Highway 136

Adjacent counties

- Jackson County (north)
- Carroll County, Illinois (northeast), across the Mississippi River
- Whiteside County, Illinois (east), across the Mississippi River
- Rock Island County, Illinois (southeast), across the Mississippi River
- Scott County (south)
- Cedar County (southwest)
- Jones County (northwest)
- Upper Mississippi River National Wildlife and Fish Refuge (part)

Demographics

CLINTON COUNTY AND STATE OF IOWA POPULATION COMPARISON					
Year	Clinton County	% of Change	State of Iowa	% of Change	County as % of State
1950	49,664	--	2,621,073	--	1.89
1960	55,060	9.8	2,757,537	5.2	2.00
1970	56,749	3.0	2,824,376	2.5	2.00
1980	57,749	1.7	2,913,808	3.1	1.98
1990	51,040	-11.6	2,776,831	-4.7	1.84
2000	50,149	-1.7	2,926,324	5.4	1.71
2010	49,550*	-0.5	3,034,890*	1.8	1.63

Source: ECIA – Community Development Strategy, 2000

*Based on Data provided by Age Cohorts Method.

As of the census of 2000, there were 50,149 people, 20,105 households, and 13,671 families residing in the county. The population density was 72 people per square mile (28/km²). There were 21,585 housing units at an average density of 31 per square mile (12/km²). The racial makeup of the county was 95.87% White, 1.89% Black or African American, 0.24% Native American, 0.56% Asian, 0.02% Pacific Islander, 0.34% from other races, and 1.08% from two or more races. 1.25% of the population was Hispanic or Latino of any race.

There were 20,105 households out of which 31.80% had children under the age of 18 living with them, 54.60% were married couples living together, 9.80% had a female householder with no husband present, and 32.00% were non-families. 27.40% of all households were made up of individuals and 12.20% had someone living alone who was 65 years of age or older. The average household size was 2.44 and the average family size was 2.98.

In the county the population was spread out with 25.60% under the age of 18, 8.20% from 18 to 24, 27.00% from 25 to 44, 23.30% from 45 to 64, and 15.80% who were 65 years of age or older. The median age was 38 years. For every 100 females there were 94.30 males. For every 100 females age 18 and over, there were 91.20 males.

The median income for a household in the county was \$37,423, and the median income for a family was \$46,450. Males had a median income of \$35,049 versus \$21,333 for females. The per capita income for the county was \$17,724. About 7.70% of families and 10.20% of the population were below the poverty line, including 13.70% of those under age 18 and 7.80% of those aged 65 or over.

Major Rivers and Watersheds

The Mississippi River flows southward along the eastern border of Clinton County. The Wapsipinicon River, Elk River, in addition to Rock Creek, Spring Creek, Ames Creek,

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Silver Creek, Deep Creek, Mill Creek, Brophy Creek, Turtle Creek, Deer Creek, and numerous small creeks, branches of rivers, and streams flow through the County.

2.2 Jurisdictional Descriptions and Capabilities

Unincorporated Clinton County

Description of community

Clinton County is located in east central Iowa with Jones and Cedar counties to the west, Jackson County to the north, and Scott County to the south. The population was 49,116 in the 2010 census, a decline from 50,149 in 2000.

Land Use and Development Trends

Unincorporated Clinton County's land uses are residential, commercial, industrial and agricultural. The Unincorporated County has had limited development in the past five years.

Technical and Fiscal Resources

With approximately 200 employees, Unincorporated Clinton County has the authority to levy taxes for specific purposes and can incur debt through general obligation bonds.

Existing Plans and Policies

The Clinton County's most recent Hazard Mitigation plan was approved by FEMA in 2005. Currently, the County is participant in the National Flood Insurance Program.

Other Mitigation Activities

Clinton County has had one repetitive loss property in rural Calamus. For other mitigation activities see [Appendix J](#).

Andover

Description of community

The City of Andover is an incorporated city supporting a population of 93 persons. The City of Andover is a small rural community located in northeast Clinton County and is approximately 7 miles northwest of Clinton. Andover is located at 41.978834°N 90.251713°W. According to the United States Census Bureau, the city has a total area of 0.2 square miles (0.5 km²), all of it land.

Land Use and Development Trends

The City of Andover's current land uses are residential, commercial, industrial and agricultural. The City of Andover has no subdivisions and has had no land annexations. In addition, the City of Andover has no zoning ordinances. The City of Andover has no lots available for new housing developments and does not anticipate any housing developments in the future.

Technical and Fiscal Resources

The City of Andover is a small city with less than one hundred people living there. The City has no full-time employees. The City has the authority to levy taxes for specific purposes and can incur debt through general obligation bonds.

Existing Plans and Policies

The City of Andover's most recent Hazard Mitigation plan was approved by FEMA in 2009. Currently, the City has not addressed participation in the National Flood Insurance Program.

Other Mitigation Activities

The City of Andover has one outdoor warning siren to alert individuals of the onset of severe winds, thunderstorms, winter storms, and other hazards. The City owns its own snow plow and hires an operator to perform snow removal. Andover also has a Volunteer Fire Department that responds to every fire call in Andover.

Calamus

Description of community

The City of Calamus is a small rural community in southwestern Clinton County, approximately 30 miles west of the city of Clinton. Calamus is located at 41.82667°N 90.75972°W. According to the United States Census Bureau, the city has a total area of 0.5 square miles (1.3 km²), all of it land.

Land Use and Development Trends

The existing land uses are residential, commercial, industrial, agricultural and recreational. The City of Calamus has restrictive residence ordinances and issues building permits. The City has an enterprise zone that consists of 26 acres for future development.

Technical and Fiscal Resources

The City of Calamus is a small city with two full-time and two part-time employees. The City has the authority to levy taxes for specific purposes and can incur debt through general obligation bonds.

Existing Plans and Policies

Currently, the City of Calamus has not addressed participation in the National Flood Insurance Program. There are no flood hazards identified within the City of Calamus.

Other Mitigation Activities

The schools in Clinton County are required to perform tornado drills. In addition, weather-spotter training is offered to the fire department personnel and citizens. The city is served by one all hazards outdoor warning siren. NOAA indoor weather radios have been distributed to the schools, City Hall and the City's departments. The City of Calamus provides snow removal on all municipal roads and streets with their own equipment. The City also has a volunteer fire department.

Camanche

Description of community

Camanche is a city in Clinton County, Iowa, United States on the Mississippi River. The population was 4,215 at the 2000 census. Camanche is located at 41.786470°N 90.259898°W. According to the United States Census Bureau, the city has a total area of 9.4 square miles (24.4 km²), of which, 8.7 square miles (22.6 km²) of it is land and 0.7 square miles (1.8 km²) of it (7.53%) is water.

Land Use and Development Trends

The City of Camanche's land uses are residential, commercial, industrial, and open space agricultural. Most of the commercial businesses are located along Washington Boulevard. Most of the industries are located north of the City and west.

The City has the following subdivisions: Murphy Subdivision located between the Camanche High School and the bypass consists of 200 residences with most of the lots sold and construction completed in 2005; Stearn's subdivision is a 3-phase subdivision, located east of 7th Avenue and south of the bypass, a total of 36 lots when completed; Holstein Subdivision, south of 5th Street, infrastructure only.

Technical and Fiscal Resources

Camanche, population 4,215, is a full service community. The City of Camanche employs 20 full-time employees, including eight police officers and three firefighters. The paid firefighters are supplemented by a volunteer department that staffs both the fire department and municipal ambulance services. The Public Works Director oversees the public works operations, including roads, parks, and water and sewer utilities. Engineering services are contracted with Shive Hattery Engineers. Camanche has reserved funds for equipment replacement and maintains reasonable levels of reserve. The City has the ability to issue general obligation and revenue debt.

Existing Plans and Policies

The City of Camanche is a participant in the National Flood Insurance Program. The City joined the National Flood Insurance Program on December 18, 1994. According to the NFIP, there are nine repetitive loss properties in the City of Camanche.

Other Mitigation Activities

Following the 1997 Flood, the City of Camanche installed sealed manhole covers to prevent infiltration from the storm sewer. The City has adopted floodplain management ordinances. There have been approximately 25 residential properties that have been elevated 1 foot above the 100 year floodplain level in the southeast portion of the City.

Weather spotter training is offered by the National Weather Service and facilitated by the Clinton County Emergency Management on an annual basis. The City is served by several all hazard outdoor warning sirens. Additionally, the City of Camanche has seven generators for electrical backup. The City has two generators located at each of the water wells, one generator at the wastewater treatment plant, three generators at each of its lift stations and one portable generator at City Hall. Funding for generators to be located at the fire and police stations has been approved and will be in place within the next year.

Camanche provides its own snow removal equipment and enforces calendar parking for major snow events.

The City of Camanche has public facilities available for persons suffering from extreme temperatures and has designated the Camanche High School as a shelter.

Charlotte

Description of community

The City of Charlotte is a small rural community located on State Highway 136 in central Clinton County, approximately 25 minutes from Clinton. Charlotte is located at 41.96111°N

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90.46972°W. According to the United States Census Bureau, the city has a total area of 0.6 square miles (1.5 km²), all of it land.

Land Use and Development Trends

The existing land uses in Charlotte are residential, commercial, industrial and agricultural. The City of Charlotte has no current subdivision developments. The City is anticipating some land annexation in the near future.

Technical and Fiscal Resources

The City of Charlotte is a small town with three part-time staff members. The City is able to contract for planners/engineers to manage land development and management issues. A public works director is responsible for oversight of day-to-day maintenance of streets, water and sewer departments. The City contracts certified operators to do testing for water and sewer. The City's funding sources are property taxes and fees for city services. The City has the authority to levy taxes for specific purposes. The City can incur debt through obligation bonds, and special tax bonds and has the authority to regulate spending in special hazard prone areas.

Existing Plans and Policies

The City of Charlotte has been a participant in the National Flood Insurance Program since 1985 and has adopted floodplain ordinances. The previous Pre-Disaster Mitigation Plan dates from June 2008. The City of Charlotte has a Mutual Aid 28E Agreement with all fire departments in Clinton County. The City has a Solid Waste Comprehensive Plan and a 28E Mutual Aid Agreement with Goose Lake to respond to fire calls and provide medical assistance. The City of Charlotte has a Mutual Aid Agreement with the City of Delmar to provide fire assistance when the City receives fire calls. The City supports the ten-mile emergency evacuation plan of the Exelon Nuclear Plant at Cordova, Illinois and the First Responders assist with the evacuation site at Goose Lake. The City has a contract with the Clinton County Sheriff's Office for law enforcement and emergency response.

Other Mitigation Activities

Having received FEMA funds for flood assistance several times, the City of Charlotte has undertaken a number of flood mitigation initiatives. A new bridge was constructed in 2004 to improve water flow. The City also acquired one residential property and removed the property from the flood hazard area through FEMA's flood buyout program. Another property was elevated to DNR specifications. Debris is continually removed from the creek.

The City of Charlotte has one outdoor warning siren that is located near the water tower. NOAA indoor weather radios were distributed through Clinton County Emergency Management Agency to citizens in the community and to the local fire department.

The City provides its own snow removal equipment and warming and cooling stations for extreme temperatures.

Clinton

Description of community

Clinton is a city in and the county seat of Clinton County, Iowa, United States. The population was 26,407 as of 2008. Along with DeWitt, Iowa - which is also located within Clinton County – the city was named in honor of the seventh governor of New York, DeWitt Clinton.

Clinton is on the western shore of the Mississippi River and is the easternmost city in Iowa. The Upper Mississippi River National Wildlife and Fish Refuge go through Clinton along the river.

Located on the widest part of the Mississippi River (1.8 miles/2.9 km), Clinton is less than 3 hours from Chicago, Milwaukee, Madison, Des Moines, Cedar Rapids, and the Quad Cities. US Highway 30, a four-lane highway, shoots out from Clinton's western edge, providing the region with a swift route to the Quad Cities and access to the nation's Interstate Highway System in connecting with I-80.

Clinton is located at 41.84694°N 90.20722°W.

According to the United States Census Bureau, the city has a total area of 38.3 square miles (99.2 km²), of which, 35.6 square miles (92.1 km²) of it is land and 2.8 square miles (7.1 km²) of it (7.18%) is water.

Land Use and Development Trends

Land uses in the City of Clinton are residential, industrial, commercial, recreation, agricultural and undeveloped. The City of Clinton has zoning ordinances and they were last updated in 2001.

Technical and Fiscal Resources

The City of Clinton has more than 200 employees. The City has a Planner on staff, but also contracts for planners/engineers to manage land development and management issues. A public works director is responsible for oversight of day-to-day maintenance of streets and sewer departments. The water for the City is all contracted through a private company. The City contracts certified operators to do testing for sewer. The City's funding sources are property taxes and fees for city services. The City has the authority to levy taxes for specific purposes. The City can incur debt through obligation bonds, and special tax bonds and has the authority to withhold spending in special hazard prone areas.

Existing Plans and Policies

The City of Clinton is a participant in the National Flood Insurance Program. The City joined the NFIP on September 17, 1980 and a Flood Insurance Study for the City of Clinton was completed in June 1978.

Other Mitigation Activities

The City of Clinton has taken the following preventative actions in regard to floods:

1. The City of Clinton constructed a detention area and improved storm water facilities. Additional improvements were made to the storm water facilities in the fall of FY2006.
2. A flood levee was constructed in 1974, opened in 1980 and is inspected annually by the Army Corps of Engineers. During floods, rainwater is pumped out by the City of Clinton and the levee is monitored.
3. The City has a storm water management ordinance in place.
4. The City has elevated some of its structures located in the 100-year floodplain.
5. The City reports all combined storm sewer overflow incidents through new permits.

The City of Clinton has taken the following preventative actions in regard to tornadoes, high winds, thunderstorms, hail storms and severe winter storms:

1. The City has nine outdoor sirens, as well as several additional warning systems outside of the city limits for alerting citizens of hazards.
 2. By June 2005, the City had distributed over 300 NOAA indoor weather radios to trailer courts and residences.
 3. The City provides its own snow removal equipment and stockpiles sand and salt.
 4. Calendar parking is enforced November through March.
 5. The City of Clinton has a snow emergency ordinance in place to clear the arterial roads.
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Delmar

Description of community

The City of Delmar is a small (514 as of 2000 US Census), rural community located in north-central Clinton County in Eastern Iowa. The City is well served by four-lane US Highway 61, running north-south, and by State Highway 136, running east-west. Delmar is approximately 30 miles from Clinton, 30 miles from the Quad Cities, 40 miles from Dubuque, 55 miles from Cedar Rapids, and 70 miles from Iowa City; placing Delmar within an hour commute of five of Iowa's ten largest metropolitan areas. Delmar is located at 42.00167°N 90.60778°W. According to the United States Census Bureau, the city has a total area of 0.8 square miles (2.0 km²), all of it land.

Land Use and Development Trends

The existing land uses are residential, commercial, industrial and agricultural. The City of Delmar has a comprehensive Land Use Plan and has restrictive residence ordinances and issues building permits. The City has had no land annexations recently.

Technical and Fiscal Resources

The City of Delmar is a small town with three part-time staff members. The City is able to contract for planners/engineers to manage land development and management issues. A public works director is responsible for oversight of day-to-day maintenance of streets, water and sewer departments. The City contracts certified operators to do testing for

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water and sewer. The City's funding sources are property taxes and fees for city services. The City has the authority to levy taxes for specific purposes. The City can incur debt through obligation bonds, and special tax bonds and has the authority to withhold spending in special hazard prone areas.

Existing Plans and Policies

Currently, the City of Delmar has not addressed participation in the National Flood Insurance program. There are no flood hazard areas identified with the City of Delmar.

Other Mitigation Activities

The City of Delmar has one outdoor warning siren and it is located on Main Street. The local fire department has four generators to provide backup power and in 2006, the City of Delmar constructed a pump house. The City of Delmar provides its own snow removal on all municipal roads and streets with city-owned equipment.

DeWitt

Description of community

DeWitt is west of Clinton about 18 miles, and north of the Quad Cities (Davenport) about 20 miles. The City is served by railroad, public airport (Clinton and Moline), and lies just east and adjacent to the intersection of US Highways 61 (north-south) and 30 (east-west). The population was 5,049 at the 2000 census. DeWitt is located at 41.82278°N 90.54278°W. According to the United States Census Bureau, the city has a total area of 4.9 square miles (12.6 km²), all of it land.

Land Use and Development Trends

The existing land uses are residential, commercial, industrial and agricultural. The City of DeWitt has a comprehensive Land Use Plan that was last updated in 1997. The plan includes the area within the corporate limits, plus east to 300th Avenue between US highway 30 and old Highway 30, and northwest between Silver Creek and old Highway 61 to intersection of US Highway 61.

The City of DeWitt has zoning ordinances and revised their zoning ordinances in 1995. The City has adopted subdivision and storm water management ordinances. The City follows the Uniform Building Code in its construction practices. The City continues to grow geographically with several annexations in the past five years.

Technical and Fiscal Resources

The City of DeWitt is a small city with a small professional staff that includes 25 full-time employees and approximately 12 permanent part-time employees. The City is able to contract for planners/engineers to manage land development and management issues. A public works director is responsible for day-to-day oversight of maintenance and operations of a Streets Department, Water Utility Department, and a Sanitary Sewer Utility Department. The City employs a full-time building official. The City's funding sources are property taxes and fees for City services and utilities. The City has authority to levy taxes for specific purposes. The City can incur debt through general obligation

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bonds, Tax Increment Revenue Bonds, and Utility Revenue Bonds. The City has the authority to withhold spending in special hazard prone areas.

Existing Plans and Policies

The City of DeWitt is a participant in the National Flood Insurance Program. The previous Hazard Mitigation Plan dates May 2005.

Other Mitigation Activities

The City has taken the following preventative actions for flood control:

1. The City has adopted floodplain ordinances.
2. The City has a Standby Storm Water committee.
3. The City charges a storm water fee that allows the storm water utility board to do a better job of making improvements and cleaning ditches and catch basins.
4. The City has a storm water management ordinance.
5. The engineers review developments related to storm water.
6. The City raised the elevation of the driveway at the Waste Water Treatment Facility.
7. The City logs any rainfall.

The City has taken the following preventative actions for tornadoes, high winds, thunderstorms, hailstorms, and severe winter storms:

1. The City of DeWitt has four outdoor sirens for alerting citizens of all hazards.
 2. The City of DeWitt distributed 100 NOAA indoor weather radios to schools, nursing homes, major employers and citizens in the community.
 3. The City provides snow removal on all municipal roads and streets with its own equipment and maintains stockpiles of sand and salt.
 4. The City enforces a snow emergency ordinance regarding parking on city streets.
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Goose Lake

Description of community

The City of Goose Lake is located in northeastern Clinton County and as of the 2000 US Census, the recorded population was 232. Iowa State Highway 136 and County Road Z34 intersect in the City of Goose Lake. Goose Lake is 30 miles from Maquoketa to the north, and less than 1 hour from the Quad Cities to the south. Goose Lake is located at 41.9675°N 90.38083°W. According to the United States Census Bureau, the city has a total area of 0.3 square miles (0.9 km²), all of it land.

Land Use and Development Trends

The City of Goose Lake does not have a comprehensive land use plan, nor does it have any subdivisions. However, the school was annexed in 1997 and the City has zoning ordinances.

Technical and Fiscal Resources

The City of Goose Lake has five part-time staff members. The City is able to contract for planners/engineers to manage land development and management issues. Cleaning of Clinton County

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streets and snow removal is contracted. A part-time certified person is responsible for oversight of day-to-day operations of the sewer and water departments. The City's funding sources are property taxes and fees for city services. The City has authority to levy taxes for specific purposes. The City can incur debt through obligation bonds and special tax bonds and has the authority to withhold spending in special hazard prone areas.

Existing Plans and Policies

The previous Hazard Mitigation Plan was approved in 2009 and was updated to incorporate into the Multi-Jurisdictional Plan. The City has not addressed participation in the National Flood Insurance Program.

Other Mitigation Activities

The City of Goose Lake has one outdoor warning siren that was installed at the end of 2009. Northeast School District in the City of Goose Lake has been awarded a FEMA grant to partially fund a tornado safe room at the local school.

Grand Mound

Description of community

The City of Grand Mound is a small (population 676 in 2000 US Census), rural community located in East Central Iowa and is approximately 25 miles west of Clinton, 20 miles northwest of the Quad Cities and 24 miles south of Maquoketa. US Highway 30 borders the City's northern-most boundary with easy access to US Highway 61 and connection to Interstate 80. Grand Mound is located at 41.82417°N 90.64694°W. According to the United States Census Bureau, the city has a total area of 1.8 square miles (4.8 km²), all of it land.

Land Use and Development Trends

The City of Grand Mound does not have a Comprehensive Land Use Plan and there have been no subdivisions or annexations. The City of Grand Mound's current land uses are residential, commercial, industrial and agricultural.

Technical and Fiscal Resources

The City of Grand Mound has two full-time and one part-time staff members. The City is able to contract for planners/engineers to manage land development and management issues. Cleaning of streets and snow removal is done by the City. A part-time certified person is responsible for oversight of day-to-day operations of the sewer and water departments. The City's funding sources are property taxes and fees for city services. The City has authority to levy taxes for specific purposes. The City can incur debt through obligation bonds and special tax bonds and has the authority to withhold spending in special hazard prone areas.

Existing Plans and Policies

Grand Mound's previous Hazard Mitigation Plan was written in 2009 and has been reviewed, updated and incorporated into this plan.

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There are no rivers or creeks in the City of Grand Mound and there is not a history of riverine flooding, therefore, the City of Grand Mound has not addressed participation in the National Flood Insurance Program.

Other Mitigation Activities

The City of Grand Mound utilizes the State Building Code and has a building ordinance in governing its construction practices. The City has developed a landscaping ordinance. For example, trees are planted away from power lines. The City also has an outdoor warning siren to alert citizens of all hazards. The City of Grand Mound also continues to maintain and enforce its snow removal policy.

Low Moor

Description of community

The City of Low Moor is a rural community of 240 (2000 US Census) located south of US Highway 30, approximately 10 minutes west of Clinton. Low Moor is located at 41.80139°N 90.35611°W. According to the United States Census Bureau, the city has a total area of 0.5 square miles (1.2 km²), all of it land.

Land Use and Development Trends

The existing land uses are residential, commercial, industrial and agricultural. The City of Low Moor has restrictive residence ordinances and issues building permits. The City of Low Moor has no new or recent subdivision developments.

Technical and Fiscal Resources

The City of Low Moor is a small city with no full time staff members. The City does employ part-time workers in the following positions: water/wastewater facilitator, city treasurer and city clerk. Two additional positions are “on call” as needed for city projects, with no monthly guarantee. The City is able to contract for planners/engineers to manage land development and management issues as well as oversight of construction projects. The community has access to capital improvements project funding, fees for city services, and has the authority to levy taxes for specific purposes. The City can incur debt through general obligation bonds, and special tax bonds and has the authority to withhold spending in special hazard prone areas.

Existing Plans and Policies

Low Moor’s most recent Hazard Mitigation Plan was approved in 2007. Currently, the City of Low Moor has not addressed participation in the National Flood Insurance Program and does not have a history of flooding or flood damage. However, a Flood Hazard Boundary Map has been issued for the City of Low Moor indentifying special flood hazard areas, effective date, March 19, 1976.

Other Mitigation Activities

The City of Low Moor has one outdoor warning siren for all hazards. The City does own and maintain one generator to provide backup electricity in the event of a power outage. The City of Low Moor also provides snow removal on all municipal roads and streets with city-owned equipment.

Lost Nation

Description of Community

The City of Lost Nation is a small rural community located in northwest Clinton County supporting a population of 497. Lost Nation is less than 10 miles west of US Highway 61, about 10 miles north of US Highway 30 and approximately 40 miles north, by way of State Highway 136 and US Highway 61, from Interstate 80. Lost Nation is located at 441.96417°N 90.8175°W. According to the United States Census Bureau, the city has a total area of 0.6 square miles (1.7 km²), all of it land.

Land Use and Development Trends

The existing land uses are residential, commercial, industrial, and agricultural. The City of Lost Nation does not have a comprehensive land use plan and there are no development trends.

Technical and Fiscal Resources

The City of Lost Nation has one full-time and two part-time staff members. The City is able to contract for planners/engineers to manage land development and management issues. Cleaning of streets and snow removal is contracted. A part-time certified person is responsible for oversight of day-to-day operations of the sewer and water departments. The City's funding sources are property taxes and fees for city services. The City has authority to levy taxes for specific purposes. The City can incur debt through obligation bonds and special tax bonds and has the authority to withhold spending in special hazard prone areas.

Existing Plans and Policies

The previous Hazard Mitigation Plan was approved in 2006 and currently, the City of Lost Nation has not addressed participation in the National Flood Insurance Program. There are no flood hazard areas identified within the City of Lost Nation, therefore no flood hazard boundary maps have been issued.

Other Mitigation Activities

The City of Lost Nation has one outdoor warning siren for alerting citizens of all hazards. The City of Lost Nation distributed 50 NOAA indoor weather radios to businesses, fire department personnel, schools and citizens of the community.

Toronto

Description of community

The City of Toronto is a small rural community located in west central Clinton County on the Wapsipinicon River supporting a population of 134. Toronto is approximately 5 miles north of US Highway 30 and 16 miles west of US Highway 61. The City is approximately 25 miles north of Interstate 80. Toronto is located at 41.90333°N 90.86306°W. According to the United States Census Bureau, the city has a total area of 0.2 square miles (0.5 km²), all of it land.

Land Use and Development Trends

The City of Toronto does not have a comprehensive land use plan and the existing land uses are residential, commercial and agricultural. The City of Toronto has restrictive residence ordinances and issues building permits. The City has no subdivisions or recent land annexations.

Technical and Fiscal Resources

The City of Toronto has two part-time staff members. The City is able to contract for planners/engineers to manage land development and management issues. Cleaning of streets and snow removal is contracted. A part-time certified person is responsible for oversight of day-to-day operations of the sewer and water departments. The City's funding sources are property taxes and fees for city services. The City has authority to levy taxes for specific purposes. The City can incur debt through obligation bonds and special tax bonds and has the authority to withhold spending in special hazard prone areas.

Existing Plans and Policies

The previous Hazard Mitigation Plan dates from May 2008 and the City of Toronto has not yet addressed participation in the National Flood Insurance Program. There are no flood hazard areas identified within the City of Toronto.

Other Mitigation Activities

The City of Toronto has one outdoor warning siren. The City provides snow removal on all municipal roads and street with city-owned equipment. In addition, the City has a 28E Agreement with Clinton County to sand the streets. The fire station in Toronto serves as a warming and cooling station.

Welton

Description of community

The City of Welton is a small rural community located in central Clinton County with a population of 159 and is approximately 7 miles north of DeWitt and 13 miles south of Maquoketa. Four-lane US Highway 61 runs north-south along the east side of Welton. Welton is located at 41.91222°N 90.60111°W. According to the United States Census Bureau, the city has a total area of 0.1 square miles (0.3 km²), all land.

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Land Use and Development Trends

The existing land uses are residential, commercial, industrial, and agricultural. The City of Welton does not have a comprehensive land use plan. It does, however, have restrictive residence ordinances and issues building permits. In the past ten years, the City of Welton has annexed six acres of land for a housing development south of the Truck Stop on Highway 61 and 60 acres of land east and south of town.

Technical and Fiscal Resources

Welton City is a small city with a limited number of part-time staff members. The city is able to contract for planners/engineers to manage land development and management issues. A public works person and council members are responsible for oversight of construction practices. Welton City has four part-time employees on staff and a six member council consisting of the Mayor and five council members. The community has access to capital improvements project funding, fees for city services, and has the authority to levy taxes for specific purposes. The city can incur debt through general obligation bonds, and special tax bonds and has the authority to withhold spending in special hazard prone areas.

Existing Plans and Policies

The previous Hazard Mitigation Plan was approved in mid-2006. The City of Welton is a participant in the National Flood Insurance Program. The Community Number of the Flood Insurance Rate Map is 190080B and the effective date August 5, 1985.

Other Mitigation Activities

The City of Welton has one outdoor warning siren and currently has one generator. The City contracts out its snow removal on all municipal roads and streets.

Wheatland

Description of community

The City of Wheatland is a small rural community located on US Highway 30 in southwest Clinton County with a population of 772 (2000 US Census). Wheatland is approximately 35 miles west of Clinton and about 45 miles east of Cedar Rapids. Wheatland was legally incorporated on July 13, 1869 and is located at 41.83278°N 90.83944°W. According to the United States Census Bureau, the city has a total area of 0.6 square miles (1.5 km²), all of it land.

Land Use and Development Trends

The City of Wheatland does not have a comprehensive land use plan and there have been no recent annexations or subdivisions.

Technical and Fiscal Resources

The City of Wheatland is a small town with three full-time staff members. The City is able to contract for planners/engineers to manage land development and management issues. A public works director is responsible for oversight of day-to-day maintenance of Clinton County

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streets, water and sewer departments. The City’s funding sources are property taxes and fees for City services. The City has the authority to levy taxes for specific purposes. The City can incur debt through general obligation bonds, and special tax bonds and has the authority to withhold spending in special hazard prone areas.

Existing Plans and Policies

The previous Hazard Mitigation Plan was approved in February 2002. The City of Wheatland became a participant in the National Flood Insurance Program in May 2010.

Other Mitigation Activities

The City of Wheatland has one outdoor warning siren to alert citizens of all hazards. And the City provides its own snow removal equipment for removing snow from their streets.

Table 2.2 summarizes existing mitigation-related plans and policies in Clinton County and participating incorporated cities:

Table 2.2 Summary of Existing Mitigation-Related Plans and Policies in Clinton County

Capability	Clinton Co.
Master/Comprehensive Plan	No
Emergency Operations Plan	20% of plan is updated on an annual rotating basis.
Capital Improvements Plan	None, other than Secondary Roads Plan.
Building Code	No
Building Code Year	No
Fire Department ISO Rating	No
Storm Water Management Ordinance	No
Floodplain Management Ordinance	Yes, Updated in January 2003
Zoning Ordinance	Yes, 1999
Subdivision Ordinance	Yes, 1999
Erosion Management Ordinance	No
National Flood Insurance Program Participant	Yes
Flood Insurance Rate Map Delineation Date	1990
Elevations Certificates Maintained	Yes

Clinton County School Districts

Description of community

There are six Unified School Districts that serve Clinton County. They include Cal-Wheat, Camanche, Central Clinton, Clinton, Delwood, and Northeast School Districts. All chose to participate in this multi-jurisdictional hazard mitigation plan and provided additional data. None of the school districts identified any hazards unique to their

campuses and agreed that their rankings are reflected in the County assessment. None of the School Districts' buildings are located in the floodplain. Information on capabilities with the school districts is provided below in Table 2.3:

Table 2.3 School District Capabilities

District	Regulatory Tools	Public Safety Officer on Site	Financial Resources	Current Education & Mitigation Activities
Cal-Wheat	Crisis Plan	No	PPEL, Sales Tax	Routine fire & tornado drills
Camanche	Crisis Plan	No	PPEL, Sales Tax	Routine fire & tornado drills
Central DeWitt	Emergency Operations Plan, full-time building official, Coordinated Operations plan with the City, Designated Safety Coordinator in the district	School Resource Officer provided by the DeWitt Police Department	Capital Improvements plan, PPEL, Sales Tax	Routine fire, tornado & intruder drills, Evacuation plan for special needs students in all buildings, District Communicable Disease Plan, District Nursing Coordinator, Routine drug dog searches, Emergency Evacuation drills, Emergency phone broadcast (School Messenger software)
Clinton	Emergency Operations Plan, Coordinated Operations plan with the City, District Weapons Policy, District Communicable Disease Plan, Yearly Drug Searches	3 in district	PPEL, Sales Tax, District Capital Improvements Plan	Evacuation Plan for special needs students in all buildings, District Nursing Coordinator, nurses in each building, Routine fire, tornado and intruder drills, Shout Point! Emergency phone broadcast, Canine Drug Searches at MS/HS
Delwood	Emergency Operations Plan, full-time building official, Coordinated Operations Plan with Delmar Fire Dept.	No	PPEL, Sales Tax	Routine fire, tornado & intruder drills, District Nursing Coordinator, Iowa School Alerts for Emergency broadcast.
Northeast	Crisis Plan, and because of current construction of a new tornado safe room, is fine tuning an operations	No	PPEL, Sales Tax, Capital Improvement Plan	Routine fire and safety drills, Evacuation Plan for Special Needs students, Emergency

District	Regulatory Tools	Public Safety Officer on Site	Financial Resources	Current Education & Mitigation Activities
	and maintenance plan for its use during emergencies.			Evacuation Drills in connections with safe room, Communicable Disease Plan, a District full-time nurse, Emergency phone broadcast

3 Risk Assessment

44 CFR Requirement §201.6 (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.

Risk to natural hazards is a combination of hazard, vulnerability, and capability. This chapter examines hazards and vulnerability. Jurisdictional annexes to the plan discuss the capabilities for each of the participating jurisdictions as well as the hazards and vulnerability particular to their area.

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 for Clinton County, including loss of life, personal injury, property damage, and economic loss, from a hazard event. The risk assessment process allows communities in Clinton County to better understand their potential risk to natural hazards and provides a framework for developing and prioritizing mitigation actions to reduce risk from future hazard events.

The risk assessment for Clinton County and its jurisdictions followed the methodology described in the FEMA publication 386-2, *Understanding Your Risks: Identifying Hazards and Estimating Losses* (2002), which included a four-step process:

1. Identifying Hazards
2. Profile Hazard Events
3. Inventory Assets
4. Estimate Losses

This chapter is divided into three parts: hazard identification, hazard profiles, and vulnerability assessment:

- **Section 3.1 Hazard Identification** identifies the hazards that threaten the planning area and describes why some hazards have been omitted from further consideration.
- **Section 3.2 Hazard Profiles** discusses the threat to the planning area and describes previous occurrences of hazard events and the probability of future occurrence.
- **Section 3.3 Vulnerability Assessment** assesses the County's total exposure to natural hazards, considering critical facilities and other community assets at risk, and assessing growth and development trends. Hazards that vary geographically

across the planning area are addressed in greater detail. This section includes steps 3 and 4 from above.

3.1 Hazard Identification

Requirement §201.6(c)(i): [The risk assessment shall include a] description of the type...of all natural hazards that can affect the jurisdiction.

3.1.1. Methodology

The Hazard Mitigation Planning Team (HMPT) reviewed hazard specific data from a variety of sources, and discussed the impacts of each of the hazards required by FEMA for consideration, which are listed alphabetically below:

1. Dam Failure
2. Drought
3. Earthquake
4. Expansive Soil
5. Extreme Heat
6. Flash Flood
7. Grass or Wild Land Fire
8. Hailstorm
9. Landslide
10. Levee Failure
11. River Flood
12. Severe Winter Storm
13. Sinkhole
14. Thunderstorm & Lightning
15. Tornado
16. Windstorm

Data on the past impacts and future probability of these hazards in the Clinton County planning area was collected from the following sources:

- State of Iowa Hazard Mitigation Plan (2007)
- Information on past extreme weather and climate events from the National Oceanic and Atmospheric Administration's (NOAA) National Climatic Data Center (NCDC)
- Federal Disaster Declarations from the Federal Emergency Management Agency (FEMA)
- USDA Farm Service Agency Disaster Declarations
- Various articles and publications available on the internet (sources are indicated where data is cited) and information obtained from HMPT members and their constituents.

The HMPT eliminated some hazards from further profiling because they do not occur in the planning area or their impacts were not considered significant in relation to other hazards. Table 3.1A lists these hazards and provides a brief explanation for their elimination.

Table 3.1A Hazards Not Profiled in the Plan

Hazard	Reason Eliminated
Earthquake	No occurrences in Clinton County and no mitigation activities planned.
Expansive Soils	Area not conducive to hazard.

The HMPT identified 13 hazards that significantly affect the planning area and organized these hazards to be consistent with the Iowa Hazard Mitigation Plan (2007). Eight of the 14 hazards are considered to be, by the Clinton County HMPT, county-wide concerns and were rated as “Has Occurred” or “Could Occur”. They are:

- Drought
- Extreme Heat
- Grass Fires
- Hailstorm
- Severe Winter Storms
- Thunderstorm & Lightning
- Tornado
- Windstorm

These hazards are profiled in further detail in the next section. All other man-made hazards are addressed in the Clinton County Emergency Operations Plan and appropriate annexes. Table 3.1B lists the six hazards that are addressed by each jurisdiction in the plan and indicate the hazard identified for the unincorporated county as well as each incorporated city as having occurred or could occur. This analysis method ensures that all of the land area in the planning area is considered. For the school districts, colleges, and other special districts, their boundaries, assets, and facilities overlap city and county boundaries. To determine the hazards that impact specific assets within these other jurisdictional boundaries, refer to the county or city in which the assets are located.

Table 3.1B Additional Hazards Addressed in the Clinton County Hazard Mitigation Plan Specific to Jurisdiction

Hazard	Clinton County Unincorporated	Andover	Camanche	Calamus	Charlotte	Clinton	Delmar	DeWitt	Goose Lake	Grand Mound	Lost Nation	Low Moor	Toronto	Welton	Wheatland
Dam Failure						X		X							
Flash Flood	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Landslide	X					X									
Levee Failure	X					X									
River Flood	X		X			X		X				X	X	X	X
Sinkholes															X

3.1.2 Disaster Declaration History

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

The federal government may issue a disaster declaration through FEMA, the US Department of Agriculture (USDA), and/or the Small Business Administration (SBA). FEMA also issues emergency declarations, which are more limited in scope and without the long-term federal recovery programs of major disaster declarations. The quantity and types of damage are the determining factors.

A USDA disaster declaration certifies that the affected county has suffered at least a 30 percent loss in one or more crop or livestock areas and provides affected producers with access to low-interest loans and other programs to help mitigate the impact of the disaster. In accordance with the Consolidate Farm and Rural Development Act, all counties neighboring those receiving disaster declarations are named as contiguous disaster counties and, as such, are eligible for the same assistance.

Table 3.1.2 lists federal disaster and USDA declarations received by Clinton County in the past 12 years. Many of the disaster events were regional or statewide; therefore, reported costs are not accurate reflections of losses to Clinton County and are not included.

Table 3.1.2 Disaster Declaration History in Clinton County, 1998 – Present

Declaration Number	Declaration Date	Description
Major Disaster Declarations		
1763	05/27/2008	Severe Storms, Tornadoes, Flooding
1737	01/04/2008	Severe Winter Storm
1688	03/14/2007	Severe Winter Storm
1518	05/25/2004	Severe Storms, Tornadoes, Flooding
1420	06/19/2002	Severe Storms and Flooding
1367	05/02/2001	Severe Storms and Flooding
1277	05/21/1999	Severe Storms, Flooding, Tornadoes
1230	07/02/1998	Severe Weather, Tornadoes and Flooding
Emergency Declarations		
3239	09/10/2005	Hurricane Katrina Evacuation
USDA Declarations for Clinton County		
S2902	04/01/2010	Excessive Rainfall and Flooding
S2898	05/15/2009	Severe Storms, Hail and Flooding

Sources: Federal Emergency Management Agency, www.fema.gov; United State Department of Agriculture, www.rurdev.usda.gov/rd/disasters/; and Public Entity Risk Institute, www.peripresdecusa.org

3.2 Hazard Profiles

Requirement §201.6(c)(2)(i): [the risk assessment shall include a] description of the...location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

3.2.1 Methodology

Each hazard identified in Section 3.1 Hazard Identification is profiled individually in this section. The level of information presented in the profiles varies by hazard based on the information available. With each update of this plan, new information will be incorporated to provide for better evaluation and prioritization of the hazards that affect Clinton County.

The sources used to collect information for these profiles include those mentioned in Section 3.1.1 as well as those cited individually in each hazard section. This plan includes detailed profiles for each of the identified hazards which are categorized into sections, as shown below.

Hazard Description

A Hazard Description is a general description of the hazard and the type of impact it may have on a community. It includes a ranking to indicate typical warning times and duration of hazard events. Definitions for these rankings are included in Table 3.2A

Geographic Location

This section offers a description of the geographic extent of location of the hazard in the planning area. Where available, maps are utilized to indicate the areas of the planning area that are vulnerable to the subject hazard.

Historical Occurrences

Information on historic incidents and their impacts based upon the sources described in Section 3.1 Hazard identification, and the information provided by the HMPT.

Probability of Future Occurrence

The frequency of past events used to gauge the likelihood of future occurrences. Where possible, the probability or chance of occurrence was calculated based on historical data. Probability was determined by dividing the number of events observed by the number of years and multiplying by 100. This gives the percent chance of the event happening in any given year. However, due to general inconsistencies in local event reporting to the National Climatic Data Center, the final probability was determined by the HMPT based on local data and their expertise and familiarity with the planning area.

Vulnerability

Vulnerability measures the percentage of people that will be adversely affected by the occurrence of the hazard.

Maximum Threat

Maximum threat rates the potential spatial extent of the impacted area. Rankings were based on historic data and HMPT expertise.

Severity of Impact

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

Speed of Onset

Speed of Onset is calculated by the rating of the amount of warning time that is available before the hazard occurs.

Hazard Profile Worksheet Total

This final category is the sum of the previous six and helped the HMPT to determine and overall ranking of hazards of concern in the county. The highest total equates to the hazard of most concern, while the lowest total would be applied to the hazard of the least concern for Clinton County.

Table 3.2A Hazard Analysis/Risk Assessment Worksheet

Historical Occurrence: the number of times that a hazard has occurred in the past 25 years		
Score	Description	
1	Less than 4 occurrences in the past 25 years	
2	4 to 7 occurrences in the past 25 years	
3	8-12 occurrences in the past 25 years	
4	More than 12 occurrences in the past 25 years	

Probability: reflects the likelihood of the hazard's occurring again in the future, sometimes without regard to the hazard's historical occurrence		
Score	Description	
1	Unlikely	Less than 1% probability in the next 100 years
2	Possible	Between 1% and 10% probability in the next year, or at least one chance in the next 100 years
3	Likely	Between 10% and 100% probability in the next year, or at least one chance in the next 10 years
4	Highly Likely	Nearly 100% chance in the next year

Vulnerability: measure of the percentage of people that will be adversely affected by the occurrence of the hazard		
Score	Description	
1	Negligible	Less than 10% of the total population of the jurisdiction No risk to response personnel, or no response needed
2	Limited	10% to 25% of the total population of the jurisdiction Minimal risk to response personnel
3	Critical	25% to 50% of the total population of the jurisdiction Moderate risk to response personnel
4	Catastrophic	More than 50% of the total population of the jurisdiction High risk to response personnel

Maximum Threat: the potential spatial extent of the impacted area		
Score	Description	
1	Negligible	Less than 10% of the jurisdiction
2	Limited	10% to 25% of the jurisdiction
3	Critical	25% to 50% of the jurisdiction
4	Catastrophic	More than 50% of the jurisdiction

Severity of Impact: assessment of severity in terms of injuries and fatalities, personal property, and infrastructure.		
Score	Description	
1	Negligible	<ul style="list-style-type: none"> • Few if any injuries • Minor quality of life lost with little or no property damage • Brief interruption of essential facilities for less than 4 hours • No environmental impact • No impact to reputation of the jurisdiction
2	Limited	<ul style="list-style-type: none"> • Minor injuries and illness • Minor property damage not threatening structural stability • Shutdown of essential facilities and services for 4 to 24 hours • Minor short-term environmental impact • Very limited impact to reputation of the jurisdiction
3	Critical	<ul style="list-style-type: none"> • Serious injury and illness • Major property damage which threatens structural stability • Shutdown of essential facilities and services for 24-72 hours • Minor long-term environmental impact • Moderate impact to reputation of the jurisdiction
4	Catastrophic	<ul style="list-style-type: none"> • <u>Multiple deaths</u> • Property destroyed or damaged beyond repair • Complete shutdown of essential facilities for 3 days or more • Major long-term environmental impact • Severe impacts to the reputation of the jurisdiction

Speed of Onset: rating of the potential amount of warning time that is available before the hazard occurs	
Score	Description
1	More than 24 hours warning time
2	12 to 24 hours warning time
3	6 to 12 hours warning time
4	Minimal or no warning

Table 3.2B summarizes the results of the completed Hazard Risk Assessment Worksheet for those hazards discussed as county-wide threats.

Table 3.2B County-wide Hazard Profile Summary for Clinton County

Hazard	Historical Occurrence	Probability	Vulnerability	Maximum Geographic Extent	Severity	Speed of Onset	Total	Ranking
Drought	1	1	1	4	2	1	10	7
Extreme Heat	4	3	1	4	2	1	15	5
Grass Fires	1	1	1	1	1	4	9	8
Hailstorm	1	2	2	2	2	3	12	6
Severe Winter Storm	4	4	3	4	3	2	20	1
Thunderstorm & Lightning	4	4	2	4	2	2	18	4
Tornado	4	3	3	1	4	4	19	2
Windstorm	4	3	2	4	2	4	19	3

The scores were all determined by the Clinton County Planning Team.

Table 3.2C below illustrates the resulting scores for each of the eight hazards chosen by the Planning Team.

Table 3.2C: Hazard Analysis Risk Assessment Results:

Rank	Hazard
1	Severe Winter Storm
2	Tornado
3	Windstorm
4	Thunderstorm & Lightning
5	Extreme Heat
6	Hailstorm
7	Drought
8	Grass or Wild Land Fires

In the table above, tornado and windstorm had the same score. When this occurred, the Planning Team consulted NCDC data and local memories, and decided which hazard should be placed higher in priority. Once each of the eight identified hazards had been assessed, scored and ranked, the next step for the Clinton County Planning Team was to prioritize the eight hazards into one of three categories to provide guidance in the establishment of goals, objectives, timetables and mitigation alternatives.

Table 3.2D: Hazard Priority Lists for Common Hazards

Priority Group 1	Priority Group 2	Priority Group 3
Severe Winter Storm		Hailstorm
Tornado		Grass or Wild Land Fires
Windstorm		Drought
Thunderstorm & Lightning		
Extreme Heat		

The Priority Group 1 Hazards are candidates for immediate focus in the emergency plan because of their high risk. Priority Group 2 hazards are those that have a known risk, but their focus in the plan will have mitigation activities in the next 1-3 years. Those noted in Priority Group 3 have an acceptable level of risk and will not be addressed further. No action items were formulated to address Group 3 hazards.

Hazard Priority List for Community Specific Hazards

Each participating jurisdiction independently ranked the six hazards that are considered to vary from city to city. The six hazards are: dam failure, flash flood, landslide, levee failure, river flood and sinkholes. In Table 3.2E below, the six hazards are identified as having occurred or having the potential to occur, along with their risk analysis score on a scale of 6 - 24, or with a UNL for unlikely to occur. Some cities, such as Andover, found its risk is only to county-wide hazards and not to the six hazards considered to be site-specific. The hazards were ranked as either “unlikely to occur” (UNL) or given numerical scores using the Hazard Risk Analysis Ranking system.

Table 3.2E Community-Specific Hazard Rankings

Hazard	Dam Failure	Flash Flood	Landslide	Levee Failure	River Flood	Sinkholes
City						
Andover	UNL	UNL	UNL	UNL	UNL	UNL
Calamus	UNL	13	UNL	UNL	10	UNL
Camanche	UNL	14	UNL	UNL	13	UNL
Charlotte	UNL	17	UNL	UNL	17	UNL
Clinton	12	13	10	19	17	UNL
Delmar	UNL	17	UNL	UNL	UNL	UNL
DeWitt	12	17	UNL	UNL	13	UNL
Goose Lake	UNL	10	UNL	UNL	UNL	UNL
Grand Mound	UNL	14	UNL	UNL	UNL	UNL
Low Moor	UNL	10	UNL	UNL	7	UNL
Lost Nation	UNL	16	UNL	UNL	UNL	UNL
Toronto	UNL	12	UNL	UNL	14	UNL
Welton	UNL	16	UNL	UNL	16	UNL
Wheatland	UNL	15	UNL	9	16	9

Many of the mitigation goals will be focused on the county-wide hazard concerns as well as flooding, both flash and river. While dam failure, landslide, levee failure affected only two communities each and sinkholes only one community, they are still considered to be of concern to the mitigation process and will be included in the goal process.

From this point forward, the Clinton County Multi-Jurisdictional Hazard Mitigation Plan will only discuss those hazards identified in the Priority 1 Category of county-wide hazards (Severe Winter Storms, Tornado, Windstorm, Thunderstorm and Lightning, and Extreme Heat) and the hazards that were identified as specific to a city (Dam and Levee Failure, Flash and River Flood) The members of the HMPT agreed that Landslide, and Sinkholes were a Priority Group 3 and will not be addressed further.

3.2.2 Dam and Levee Failure

Description

The failure of dams or levees could result in injuries, loss of life, or damage to property, the environment and the economy. While levees are built solely for flood protection, dams often serve multiple purposes, one of which may be flood control. Severe flooding and other storms can increase the potential that dams and levees will be damaged and fail as a result of the physical force of the flood waters or overtopping.

Dams and levees are usually engineered to withstand a flood with a computed risk of occurrence. If a larger flood occurs, then that structure will likely be overtopped. If during the overtopping, the dam or levee fails or is washed out, the water behind is released as a flash flood and with levee failure, the area of residual risk may be inundated. Failed dams or levees can create floods that are catastrophic to life and property, in part because of the tremendous energy of the released water.

- **High Hazard Dam:** (also known as a Class C dam) a dam located in an area where failure could result in any of the following: extensive loss of life, damage to more than one home, damage to industrial or commercial facilities, interruption of a public utility serving a large number of customers, damage to traffic on high-volume roads that meet the requirements for hazard class C dams or a high-volume railroad line, inundation of a frequently used recreation facility serving a relatively large number of persons, or two or more individual hazards described for significant hazard dams (hazard class B dams).
- **Significant Hazard Dam:** (also known as a Class B dam) a dam located in an area where failure could endanger a few lives, damage an isolated home, damage traffic on moderate volume roads that meet certain requirements, damage low-volume railroad tracks, interrupt the use or service of a utility serving a small number of customers, or inundate recreation facilities, including campground areas intermittently used for sleeping and serving a relatively small number of persons.

- Low Hazard Dam: (also known as a Class A dam) a dam located in an area where failure could damage only farm or other uninhabited buildings, agricultural or undeveloped land including hiking trails, or traffic on low-volume roads that meet the requirements for low hazard dams.

Dam failures can result from any one or a combination of the following causes:

- Prolonged periods of rainfall and flooding, which causes most failures;
- Inadequate spillway capacity, resulting in excess overtopping of flows;
- Internal erosion caused by embankment or foundation leakage or piping;
- Improper maintenance, including failure to remove trees, repair internal seepage problems, replace lost material from the cross section of the dam and abutments;
- Improper design, including the use of improper construction materials and construction practices;
- Negligent operation, including failure to remove or open gates or valves during high flow periods;
- Failure of upstream dams on the same waterway;
- Landslides into reservoirs, which cause surges that result in overtopping;
- High winds, which can cause significant wave action and result in substantial erosion; and
- Earthquakes, which typically cause longitudinal cracks at the tops of embankments and weaken entire structures.

In general, warning time depends on the causal factors. Dam failure can occur in as little as a few minutes, or more slowly over the course of many months. In the event of a catastrophic failure of a large dam, evacuation time for locations directly downstream would be extremely brief. Floodplain characteristics largely determine the available warning time for locations further downstream. Duration of high water conditions that result from dam failure depends on the capacity and stage of the reservoir at time of breach as well as the severity of the breach. Warning time and duration of levee failure is generally shorter than dam failure.

Geographic Location

Lock and Dam No. 13 is located just north of the City of Clinton, while the levee is on the eastern edge of the City. Approximately six Retention Pond dams are located in the City of Clinton and others at various locations throughout Clinton County. Numerous farm levees and drainage levees are located in the unincorporated areas of the County. See the Map of Bridges and Dams in Clinton County on page 50 for locations.

Dams

Only the Cities of Clinton and DeWitt identified dam failure as a concern, albeit remote. Mississippi River Lock and Dam No. 13 is a lock and dam located on the Upper Mississippi River above Fulton, Illinois and Clinton, Iowa. This facility offers visitors a

view of the barges and boats locking through on the widest pool in the Upper Mississippi River.

The movable portion of the dam is 1,066 feet (324.9 m) long and consists of ten tainter gates and three roller gates. The non-movable portion of the dam continues toward the Iowa shore with a 200 feet (61.0 m) storage yard, a 728 feet (221.9 m) non-submersible dike, a 1,650 feet (502.9 m) submersible dike, and a 1,315 feet (400.8 m) non-submersible dike with two 90 feet (27.4 m) transitional sections between the submersible and non-submersible sections. There is also an 8,940 feet (2,724.9 m) non-submersible dike on the Illinois side east of the locks. The main lock is 110 feet (33.5 m) wide by 600 feet (182.9 m) long and like most other sites in the project; it has a smaller, unfinished, auxiliary lock. In 2004, the facility was listed in the National Register of Historic Places as Lock and Dam No. 13 Historic District, #04000173 covering 2,542 acres (10.3 km²), 1 building, 6 structures, and 4 objects.

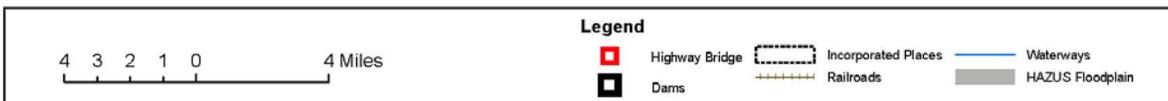
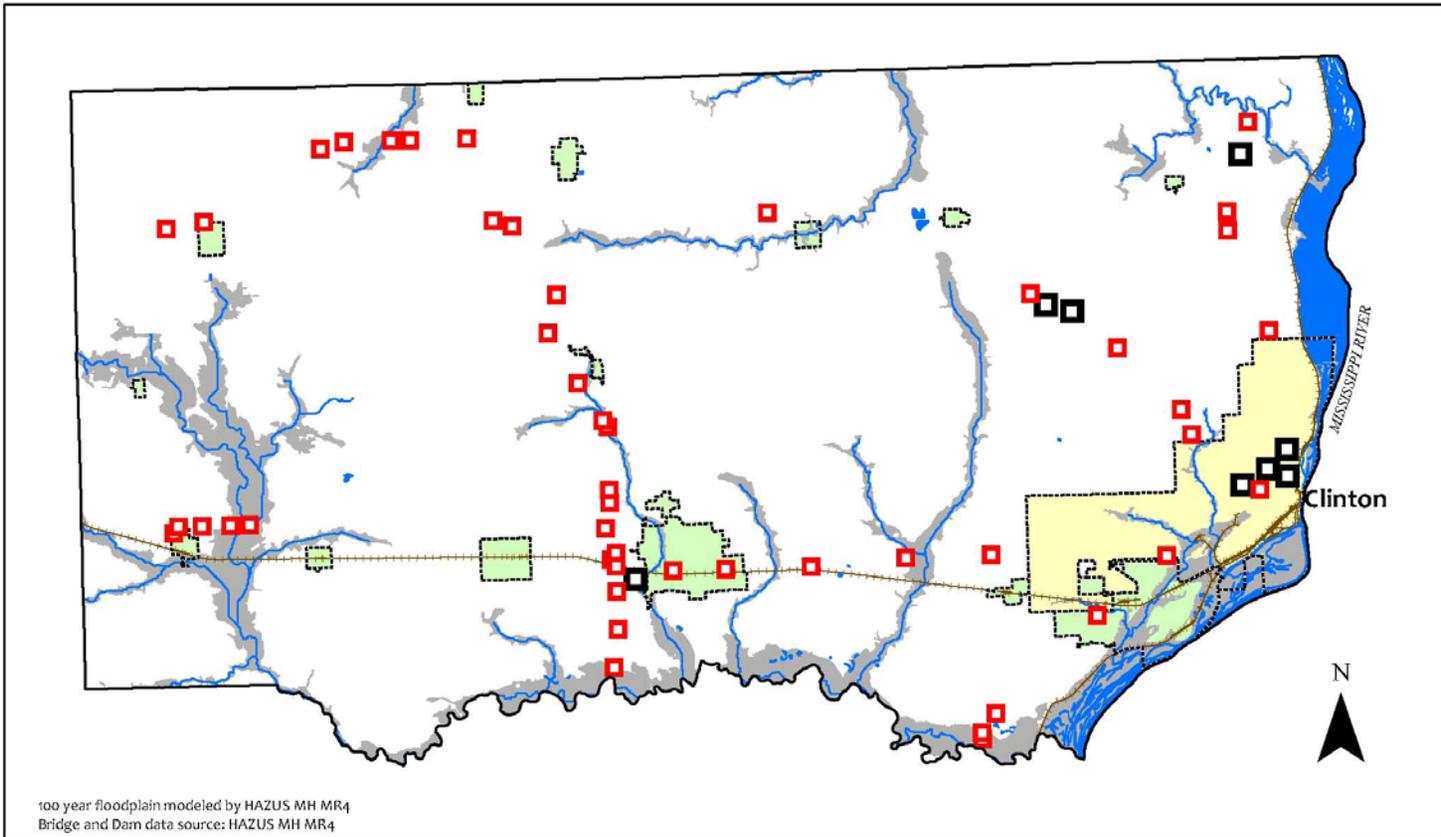
This lock and dam represent the man-made exit from the Driftless Area, where shipping has to travel a few feet above bedrock over the 9 foot shipping channel. It's about 522 feet above sea level.

According to HMPT members from the City of Clinton, there is little concern over the failure of Lock and Dam 13, because of the levee that was built along the river in the 1980s. As long as the City is able to close the gate-wells at 9th Avenue and the Boat Ramp, little damage would occur to the City due to Lock & Dam 13 failing. However, all structures east of Bluff Boulevard are considered a Zone of Residual Risk and were in the flood zone until the levee was implemented in the 1980s.

There is also little concern over failure of "Internal Dams", also known as Retention Ponds, however, should those located in the City of Clinton near heavily populated neighborhoods fail, significant damage could occur. Internal dams are inspected annually to ensure that there is no debris (such as beaver dams) clogging the drainage paths, but no quantitative data exists on structural damage due to internal dam failure in the City of Clinton.

Representatives from the City of DeWitt noted that they are in the process of building an earthen dam in the next couple of years. The dam will be part of a storm water detention plant to better control flash flooding in the city. The construction of the earthen dam is a mitigation activity against flash flooding.

Clinton County Dams and Bridges Inventory



Levees

A levee, dike, embankment, flood bank or stop bank is a natural or artificial slope or wall to regulate water levels. It is usually earthen and often parallel to the course of a river or the coast. The main purpose of an artificial levee is to prevent flooding of the adjoining countryside; however, they also confine the flow of the river, resulting in higher and faster water flow. Levees can be mainly found along the sea, where dunes are not strong enough, along rivers for protection against high-floods, or along lakes.

In the City of Clinton, there are levee and floodwalls giving protection against a Mississippi River flood that has a 0.5 percent probability of occurring in any given year. Such a flood will occur once in 200 years on the average, but could occur in any year. Included are ponding areas for temporary storage of rainfall runoff, gravity outlets for discharge into the river at low stages, and pumping plants for use when gravity drainage is not possible. Gatewells are provided on drains and sewers that pass through the levees and walls.

Planning and design for the City of Clinton project was done by the Rock Island District of the Corps of Engineers. Planning funds were made available in FY 1970 and the General Design Memorandum plan was approved in July 1973. Construction began in June 1974, making the levee and floodwalls, at this time, 36+ years old.

Dam and Levee Failure were ranked by the City of Clinton as “Could Occur”. Neither has ever happened in Clinton County, and the probability of either happening was ranked low, but the effect of a levee failure could be catastrophic. The HMPT estimated that up to 10,000 people could be affected directly and approximately 30,000 indirectly by a levee failure in Clinton.

Numerous earthen levee failures have occurred in Clinton County, but only affected farmland in the unincorporated areas.

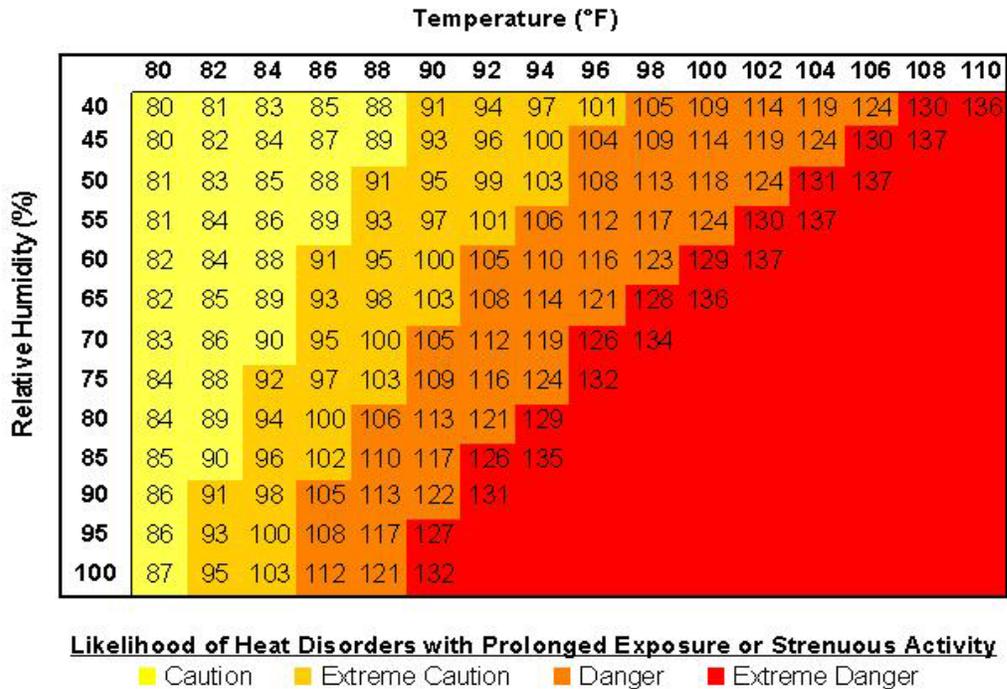
3.2.3 Extreme Heat

Extreme heat is classified by temperatures (including heat index) in excess of 100° F or 3 successive days of higher than 90° F. A heat advisory is issued when temperatures reach 105° F and a warning is issued at 115° F. 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°. Extreme heat can impose stress on humans and animals.

Heatstroke, sunstroke, cramps, exhaustion, and fatigue are possible with prolonged exposure and/or physical activity due to the body’s inability to dissipate the heat. Extreme heat can also result in distortion and failure of structures and surfaces such as streets and buildings.

Extreme heat can be considered a county-wide concern, as NCDC cites one recorded event for all of Iowa, plus an additional two events in Clinton County between January 1, 1950 and February 28, 2009. The all-Iowa event Heat Wave event on July 12, 1995 claimed \$3.8 million in property damages. All structures are vulnerable to extreme heat. Furthermore, it is noted that there are NCDC data limitations regarding extreme heat events. NCDC data does not match up with the Planning Team’s recollection of extreme heat events and other than NCDC, there are no tools to estimate structural damages due to extreme heat events.

Figure 3.2C NOAA’S NATIONAL WEATHER SERVICE HEAT INDEX



3.2.4 Flash Flood & River Flood

Description

Floods are among the most frequent and costly natural disasters in terms of human hardship and economic loss. Certainly, Eastern Iowa has experienced numerous flood events and loss of millions of dollars in property and crop damage over the past 25 years.

There are several different types of potential flood events in Clinton County including riverine, flash flooding and urban storm water. Flash flooding can best be characterized as an event occurring with little or no warning time where water levels rise at an extremely fast rate. Flash flooding results from intense rainfall over a brief period, sometimes combined with rapid snowmelt, ice jam release, frozen ground, saturated soil, or impermeable surfaces. Most flash flooding is caused by slow-moving thunderstorms or

thunderstorms repeatedly moving over the same area. Flash flooding also occurs in areas that are not necessarily adjacent to bodies of water, but instead are lower-lying areas in which precipitation runs off and/or accumulates. Flash flooding is an extremely dangerous form of flooding which can reach full peak in only a few minutes and allows little or no time for protective measures to be taken by those in its path. Flash flood waters move at very fast speeds and can 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. Floods are the most common and widespread of all-natural disasters except fire. The National Climatic Data Center lists 48 flood events in Clinton County from January 1, 1950 through April 30, 2010. See [Appendix E](#) for further information on NCDC data regarding flooding in Clinton County.

Flash Flood was identified by every participating community in Clinton County, as well as the unincorporated areas, except for the City of Andover, as being a hazard of concern. Each jurisdiction noted multiple occurrences of flash flooding over the past 25 years.

Riverine Flooding caused by rivers, creeks and other tributaries overtopping their banks due to large amounts of precipitation, was also identified as being a risk to several of the Clinton County jurisdictions. See information specific to each city in sections for the city.

The summer floods result from above normal precipitation over an extended period of time and/or extremely heavy rainfall. Those occurring over the extended wet weather allow for several days to possibly two weeks notice of floods. Those occurring after extremely heavy rainfalls typically result in advance warning of less than 24 hours. Damages from summer floods may include any property as heavy rains of this magnitude create heavy ground saturation and commonly flood basements. Depending on the month and maturity of crops, they may cause significant crop damages as well.

Spring floods typically result from the rapidly melting of snow and rain, typically are forecast well in advance. The National Weather Service provides advance flood estimates as much as a month in advance. However, these forecasts may be revised with unanticipated temperatures and/or rainfall. Spring floods typically result in “repeat” property damages, which are properties that receive similar damage from every flood of significance, and delay the planting of crops, or damage early crops.

In the event of future significant damage due to flash flooding, Clinton County and/or its municipalities would engage in the appropriate mitigation actions: (1) elevation of structures in the hazard path, (2) acquisition of structures in the hazard path, (3) raising, grading, or resurfacing roads, (4) reinforcing culverts to counteract washouts, or (5) adding lift stations.

The best available data for flood modeling in Clinton County was generated by HAZUS-MH MR3, FEMA’s software program for estimating potential losses from disasters. HAZUS was used to model a flood inundation zone with one percent annual probability for major rivers and creeks in the County. The inundation zone, or flood depth grid,

estimates flooding depth based on location and elevation relative to the creek or river. While not as accurate as official flood maps, these floodplain boundaries are useful for GIS-based loss estimation. Note that HAZUS floodplain modeling occurred only on streams with a minimum drainage area of 10 square miles. Thus, flooding on smaller basins, including urban runoff, may not be represented. HAZUS also used 30m resolution DEM for terrain data, which normally does not have sufficient detail to show levee features, thus existing levee protection could be ignored by this analysis. Figure 3.2D shows the HAZUS flood depth grid for Clinton County.

Clinton County HAZUS Floodplain

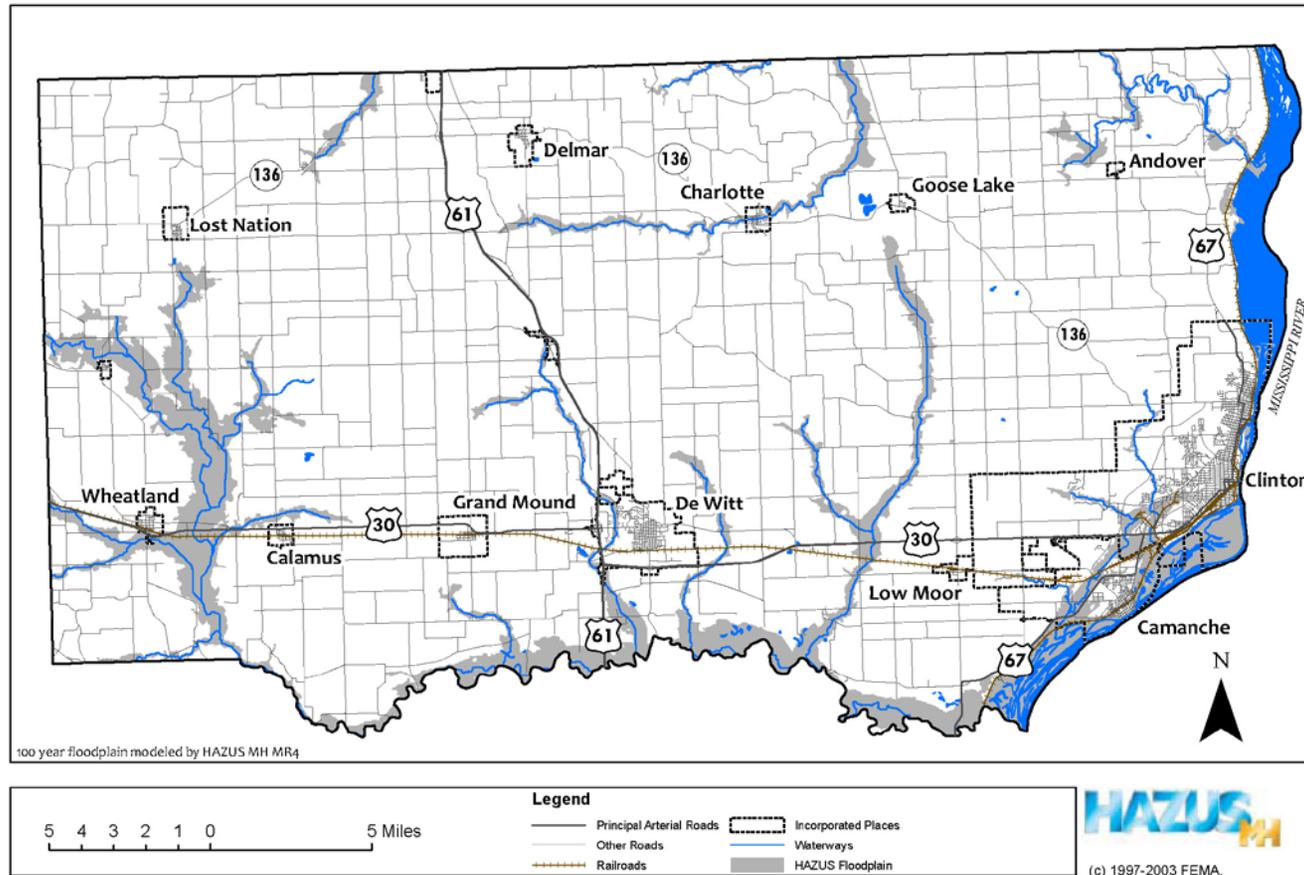


Table 3.2A identifies which jurisdictions in Clinton County are currently participants in the National Flood Insurance Program. Those that are not presently members have voted neither for nor against participation, but will meet all requirements once mapping is completed. FEMA/DNR has draft maps for all incorporated communities in Clinton County and NFIP participation will follow once maps are finalized.

Table 3.2A Clinton County National Flood Insurance Participants

City	NFIP Participant	
	YES	NO
Andover		X
Calamus		X
Camanche	X	
Charlotte	X	
Clinton	X	
Delmar		X
DeWitt	X	
Goose Lake		X
Grand Mound		X
Low Moor		X
Lost Nation		X
Toronto		X
Welton	X	
Wheatland	X	
Unincorporated Clinton County	X	

3.2.3 Hailstorm

Description

Hailstorms are an outgrowth of severe thunderstorms in which balls or irregularly shaped lumps of ice greater than 1.00 inch in diameter fall with rain. Hail is often produced by 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 smaller than 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. The Clinton County Planning Team has indicated that hailstorms have occurred in the community. NCDC data indicated that 74 hail events have been reported in Clinton County between January 1, 1950 and August 31, 2010. The Planning Team recognized that hailstorms have the potential to impact the entire jurisdiction. For this reason,

hailstorms do not have a defined hazard boundary. However, structures that are not in good repair, cedar shake shingles, and automobiles are vulnerable to damages from hail.

3.2.4 Severe Winter Storm

Description

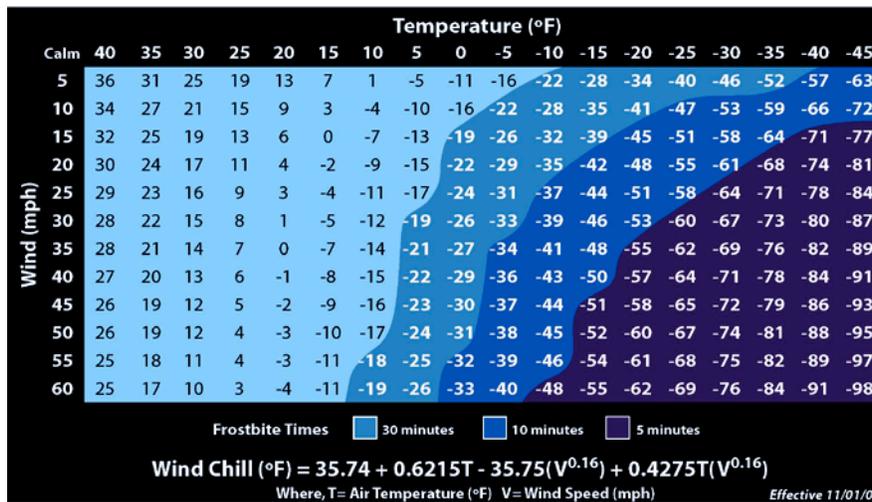
Severe winter weather conditions that can affect day-to-day activities include blizzard conditions, heavy snow, blowing snow, freezing rain, heavy sleet, and/or extreme cold. Winter storms are common during the months of October through April. The various types of extreme winter weather cause considerable damage. Blizzard conditions are winter storms which last at least three hours with sustained wind speeds of 35 mph or more, reduced visibility of 1/4 mile or less, and white out conditions. Heavy snows of more than 6 inches in a 12 hour period or freezing rain greater than 1/4 inch accumulation causing hazardous conditions in the community. Loose snow begins to drift when the wind speed reaches a critical speed of 9 to 10 mph under freezing conditions. Ice storms result in fallen trees, broken tree limbs, downed power lines and utility poles, fallen communications towers, and impassable transportation routes. Severe ice storms have caused total electric power losses over large areas and rendered assistance unavailable to those in need due to impassable roads. Frigid temperatures and wind chills are dangerous.

Clinton County receives large amounts of snow, freezing rain, sleet and extreme wind chills each year. Heavy snowfall and extreme cold can immobilize an entire region.

Figure 3.2E



Wind Chill Chart



Even areas that normally experience mild winters can be hit with a major snowstorm or extreme cold. Winter storms can result in flooding, closed highways, blocked roads, downed power lines.

The Planning Team recognized that severe winter storms have the potential to impact the entire jurisdiction equally; therefore the hazard boundary can be depicted as jurisdiction-wide. Furthermore, NCDC cited 108 snow and ice storms in Clinton County between January 1, 1950 and April 30, 2010, with dozens of severe cold temperatures during that same period.

3.2.5 Thunderstorm & Lightning

Description

The National Weather Service (NWS) states that a "severe" thunderstorm is any storm that produces one or more of the following elements:

- A tornado
- Damaging winds, or winds measured 58 miles per hour or more
- Hail one inch in diameter or larger.

Most thunderstorms do not result in a tornado, damaging winds or hail.

All thunderstorms are dangerous, according to FEMA. Associated dangers of thunderstorms include tornadoes, strong winds, hail, and flash flooding. Flash flooding is responsible for more fatalities than any other thunderstorm-associated hazard.

Thunderstorms are common in Iowa and can occur singly, in clusters, or in lines. They are formed from a combination of moisture, rapidly rising 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, straight-line winds above 58 mph, microbursts, lightning, hailstorms, and flooding. Straight-line winds can often exceed 60 mph and 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. Every thunderstorm produces lightning. In the United States, an average of 300 persons is injured and 80 people are killed every year by lightning. Although most lightning victims survive, people struck by lightning often report a variety of long-term, debilitating symptoms. 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 F in a split second.

According to the NCDC, 154 Thunderstorm and Lightning events were recorded in Clinton County between January 1, 1950 and April 30, 2010. While NCDC does not provide full and comprehensive data, it is one tool used to track frequency of storms. Additionally, the NCDC cites eight lightning events in Clinton County during the same time period. While NCDC notes nearly \$9 million in flood damages in Clinton County in this 60 year time period, it also cites over \$7 million in property and crop damages from thunder, wind and lightning storms during the same period.

The Planning Committee recognized that Thunderstorm and Lightning events have the potential to impact the entire jurisdiction equally; therefore the hazard boundary can be depicted as jurisdiction-wide. Figures 3.2.10a and 3.2.10b show Clinton County located in an area with an average of 30-50 days with thunderstorms per year per 10,000 square miles and two to eight lightning strikes per square kilometer per year.

Figure 3.2F Distribution and Frequency of Thunderstorms

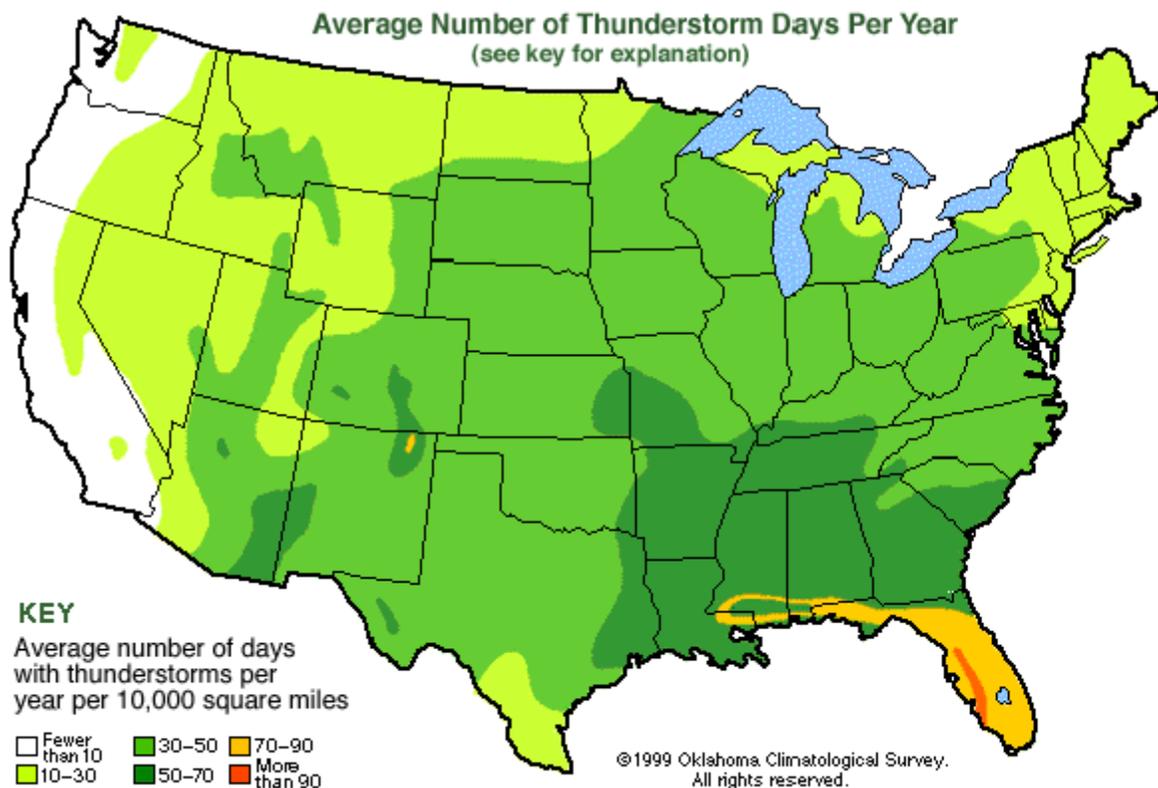
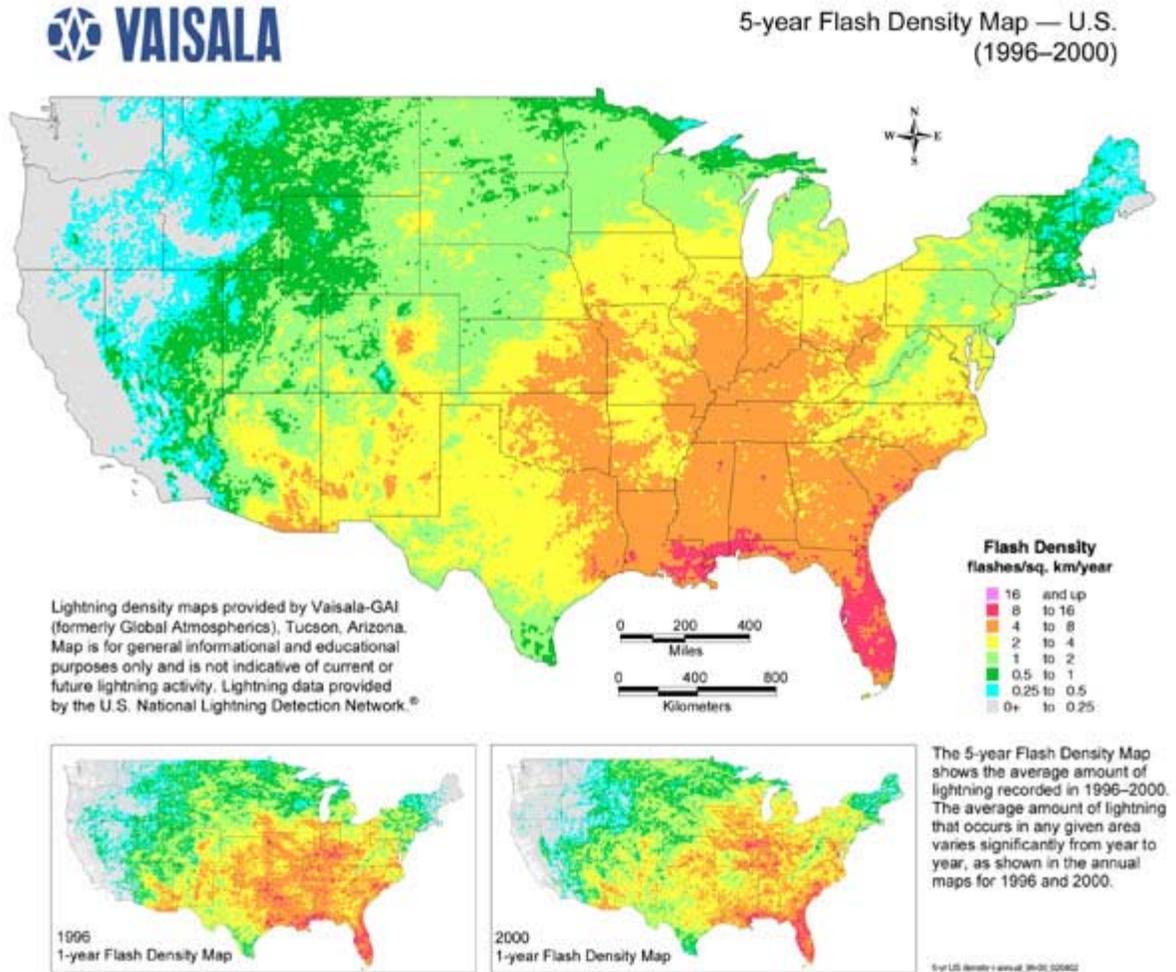


Figure 3.2G Location and Frequency of Lightning in Iowa



Source: http://www.lightningsafety.noaa.gov/lightning_map.htm

3.2.6 Tornado

Description

Tornadoes are relatively common in Iowa, including Clinton County, particularly in spring and summer. The conditions that produce a "tornadic thunderstorm" (a storm that produces a tornado) exist when warm, moist air gets trapped beneath a stable layer of cold, dry air by an intervening layer of warm, dry air. This stratified sandwich of air is called an inversion.

Tornadoes have been known to lift and move huge objects, destroy or move whole buildings long distances, and siphon large volumes from bodies of water. People living in manufactured or mobile homes are most exposed to damage from tornadoes. Even if

anchored, mobile homes do not withstand high wind speeds as well as permanent, site built structures.

The potential for tornadoes to occur is county-wide and Iowa is known to have a long history of having a higher rate of tornadoes per square mile than any other state. In Clinton County, the NCDC cited 30 tornadoes between January 1, 1950 and April 30, 2010. According to NCDC, tornadoes have, by far caused the most damage to crops, property and human life with a noted \$38.4 million in damages in Clinton County in that 60 year period. For more information on NCDC listings of tornadoes in Clinton County see [Appendix E](#).

The Enhanced Fujita Tornado Scale measures tornado severity. The Enhanced Fujita Scale assigns a numerical value based on wind speeds and categorizes tornadoes from 0 to 5. The letters “EF” often precedes the numerical value. The Enhanced Fujita Scale lists the wind speeds associated with tornadoes using the Enhanced Fujita Scale.

Figure 3.2H The Enhanced Fujita Tornado Scale

FUJITA SCALE			OPERATIONAL EF-SCALE	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	45-78	0	65-85
1	73-112	79-117	1	86-110
2	113-157	118-161	2	111-135
3	158-207	162-209	3	136-165
4	208-260	210-261	4	166-200
5	261-318	262-317	5	Over 200

3.2.7 Windstorm

Description

Windstorms are created when extreme winds, typically associated with thunderstorms or downbursts, generate damaging and destructive wind speeds and can be responsible for structural and property damage. Unlike tornadoes, windstorms may have a destructive path that is several miles wide, similar to that of a thunderstorm. 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. Large-scale extreme wind phenomena are experienced over every region of the United States.

Figure 3.21 Beaufort Wind Scale

Force	Wind (Knots)	WMO Classification	Appearance of Wind Effects	
			On the Water	On Land
0	Less than 1	Calm	Sea surface smooth and mirror-like	Calm, smoke rises vertically
1	1-3	Light Air	Scaly ripples, no foam crests	Smoke drift indicates wind direction, still wind vanes
2	4-6	Light Breeze	Small wavelets, crests glassy, no breaking	Wind determined that on face, leaves rustle, vanes begin to move
3	7-10	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps	Leaves and small twigs constantly moving, light flags extended
4	11-16	Moderate Breeze	Small waves 1-4 ft. becoming longer, numerous whitecaps	Dust, leaves, and loose paper lifted, small tree branches move
5	17-21	Fresh Breeze	Moderate waves 4-8 ft taking longer form, many whitecaps, some spray	Small trees in leaf begin to sway
6	22-27	Strong Breeze	Larger waves 8-13 ft, whitecaps common, more spray	Larger tree branches moving, whistling in wires
7	28-33	Near Gale	Sea heaps up, waves 13-20 ft, white foam streaks off breakers	Whole trees moving, resistance determined that walking against wind
8	34-40	Gale	Moderately high (13-20 ft) waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks	Whole trees in motion, resistance determined that walking against wind
9	41-47	Strong Gale	High waves (20 ft), sea begins to	Slight structural damage

			roll, dense streaks of foam, spray may reduce visibility	occurs, slate blows off roofs
10	48-55	Storm	Very high waves (20-30 ft) with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	56-63	Violent Storm	Exceptionally high (30-45 ft) waves, foam patches cover sea, visibility more reduced	
12	64+	Hurricane	Air filled with foam, waves over 45 ft, sea completely white with driving spray, visibility greatly reduced	

The Planning Committee recognized that Windstorms have the potential to impact the entire jurisdiction equally; therefore the hazard boundary can be depicted as jurisdiction-wide. NCDC classifies windstorm tracking in the same category as Thunderstorms. See the previous section for NCDC data as well as [Appendix E](#).

3.3 Vulnerability Assessment

Requirement §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.

Requirement §201.6(c)(2)(ii)(A): The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.

Requirement §201.6(c)(2)(ii)(B): [The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate.

Requirement §201.6(c)(2)(ii)(C): [The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

3.3.1 Methodology

The vulnerability assessment further defines and quantifies populations, buildings, critical facilities, and other community assets at risk to natural hazards. The vulnerability assessment for this plan followed the methodology described in the FEMA publication *Understanding Your Risks – Identifying Hazards and Estimating Losses* (2002).

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

- County and jurisdictional data (hazards and appraiser’s data)
- Statewide GIS datasets compiled by state and federal agencies
- FEMA’s HAZUS-MH loss estimation software
- Written descriptions of assets and risks provided by participating jurisdictions
- Existing plans and reports
- Personal interviews with HMPT members and other stakeholders

The vulnerability assessment first describes the assets at risk in Clinton County, including the total exposure of people and property; critical facilities and infrastructure; natural, cultural, and historic resources; and economic assets. Second, the assessment considers the social vulnerability of the County to hazards, including characteristics of gender, age, race/ethnicity, and wealth and poverty. Third, hazards of high and medium significance are evaluated in greater detail and potential losses are estimated where data is available. Development trends, including population growth, housing demand, and land use patterns, are analyzed in relation to hazard-prone areas. The end of the chapter summarizes the key issues and conclusions identified in the risk assessment process.

3.3.2 Assets at Risk

This section assesses the population, structures, critical facilities and infrastructure, and other important assets in Clinton County at risk to identified hazards.

Total Exposure of Population and Structures

Table 3.3.2 shows the estimated values for key building occupancies and Table 3.19 shows total population and number of structures. Land values have been purposefully excluded because land remains following disasters, and subsequent market devaluations are frequently short term and difficult to quantify. Additionally, state and federal disaster assistance programs generally do not address loss of land or its associated value.

Table 3.3A Estimated Values for the Key Building Occupancies (Uses) for Clinton County (2010 Valuations)*

Residential	Commercial	Industrial	Agriculture	Total
\$1,687,548,599	\$428,690,706	\$283,681,700	\$51,590,751	\$2,451,511,756

*Data from the Clinton County Tax Assessor Records and City of Clinton Tax Assessor Records

Table 3.3B Maximum Population and Building Exposure by Jurisdiction

Community	Population (from 2000 Census)	Total Structure Value (\$)
Andover	87	3,314,390
Calamus	394	13,386,637
Camanche	4,215	192,829,833
Charlotte	421	10,334,684
Clinton	27,772	1,451,093,615
Delmar	514	15,336,350
DeWitt	5,049	235,782,125
Goose Lake	232	7,670,443
Grand Mound	676	22,236,658
Lost Nation	497	11,212,612
Low Moor	240	9,227,092
Toronto	134	2,002,738
Welton	159	9,663,422
Wheatland	772	25,613,738
Unincorporated Clinton County	8,987	396,937,766
Total	50,149	2,406,642,123

Critical Facilities and Infrastructure

Critical facilities are structures and infrastructures that the community places a priority on protecting. A critical facility is defined by FEMA as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve welfare and quality of life in the City and fulfills important public safety, emergency response, and/or disaster recovery functions. These facilities include such things as hospitals and lifeline utility systems. Damage to these facilities can impact the delivery of vital services, cause greater damages to other sections of the community and/or put special, vulnerable populations at risk in the case of a major hazard event. The Clinton County Hazard Mitigation Planning Team determined the following facilities are critical facilities and sites located in Clinton County, along with their estimated replacement valuations, if known:

The following alphabetically-ordered tables indicate the critical facilities and their replacement values by jurisdiction. See [Appendix F](#) for maps of each jurisdiction’s critical facilities.

Andover

Name of Asset	Address	Replacement Value if Known
1. Fire Station	1367 Washington Street	\$2,000,000
2. Water Pump House	1367 Washington Street	\$ 100,000

Calamus

Name of Asset	Address	Replacement Value if Known
1. Calco Community Center	201 Main Street	
2. Fire Station	98 Clinton Street	
3. Elementary School	80 2 nd Street	
4. Town Hall	198 2 nd Street	\$100,000
5. Water Tower 1	East Main Street	\$100,000
6. Water Tower 2	Davenport Street	\$300,000
7. Waste Water Treatment Facility	W Main and 1 st Streets	\$50,000
8. Country Store	Clinton Street	
9. F&B Communications	191 2 nd Street	

Camanche

Name of Asset	Address	Estimated Replacement Value in \$
1. Police Station	819 S. Washington	405,000
2. Central Fire Station	720 9 th Avenue	842,000
3. City Hall	917 3 rd Street	801,000
4. Wastewater Lift Station	100 Park Drive	1,800,000
5. Well #6 and water tower	910 Second Street	1,500,000
6. Water tower	9 th Street and Highway 67	900,000
7. Well #3	1201 6 th Avenue	100,000
8. Well #5	1201 4 th Avenue	75,000
9. Electric Substation	3508 9 th Street	Unknown
10. Lift Station #9	1901 9 th Street	75,000
11. Lift Station #10		
12. Lift Station #7	2400 7 th Avenue	100,000
13. Qwest Telephone Company	314 9 th Avenue	Unknown
14. Public Works Facility	405 9 th Avenue	700,000

Charlotte

Name of Asset	Address	Replacement Value if Known
1. Well & Pump House	109 Charles St.	*
2. Charlotte Area Activity Center (CAAC)	115 1 st St.	
3. Iowa Telecom	106 Broadway	
4. Fire Station	102 Charles St.	
5. Water Tower	Louise St.	
6. Maintenance Garage	104 Charles St.	
7. Sewage Plant	No recorded address	

*The City has a blanket insurance policy for \$950,441.00

Clinton

Name of Asset	Address	Replacement Value if Known
1. Water Storage Facilities/Wells		\$44,633,786
2. Power Plants		
3. Treatment Plant #1		
4. Treatment Plant #2		
4. Pumping Stations	3 rd Ave. So/River	\$3,978,919
5. Mercy Hospital	1410 North 4 th Street	
6. Courthouse	612 North 2 nd Street	
7. County Administration Building	1900 North 3 rd Street	
8. Sheriff's Office	241 7 th Avenue North	
9. City Hall	611 South 3 rd Street	\$5,151,375
10. Police Station	113 6 th Avenue south	\$0
11. Fire Stations	Central – 344 3 rd Ave S Chancy – 2303 S 14 th St. Lyons – 2311 Roosevelt St.	\$2,656,769
12. Radio/Cell Towers		
13. Telephone Co.		
14. National Guard Armory	1200 13 th Avenue North	
15. Red Cross	1220 13 th Avenue North	
16. Airport	2000 S. 60 th Street	\$4,219,159
17. Archer Daniel Midland Plant Co-Generation Facility	1251 Beaver Channel Parkway	

Delmar

Name of Asset	Address	Replacement Value if Known
1. Fire Station	613 Main St.	*
2. City Hall	508 Main St.	
3. Waste Water Treatment Facility	130 th St.	
4. Water Tower	405 Clinton Ave.	
5. New Pump House	136 Market St.	
6. Delwood Community School	311 Delmar Ave.	
7. Lift Station #1	Market & 252 nd Ave.	
8. Lift Station #2	None Recorded	
9. Lift Station #3	None Recorded	
10. Old Pump House	None Recorded	
11. Maintenance Shed	618 Hurst St.	

*The City has a blanket insurance policy for \$1,954,165.00

DeWitt

Name of Asset	Address	Replacement Value if Known
1. Alliant Energy Substation	7 th Ave. just north of 13 th St.	
2. Alliant Energy Substation	213 S. 6 th Ave	
3. Alliant Energy Substation	300 & 400 Block	
4. Alliant Energy Substation	300 Block of 3 rd Ave. East	
5. Alliant Energy mixing station with dome pipeline	Elmwood Road at north City limits	
6. Iowa Telecom switching station	613 9 th St.	
7. Iowa Wireless antenna site on water tower	1919 Lake St.	
8. AT&T Broadband cable TV tower	Elmwood Road at north City limits	
9. US West Communications microwave tower	1616 8 th Ave.	
10. Genesis Hospital	1118 11 th St.	
11. South water elevated storage tank	1919 Lake St.	
12. Above ground water storage tank	124 8 th Ave.	\$1,000,000
13. North water elevated storage tank	1002 6 th Ave	\$1,000,000
14. Well #7	1725 11 th St.	\$1,000,000
15. Well #5	124 8 th Ave.	\$1,100,000
16. Well #6 and Lift Station	3 rd Ave. East and E. 2 nd St.	\$900,000
17. East Lift Station	500 Block of East Industrial Ave.	\$1,000,000
18. West Lift Station	1729 11 th St.	\$250,000
19. Wastewater Treatment Facility	511 6 th Ave. South	\$9,000,000
20. Lift Station	400 Block of Industrial St.	\$100,000
21. Fire Department	711 10 th St.	\$600,000
22. Police Station	606 9 th St.	\$600,000
23. City Hall	510 9 th St.	\$1,600,000
24. Clinton County Sheriff's Office Satellite Station	305 1 st St.	
25. Secondary Road Facility		

Goose Lake

Name of Asset	Address	Replacement Value if Known
City Hall	1 School Lane	1,321,632
Fire Department	Jackson Blvd.	258,058
Water Plant	Jackson Blvd.	361,929
Sewer Treatment Plant	None Recorded	40,278

Grand Mound

Name of Asset	Address	Estimated Replacement Value in \$
1. City Hall	615 Sunnyside St.	573,723
2. Fire Station	616 Clinton St.	267,000
3. Pump Building & Water Tower	615 Clinton St.	268,130
4. Wells & Water Treatment Facility	615 Sunnyside St.	444,600
5. Grand Mound Telephone	705 Clinton St.	250,000

Lost Nation

Name of Asset	Address	Replacement Value if Known
1. Substation	Highway 36	
2. Well #2/Fire Company	600 Main St.	\$21,685
3. Well #1	400 Broadway St.	\$50,000
4. Sewage Lagoons	140 th Avenue	\$50,000 (control station only)
5. Tri-Stop	302 Highway 136	
6. City Hall	301 Pleasant St.	\$112,500
7. American Legion Hall	511 Main St.	

Low Moor

Name of Asset	Address	Replacement Value if Known
1. Wastewater Treatment – 1 Cell Lagoon	3842 44 th Ave South	*
2. Water Tower	323 3 rd Ave	
3. City Hall	323 3 rd Ave	
4. Fire Building	Unknown	
5. Lift Station	3842 44 th Ave South	
6. Iowa Telecom Substation	Unknown	
7. Community Center	Unknown	

*Not provided.

Clinton County
Multi-Jurisdictional Hazard Mitigation Plan

Toronto

Table 3.31 Critical Facilities

Name of Asset	Address	Replacement Value if Known
1. Old Fire Station	300 Mill St.	
2. City Hall	300 Mill St.	
3. Lift Station #1	North Mill St.	\$50,000
4. Lift Station #2	South Mill St.	\$50,000
5. Lift Station #3	Spring St.	\$50,000

Welton

Table 3.32 Critical Facilities

Name of Asset	Address	Replacement Value if Known
1. Buzzy's	414 Main Street	
2. BP Truck Stop	2576 190 th Street	
3. Fire Station	95 Main Street	
4. Sewage Lagoon & Water Treatment building	190 th Street	\$2,900,000
5. Above ground water storage tank	95 Main Street	\$140,000
6. Natural Gas Pipeline	260 th Avenue	
7. Lift Station #1	Main Street – next to creek	\$500,000*
8. Lift Station #2	Near 618 Seven Day Road	
9. Lift Station #3	190 th Street (at lagoon)	

*All three lift stations.

Wheatland

Table 3.33 Critical Facilities

Name of Asset	Address	Replacement Value if Known
1. School	110 E. Park Rd	*
2. Water Tower	110 1.2 E. Park Road	
3. Fire Station/Ambulance	206 Madison St.	
4. Carroll Assistance Center	102 W. Washington	
5. Daybreak Convenience Store	102 W. Hwy 30	
6. Wastewater Treatment Facility	2419 130 th Ave.	
7. F&B Communications	102 N Main St.	
8. Maintenance Shed	104 W. Vine St.	

*The City has a blanket insurance policy for \$2,643,860.

Unincorporated Clinton County

Name of Asset	Address	Replacement Value if Known
Secondary Roads Building	104 3 rd Avenue, DeWitt	\$298,610

Vulnerable Populations

FEMA defines a vulnerable population as elderly, especially those who require special response assistance, areas of high density population, including such facilities as childcare centers, non-English speaking residents, and others. These facilities must be closely monitored throughout and following storm events to assure the greatest safety precautions are being maintained and responses to events are handled quickly and efficiently. See Appendix G for a table of licensed daycare centers and preschools in the County. No other vulnerable population centers were identified in Andover, Calamus, Delmar, Low Moor, Toronto, and Welton, however, the HMPT identified the following vulnerable population centers, by jurisdiction, in Clinton County:

Camanche

Name	Address
Indian Village Apartments	1015-1215 7 th Avenue

Charlotte

Name	Address
Thola Apartments	122 Broadway
Rolings Apartments	132 park Avenue
Drostey Apartments	203 1 st Street
Assumption Catholic Church	143 Broadway
Immanuel Lutheran Church	235 1 st Street
Dusty Sampson Apartments	124 Broadway

Clinton

Name	Address
The Alverno	849 13 th Avenue North
Bluff Terrace	638 Bluff Boulevard
Eagle Point	801 28 th Avenue North
Wyncrest	600 14 th Avenue North
Bickford Cottage	1150 North 11 th Street
Prairie Village	1141 13 th Avenue North
Park Towers	329 6 th Avenue South
Lyons Manor	318 Main Avenue
Skyline Apartments	313 25 th Avenue
Victory Center (shelter)	509 9 th Avenue South

DeWitt

Name	Address
Ekstrand Elementary	1140 15 th St.
West Wing of Genesis Complex	1118 11 th St.
Amber Ridge	107 East 2 nd St.
United Manor/Senior Heights	707 14 th St.
Community Care, Inc.	Industrial Drive

Goose Lake

Name	Address
Northeast Community Schools (PreK and Special Needs Students)	1450 370 th Ave (PreK – 6 th) 3690 Hwy 136 (7 th – 12 th)

Grand Mound

Name	Address
Senior Housing	500 Williams St.

Lost Nation

Name	Address
Sharon Homes	300 Pleasant

Wheatland

Name	Address
Wheatland Manor and Lincoln Way Villa Assisted Living	316 E. Lincoln Way
EIRHA Elderly Housing Units	201 S. Bennett

Unincorporated Clinton County

Name	Address
Rock Creek Campground	Highway 67, south of Camanche
Bulger's Hollow Campground	East of Highway 67 in Clinton

Cultural and Historic Resources

Assessing the vulnerability of Clinton County to disaster also involves inventorying the historical and cultural assets of the area. This step is important for the following reasons:

- The community may decide that these types of resources warrant a greater degree of protection due to their unique and irreplaceable nature and contribution to the overall economy.
- If these resources are impacted by a disaster, knowing so ahead of time allows for more prudent care in the immediate aftermath, when the potential for additional impacts are higher.
- The rules for reconstruction, restoration, rehabilitation, and/or replacement are often different for these types of designated resources.

Preservation of the cultural heritage of this area has been identified as an important value and is ensured by a variety of initiatives. Several national and state historic inventories were reviewed to identify historical and cultural assets in Clinton County.

The National Register of Historic Places is the Nation’s official list of cultural resources worthy of preservation. The National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect historic and archeological resources. Properties list include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. The National Register is administered by the National Park Service, which is part of the US Department of the Interior. Table 3.3C lists the Clinton County properties that are currently on the National Register of Historic Places.

Table 3.3C Clinton County properties on the National Register of Historic Places

Property Name	Address	Location	Date Listed
Ames Creek Bridge	300 th St. over Ames Cr	DeWitt	1988
Ankeny Building	201 Fifth Ave S.	Clinton	2006
Anthony, Horace House	1206 Anthony Place	Camanche	1991
Castle Terrace Historic District	Junction of Terrace Dr and Caroline Ave	Clinton	1998
Cherry Bank	1458 Main Ave.	Clinton	1999
Clinton County Courthouse	612 N. 2 nd St.	Clinton	1981
Clinton Public Library	306 8 th Ave S.	Clinton	1983
Curtis, George M., House	420 S. 5 th Avenue	Clinton	1979
Delmar Caboose	Vane St.	Delmar	1981
Delmar Depot	W. of Main St., between Railroad St. and Clinton Ave.	Delmar	1997
DeWitt Public Library	822 Sixth Ave	DeWitt	1983
Dierks, Peter House	IA 136, 5 mi. W of Clinton	Clinton	1998
Dugan’s Saloon	516 Smith St.	Grand Mound	2001

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Farmers and Merchants Savings Bank	601 Smith St.	Grand Mound	2001
First National Bank	226 Fifth Ave. S.	Clinton	1985
Grand Mound Town Hall and Water Works Historic District	613-615 Clinton St.	Grand Mound	2001
Helvig-Olson Farm Historic District	2008 260 th St.	Grand Mound	2000
Howes Building	419-425 Second St. S.	Clinton	2004
Johnson, George, House	2566 190 th Ave.	Calamus	2000
Kvindherrred Lutheran Church, School and Cemetery	2589 190 th Ave	Calamus	2000
Lamb, Lafayette, House	317 7 th Ave. S	Clinton	1979
Moezinger-Marquis Hardware Co.	721 Second St. S	Clinton	2006
Saint Boniface Church	2500 N. Pershing Blvd.	Clinton	1997
Saint Irenaeus Church	2811 N. 2 nd St.	Clinton	1997
Sharon Methodist Episcopal Church	1223 125 th St.	Lost Nation	2003
Van Allen Store	5 th Ave and 2 nd St.	Clinton	1976
Wilson District #7 School	1507 270 th Ave.	Delmar	2004
Young, WJ, Company Machine Works	N of junction of 10 th Ave and 1 st St.	Clinton	1985

<http://www.nationalregisterofhistoricplaces.com/IA/Clinton/state.html>

It should be noted that as defined by the National Environmental Policy Act (NEPA), any property over 50 years of age is considered a historic resource and is potentially eligible for the National Register. Thus, in the event that the property is to be altered, or has been altered, as the result of a major federal action, the property must be evaluated under the guidelines set forth by NEPA. Structural mitigation projects are considered alterations for the purpose of this regulation.

Economic Assets

Economic assets at risk may include major employers or primary economic sectors, such as agriculture, whose losses or inoperability would have severe impacts on the community and its ability to recover from disaster. After a disaster, economic vitality is the engine that drives recovery. Every community has a specific set of economic drivers, which are important to understand when planning ahead to reduce disaster impacts to the economy. When major employers are unable to return to normal operations, impacts ripple throughout the community. Table 3.3D lists the top 13 non-government employers in Clinton County.

Table 3.3D Top 13 Non-Government Employers in Planning Area

Employer	Number of Employees
Mercy Medical Center	1405
Custom-Pak, Inc.	700
Clinton Community School District	698
Archer Daniels Midland	600
Ashford University, LLC	500
Collis, Inc.	400
Nestle-Purina	335
Bemis Clysar, Inc.	325
Lyondell Basell	325
Wild Rose Clinton, LLC	300
Rock Tenn Co.	300
IPSCO	300
Guardian Industries	300

3.4 Vulnerability by Hazard

In order to focus on the most critical hazards, those assigned a level of high planning significance (Priority 1) were given more extensive attention in the remainder of this analysis (e.g. quantitative analysis or loss estimation).

This section describes overall vulnerability, identifies structures, and estimates potential losses to buildings, infrastructure, and critical facilities located in identified hazard areas. This assessment was limited to the hazards that were considered a Priority 1 in planning significance, based on HMPT input and the hazard profiles.

This assessment is also limited by the data available for the Priority 1 ranked hazards. The methods of analysis vary by hazard type and available data. Many of the identified hazards, particularly weather related hazards, affect the entire planning area, and specific hazard areas cannot be mapped geographically. For these hazards, vulnerability is mainly discussed in qualitative terms because data on potential losses to structures is not available. One source frequently used is the National Climactic Data Center (NCDC), however, it should be noted that this is not a comprehensive record and does not fully indicate the number of events or losses in Clinton County.

3.4.1 Dam and Levee Failure

Vulnerability Overview

Dam or levee failure is typically an additional or secondary impact of another disaster such as flooding or earthquake. Data from the National Inventory of Dams and State of Iowa indicates that Clinton County has four high hazard dams or levees. All are on the Mississippi River and are part of Lock and Dam No. 13.

Identifying Structures and Estimating Potential Losses

If Lock and Dam No. 13 near the City of Clinton on the Mississippi River were to fail the potential losses would be nominal because of the levee that was constructed in the 1970s to protect the city from flooding.

According to HMPT members from the City of Clinton, there is little concern over the failure of Lock and Dam 13, because of the levee that was built along the river in the 1980s. As long as the City is able to close the gate-wells at 9th Avenue and the Boat Ramp, little damage would occur to the City due to Lock & Dam 13 failing. However, all structures east of Bluff Boulevard are considered a Zone of Residual Risk and were in the flood zone until the levee was implemented in the 1980s.

There is also little concern over failure of “Internal Dams”, also known as Retention Ponds, however, should those located in the City of Clinton near heavily populated neighborhoods fail, significant damage could occur. Internal dams are inspected annually to ensure that there is no debris (such as beaver dams) clogging the drainage paths, but no quantitative data exists on structural damage due to internal dam failure in the City of Clinton.

Representatives from the City of DeWitt noted that they are in the process of building an earthen dam in the next couple of years. The dam will be part of a storm water detention plant to better control flash flooding in the city. The construction of the earthen dam is actually a mitigation activity against flash flooding and the hazard perceived in the future from the failure of the dam is considered minimal.

Future Development

The HMPT participants determined that future development with regard to dam or levee failure is extremely limited as no area of potential development exists adjacent to Lock & Dam 13, inland dams or the levee.

3.4.2 Extreme Heat

Vulnerability Overview

Extreme Heat is a county-wide concern and because the hazard occurs with such regularity, the effect needs to be taken into consideration. Clinton County has few sizeable cities, and is heavily agrarian, so the County needs to prepare for extreme temperatures on human and animal life as well as property and crop damages.

Identifying Structures and Estimating Potential Losses

No specific estimation tools are available for the affect of extreme heat on structures, so estimation of potential losses is not available either.

Future Development

Future development projects should consider extreme heat at the planning, engineering and architectural design stage with the goal of reducing vulnerability.

3.4.3 Flood – Flash and River

Vulnerability Overview

According to the vulnerability analysis and the loss estimates provided in this section, the City of Clinton would be hit the hardest by a 100-year flood.

Identifying Structures and Estimating Potential Losses

The best available data for flooding in Clinton County was generated by HAZUS-MH MR4, FEMA's software program for estimating potential losses from disasters.

HAZUS was used to generate a one percent annual flood, or base flood, event for major rivers and creeks in the County. The software produces a flood polygon and flood-depth grid that represents the base flood. While not as accurate as official flood maps, such as digital flood insurance rate maps, these floodplain boundaries are used in GIS-based loss estimation.

HAZUS provides reports on the number of buildings impacted, building repair costs, and the associated loss of building contents and business inventory. Building damage can cause additional losses to a community as a whole by restricting the building's ability to function properly. Income loss data accounts for business interruption and rental income losses as well as the resources associated with damage repair and job and housing losses. These losses are calculated by HAZUS using a methodology based on the building damage estimates. Flood damage is directly related to the depth of flooding. For example, a two-foot flood generally results in about 20 percent damage to the structure (which translates to 20 percent of the structure's replacement value).

After running the HAZUS analysis for the 100-year flood event, the building inventory loss estimates (which are linked to census block geography) were sorted by incorporated communities in Clinton County and the unincorporated County to illustrate how the potential for loss varies across the planning area. Table 3.4A shows estimate potential building losses by jurisdiction.

The City of Clinton is, by far, at most risk to flood losses according to this analysis. The City of Camanche follows at a distant second.

Table 3.4A Estimated Flood Losses by Jurisdiction

City	Building Loss	Contents Loss	Inventory Loss	Relocation Cost	Income Loss	Rental Income Loss	Wage Loss	Direct Output Loss	Total Loss	Percent of Total
Camanche	\$22,875,000	\$27,934,000	\$1,729,000	\$76,000	\$186,000	\$37,000	\$115,000	\$306,000	\$53,258,000	12.87%
Charlotte	\$3,364,000	\$3,271,000	\$135,000	\$4,000	\$3,000	\$1,000	\$78,000	\$40,000	\$6,896,000	1.67%
Clinton	\$114,074,000	\$194,632,000	\$9,720,000	\$425,000	\$730,000	\$199,000	\$3,528,000	\$3,432,000	\$326,740,000	78.94%
DeWitt	\$1,291,000	\$1,381,000	\$59,000	\$1,000	\$2,000	\$0	\$4,000	\$14,000	\$2,752,000	0.66%
Toronto	\$265,000	\$431,000	\$15,000	\$0	\$2,000	\$0	\$2,000	\$5,000	\$720,000	0.17%
Welton	\$375,000	\$373,000	\$14,000	\$1,000	\$1,000	\$0	\$2,000	\$4,000	\$770,000	0.19%
Wheatland	\$158,000	\$283,000	\$16,000	\$0	\$0	\$0	\$1,000	\$4,000	\$462,000	0.11%
Uninc. Clinton County	\$11,523,000	\$10,084,000	\$398,000	\$16,000	\$26,000	\$2,000	\$53,000	\$198,000	\$22,300,000	5.39%
Clinton County	\$153,925,000	\$238,389,000	\$12,086,000	\$523,000	\$950,000	\$239,000	\$3,783,000	\$4,003,000	\$413,898,000	100.00%

Source: HAZUS-MH MR4

Cities with no flood losses
Andover
Calamus
Delmar
Goose Lake
Grand Mound
Lost Nation
Low Moor

Default HAZUS-MH data was used to develop the loss estimates. Thus, the potential for losses derived from HAZUS-MH, the best available data, may contain some inaccuracies. The building valuations used in HAZUS-MH MR4 are updated to R.S. Means 2006 and commercial data is updated to Dun & Bradstreet 2006. There could be errors and inadequacies associated with the hydrologic and hydraulic modeling of the HAZUS-MH model. The damaged building counts generated by HAZUS-MH are susceptible to rounding errors and are likely the weakest output of the model due to the use of census blocks for analysis.

Appendix H shows the flood plain maps for each potentially affected jurisdiction.

Future Development

The risk of flooding to future development in Clinton County should be minimized by the floodplain management programs of the County and jurisdictions in the planning area, if properly enforced. Risk should be further reduced by strengthening floodplain ordinances beyond minimum NFIP requirements.

3.4.4 Hailstorm

Vulnerability Overview

The Clinton County planning area is equally vulnerable to hailstorms.

Identifying Structures and Estimating Potential Losses

Clinton County has, according to NCDC, had 74 hail events in the past 60 years. Property and Crop Damage have been recorded since 1994 and during that time, Clinton County has a recorded \$996,000 in property damages. NCDC does not further categorize property damage, so it is not possible to estimate what portion of that nearly \$1 million came from structural damage, but the Planning Team thought it likely that a good portion would be from damage to homes and other buildings. Of the 61 hail events documented since 1994, the average damage per event was \$16,327.

Future Development

Current development trends for Clinton County are unlikely to substantively increase or decrease vulnerability to hailstorms.

3.4.4 Severe Winter Storms

Vulnerability Overview

Overall vulnerability to severe winter storms relative to other hazards is considered high, with significant potential impact to the general population and/or built environment and significant exposure of assets. Winter storms typically involve snow and ice, occasionally

accompanied by high winds, which can cause downed trees and power lines, power outages, accidents, and road closures. Transportation networks, communications, and utilities infrastructure are the most vulnerable physical assets in the planning area and affect the jurisdiction equally. The most significant damage during winter storm events occurs when freezing rain and drizzle accumulate on utility poles and power lines causing widespread power outages.

During heavy snow and ice events, the threat to public safety is typically the greatest concern. Lower income and elderly populations are more at risk in cases of power outages during severe winter storms. These storms also impact the local economy by disrupting transportation, school and commercial activities. Travelers on roadways and highways in Clinton County, particularly along remote stretches of road, can become stranded, requiring search and rescue assistance and shelter provisions. Agriculture and livestock are also vulnerable to extreme cold temperatures and heavy snow. NCDC documents 114 snow and ice storms in Clinton County in the past 60 years, with 3 deaths, 14 injuries and \$17.4 in combined property damage from such storms.

Identifying Structures and Estimating Potential Losses

Buildings that have tree limbs hanging over them are more vulnerable to damage by falling limbs. Utility power poles and lines are the critical facilities that are most vulnerable. Potential losses to the electric line infrastructure are difficult to quantify. Roads and bridges covered with ice make travel treacherous and slow emergency vehicles. Businesses experience losses as a result of closure during power outages. Schools also often must close. Other losses as a result of winter storm are not quantifiable at this time.

Future Development

Residential development is occurring in most incorporated cities within Clinton County, with the most rapid growth in Clinton. Although future residential or commercial buildings built to code should be able to withstand snow and ice loads from severe winter storms, the increased number of developments will place additional demands for utility infrastructure on the current systems. HMPT recognizes the need for investment for utility infrastructure, including burial of electric utilities and the addition of poles in areas prone to ice accumulation. These actions should decrease future losses.

3.4.8 Thunderstorms & Lightning

Vulnerability Overview

All of the planning area is vulnerable to lightning. National Climatic Database Center (NCDC) recorded 154 thunderstorm wind events in Clinton County in the past 60 years and over \$5 million in crop damages. The HMPT considered lightning to be a public safety hazard with most damages occurring to electronic equipment located inside

buildings. Communications equipment and warning transmitters and receivers could be knocked out by lightning strikes.

Identifying Structures and Estimating Potential Losses

Specific dollar losses are not available for the widespread impacts that can occur to personal electronics equipment. NCDC cites more than \$1.8 million in property damage in approximately the past 15 years.

Future Development

Current development trends for Clinton County are unlikely to substantively increase or decrease vulnerability to thunderstorm and lightning.

3.4.9 Tornado

Vulnerability Overview

A tornado that causes widespread damage in Clinton County is likely based on historical events. All above-ground buildings, infrastructure, and critical facilities are at risk of damage. At this time, there are no buildings that have FEMA-approved tornado shelters, however there is one under construction and another community has submitted a grant application to FEMA for funding of a safe room.

Identifying Structures and Estimating Potential Losses

Thirty tornadoes have been documented by NCDC in Clinton County in the past 60 years. One death and 26 injuries were also reported, along with \$38.2 million in property damages and \$160,000 in crop damages. A single event, an F3 tornado on May 8, 1988, caused \$25 million in property damages.

To assess vulnerability to this damaging hazard, the HMPT took the cumulative property damages of \$38.253 million and divided by the 30 tornadoes cited, which would give an average of \$1,275,100 in property damages per tornado. This methodology is inexact at best.

Future Development

Future residential or commercial buildings built to code should be less vulnerable to tornadoes. The number of schools and communities within the jurisdiction wishing to include a FEMA shelter is increasing, and although these shelters will not decrease the amount of property damaged, they will save lives. Future development that does occur in Clinton County should consider tornado hazards at the planning, engineering and architectural design stages.

3.4.10 Windstorm

Vulnerability Overview

Windstorms in Clinton County are rarely life threatening, but do disrupt daily activities and cause damage to buildings, trees, and utilities.

Identifying Structures and Estimating Potential Losses

Windstorms affect the entire planning area, including all above-ground structures and utilities. There are no specifically identified hazard areas or available data to identify specific structures at risk or estimate potential losses, although NCDC cites 10 high wind events in Clinton County in the past 60 years that caused a combined \$10.5 million in property damages (or an average of \$175,000 per event).

Future Development

Future development projects should consider windstorm hazards at the planning, engineering and architectural design stage with the goal of reducing vulnerability.

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

This section presents the mitigation strategy developed by the Hazard Mitigation Planning Team (HMPT) based on the risk assessment. The mitigation strategy was developed through a collaborative group process and consists of goals, objectives, and mitigation actions. 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 to accomplish them so that they are not dependent on the means of achievement. They are usually long-term, broad, policy-type statements.
- **Objectives** define strategies or implementation steps to attain the identified goals and are specific and measurable.
- **Mitigation Actions** are specific actions that help achieve goals and objectives.

4.1 Goals and Objectives

The HMPT developed goals and objectives to provide direction for reducing hazard-related losses in Clinton County. These were based upon the results of the risk assessment and a review of goals and objectives from other state and local plans, specifically, the Iowa Hazard Mitigation Plan, 2007 and the Clinton County Emergency Operations Plan. This review was to ensure that this plan’s mitigation strategy was integrated with existing plans and policies. Through a brainstorming process at its meetings, the HMPT identified a variety of possible goals and then came to a consensus on four goals. Following the development of the goals, the HMPT identified specific objectives to achieve each goal. Goals and objectives are listed below, but are not prioritized.

Goal #1: Increase capabilities within Clinton County entities to mitigate the effects of hazards by enhancing existing or designing and adopting new policies that will reduce the damaging effects of hazards.

Objective 1.1: Reduce repetitive property losses due to flood, wildfire, winter storms, and other hazards.

Objective 1.2: Protect critical facilities, infrastructure, and utility systems.

Objective 1.3: Encourage the incorporation of mitigation measures into repairs, redevelopment, and capital improvement projects for governments, businesses, education institutions, and the public.

Objective 1.4: Identify funding opportunities for future mitigation measures.

Goal #2: Protect the most vulnerable populations, buildings, and critical facilities within Clinton County through the implementation of cost effective and technically feasible mitigation projects.

Objective 2.1: Educate property and business owners on affordable mitigation and preparedness measures that can be taken to reduce property loss.

Objective 2.2: Assure that vulnerable buildings and critical facilities within Clinton County are cataloged and that vulnerability assessments are completed for each identified facility.

Objective 2.3: Assure that vulnerable populations such as the elderly, homeless, low income or those with limited English proficiency are included in educational programs regarding preparedness or mitigation.

Objective 2.4: Enhance the capabilities to collect, analyze, update, and exchange data and information to support risk assessment and mitigation needs.

Goal #3: Improve the level of responder, government, business, and citizen awareness and preparedness for disaster.

Objective 3.1: Identify and develop needed training and exercises for targeted responder, government and citizen audiences.

Objective 3.2: Strengthen outreach and partnerships with the private sector, nonprofit organizations and the public.

Objective 3.3: Improve public understanding of hazards and risk by providing public awareness, preparedness, and mitigation information through various channels of communication.

Goal #4: Develop programs to assure that response agencies, governments, educational institutions, and local businesses are able to operate during times of disaster.

Objective 4.1: Promote the development of emergency response plans, including continuity of operations plans, among local response agencies, governments, educational institutions and local businesses.

Objective 4.2: Provide education, training, and exercise opportunities for local entities to prepare for and test their ability to operate during times of disaster.

4.2 Identification and Analysis of Mitigation Actions

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

The Clinton County Emergency Management Agency provided information to the HMPT about the types of projects typically seen in mitigation plans. At each of the HMPT meetings, participants were asked to review lists of mitigation actions categorized by disaster and to identify those that would be pertinent to the County as well as their specific jurisdictions. The HMPT was asked to discuss appropriate, achievable actions and to develop jurisdictional consensus on need.

ECIA collected these developed actions and put them into draft form. The identified actions along with a listing of previously identified ideas for mitigation, key issues from the Risk Assessment, and a worksheet of the plan's goals and objectives were provided to the team for review. Those jurisdictions, which had not previously identified actions brainstormed with other HMPT members to ensure that: (1) each jurisdiction participating in the multi-jurisdictional plan had at least one action, and (2) there were actions for each goal.

The HMPT was provided with the following list of categories of mitigation actions, which originated from the National Flood Insurance Program's Community Rating System, as well as definitions and examples of each category:

- **Prevention:** Administrative or regulatory actions or processes that influence the way land and buildings are developed and built
- **Property protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard or remove them from the hazard area
- **Structural:** Actions that involve the construction of structures to reduce the impact of hazard
- **Natural resource protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems
- **Emergency services:** Actions that protect people and property during and immediately after a disaster or hazard event
- **Public education and awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them

4.3 Implementation of Mitigation Actions

44 CFR Requirement §201.6(c)(3)(ii): The mitigation strategy shall include an action strategy describing how the actions identified in paragraphs (c)(2)(II) will be prioritized, implemented and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefits review of the proposed projects and their associated costs.

Once actions were identified, HMPT members were then asked to use a modified STAPLEE criteria worksheet to evaluate each project. The mitigation actions that were identified as being applicable to all jurisdictions were prioritized by the Planning Team. Mitigation Actions specific to a jurisdiction were prioritized by that jurisdiction, with the STAPLEE scores as a reference tool. A copy of the modified scoring process is included in [Appendix C](#). This process of identification and analysis of mitigation options allow the HMPT to come to consensus and to prioritize recommended mitigation actions.

Emphasis was placed on the importance of a benefit-cost analysis in determining project priority; however, this was not a quantitative analysis. The Disaster Mitigation Act regulations state that benefit-cost review is the primary method by which mitigation projects should be prioritized. Recognizing the federal regulatory requirement to prioritize by benefit-cost, and the need for any publicly funded project to be cost-effective, the HMPT decided to pursue implementation according to when and where damage occurs, available funding, political will, jurisdictional priority, and priorities identified in the Iowa Hazard Mitigation Plan. Cost-effectiveness will be considered in additional detail when seeking FEMA mitigation grant funding for eligible projects identified in this plan.

Table 4.3 summarizes all of the prioritized mitigation actions and indicates which jurisdictions plan to implement them; it also provides information on the hazards and plan goals addressed. The Mitigation Actions that apply to all jurisdictions were ranked by the Planning Team as a whole, while actions that apply to specific jurisdictions were ranked by those members of the HMPT representing those jurisdictions.

Table 4.3 Mitigation Actions, Ranking and Completion Date by Jurisdiction

Mitigation Action	Goal Referenced	Ranking	Estimated Cost	Completion Date	Jurisdictions Participating in the Action/Responsible Party
Enhance or Install GIS System to better track critical facilities and vulnerable populations as well as respond to emergencies.	2	3	Unknown	Short Term	ALL
Create call down list of all critical personnel	3	8	0	Short Term	ALL
Create and implement procedure to backup all critical data to prevent loss in the event of hazard	3	7	\$500	Short Term	ALL
Update snow and ice equipment as needed to better respond to snow and ice events	1	9	Unknown	Ongoing	ALL
Update fire and rescue equipment as needed to better respond to emergencies.	2	6	Unknown	Ongoing	ALL
Provide backup power generators and wiring for critical facilities.	2	1	Unknown	Ongoing	ALL
Consider building a tornado safe room for all new construction.	2	10	\$175/sf	Ongoing	ALL
Purchase or elevate	2	11	Unknown	Ongoing	ALL

Mitigation Action	Goal Referenced	Ranking	Estimated Cost	Completion Date	Jurisdictions Participating in the Action/Responsible Party
structures, add lift stations, increase/reinforce culvert size, and add curb and gutter to streets in areas in flood zones with severe and repetitive flood damage to prevent reoccurrence.					
Continue to maintain existing outdoor warning siren systems.	2	2	\$500/ annually	Ongoing	ALL
Purchase barricades and signage as deemed necessary to better communicate flood information.	2	4	Unknown	Short Term	ALL
Distribute pamphlets throughout the community on use of new warning sirens.	3	12	\$0	Ongoing	ALL
Train personnel as weather spotters.	4	5	\$0	Ongoing	ALL
Work with Andover Meat Locker, DNR and EPA to reduce contamination to City Lagoon.	2	2	Unknown	Short Term	Andover City Council
Hire engineering firm to determine solutions to reduce contamination to City Lagoon.	2	1	Unknown	Short Term	Andover City Council
Bury electric lines	2	4	Unknown	Short Term	Calamus

Mitigation Action	Goal Referenced	Ranking	Estimated Cost	Completion Date	Jurisdictions Participating in the Action/Responsible Party
					Public Works
Add another lift station and three pumps to better handle storm water runoff and drainage.	2	1	Unknown	Short Term	Calamus Public Works
Once a year discharge lagoon – sometimes up to 2 times per year	2	2	\$1000	Ongoing	Calamus Public Works
Perform smoke and other studies to see who is dumping into sewage system to enforce cleanup so system will not be overloaded in event of storm or to locate damage to pipes.	2	3	Unknown	Long Term	Calamus Public Works
Convert WWTF to lift station and contract with City of Clinton to provide WWTF to better handle infiltration and overload during storm events.	2	1	\$3,600,000	Ongoing	Camanche City Administrator
Purchase sand-bagging equipment to better respond to flooding.	2	3	\$10,000	Ongoing	Camanche City Administrator
Purchase riprap and install as necessary to prevent erosion on river banks.	2	2	\$100,000	Ongoing	Camanche City Administrator
Install stick gauges on Deep Creek to better monitor and	2	1	\$500	Short Term	Charlotte Mayor

Mitigation Action	Goal Referenced	Ranking	Estimated Cost	Completion Date	Jurisdictions Participating in the Action/Responsible Party
warn of flooding.					
Position "Do Not Feed the Birds" signs along levee to prevent erosion.	3	1	\$1000	Ongoing	Clinton Public Works
Continue annual inspection of levee to ensure safety.	4	2	Unknown	Ongoing	Clinton Public Works
Bait and capture gophers along levee to stop them from burrowing in structure and thus weakening it.	2	6	\$1000	Ongoing	Clinton Public Works
Create Public Information Campaign to educate the public about levee safety and maintenance.	3	3	\$500	Long Term	Clinton Public Works
Maintain floodgates and gate wells to continue protective measures and prevent flooding.	2	1	\$1000	Ongoing	Clinton Engineering
Continue ongoing sewer separation to prevent infiltration and flooding.	2	7	Unknown	Ongoing	Clinton Public Works
Complete dam failure study and levee certification by 2011.	2	4	Unknown	Short Term	Clinton City Manager
Implement recommendation of dam failure study.	2	5	Unknown	Short Term	Clinton City Manager
Build new fire station and emergency response facility to accommodate equipment and to better prepare for	2	4	Unknown	Short Term	Clinton Fire Chief/City Manager

Mitigation Action	Goal Referenced	Ranking	Estimated Cost	Completion Date	Jurisdictions Participating in the Action/Responsible Party
emergency response.					
Continue site development with DNR & EPA approval to use for debris management	2	3	Unknown	Ongoing	Clinton City Manager
Continue to upgrade water supply system to get rid of dead-end mains so water will re-circulate and be more readily available for emergency response.	1	1	Unknown	Long Term	Delmar Mayor
Acquire city-owned diesel storage tank in town so fuel will be more readily available for emergency response vehicles.	3	5	Unknown	Long Term	Delmar Mayor
Jet the storm drains on Main Street and add larger storm sewers where needed.	2	2	Unknown	Ongoing	Delmar Mayor/City Council
Continue to repair water system and replace sections of rusting pipe.	2	3	Unknown	Ongoing	Delmar Mayor/City Council
Continue site development with DNR & EPA approval to use for debris management	2	3	\$150,000	Ongoing	DeWitt Public Works
Install additional ground storage with booster pump or new tower to increase	2	1	\$1,000,000	Short Term	DeWitt City Council

Mitigation Action	Goal Referenced	Ranking	Estimated Cost	Completion Date	Jurisdictions Participating in the Action/Responsible Party
water pressure for fire/emergency coverage.					
Add fire hydrants between where water flow is low on SW edge of old part of town (7 th St. S).	2	2	\$25,000	Long Term	DeWitt Utilities Department
Continue to work with Northeast school district to complete tornado safe room.	2	1	Unknown	Ongoing	Goose Lake
Create extreme heat hazard plan for city employees and recommendation for citizens via public access.	4	1	\$500	Ongoing	Grand Mound City Council
Continue to upgrade water supply system to get rid of dead-end mains so water will re-circulate and be more readily available for emergency response.	1	1	Unknown	Short Term	Lost Nation Mayor/City Council
Maintain tree-trimming programs and debris management as it relates to vegetative debris.	1	2	\$1000	Long Term	Lost Nation City Council
Add approximately 7 blocks of curb and gutter with storm drains to improve city infrastructure and prevent flooding.	2	1	Unknown	Long Term	Low Moor City Council
Convert from private wells	2	2	Unknown	Long Term	Toronto

Mitigation Action	Goal Referenced	Ranking	Estimated Cost	Completion Date	Jurisdictions Participating in the Action/Responsible Party
to City water system.					
Designate Wheatland School as storm shelter for community.	3	1	No cost.	Short Term	Toronto City Council/Wheatland School District
Elevate lift station on Main St. to prevent damage due to flooding.	2	3	Unknown	Long Term	Welton Public Works/City Council
Add wiring to add fire station to power lift station or acquire a generator for lift station.	2	1	Unknown	Short Term	Welton City Council/Fire Department
Acquire easements from necessary property owners to install wiring for generator.	2	2	\$1000	Short Term	Welton City Council
Perform smoke and other studies to see who is dumping into sewage system to enforce cleanup so system will not be overloaded in event of storm or to locate damage to pipes.	2	4	Unknown	Long Term	Welton Mayor/City Council
Install larger water tower to better accommodate residents and provide more efficient emergency response.	2	2	Unknown	Short Term	Wheatland Mayor
Repair or elevate streets to prevent further flood damage.	2	1	Unknown	Short Term	Wheatland Mayor

Mitigation Action	Goal Referenced	Ranking	Estimated Cost	Completion Date	Jurisdictions Participating in the Action/Responsible Party
Maintain ordinance for manufactured homes regarding storm shelters.	4	1	\$0	Ongoing	Unincorporated County Board of Supervisors
Develop policy to prevent construction in the floodplain of educational buildings or supporting structures.	4	1	\$0	Ongoing	Cal-Wheat School District School Board
Develop policy to prevent construction in the floodplain of educational buildings or supporting structures.	4	1	\$0	Ongoing	Camanche School District School Board
Develop policy to prevent construction in the floodplain of educational buildings or supporting structures.	4	1	\$0	Ongoing	Central Clinton School District School Board
Develop policy to prevent construction in the floodplain of educational buildings or supporting structures.	4	1	\$0	Ongoing	Clinton School District School Board
Develop policy to prevent construction in the floodplain of educational buildings or supporting structures.	4	1	\$0	Ongoing	Delwood School District School Board
Develop policy to prevent construction in the floodplain of educational buildings or supporting structures.	4	1	\$0	Ongoing	Northeast School District School Board

CHAPTER 5 PLAN MAINTENANCE

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

5.1 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 adoption of this plan, the HMPT will be tasked with plan monitoring, evaluation, and maintenance of the plan. The participating jurisdictions and agencies, led by Clinton County Emergency Management, agree to:

- Monitor and evaluate best practices into Clinton County Emergency Planning & Preparedness Group (CCEPAP) which meets ten times per year;
- Act as a forum for hazard mitigation issues;
- Disseminate hazard mitigation ideas and activities to all participants;
- Pursue the implementation of high priority, low- or no-cost recommended actions;
- Monitor and assist in implementation and update of this plan;
- Report on plan progress and recommend changes to CCEPAP and the governing bodies of participating jurisdictions; and
- Inform and solicit input from the public.

The HMPT is an advisory body and will not have any powers over County, Cities, Townships, or District staff. Its primary duty is to see the plan successfully carried out and to report to the community governing boards and the public on the status of plan implementation and mitigation opportunities. Other duties include reviewing and promoting mitigation proposals, hearing stakeholder concerns about hazard mitigation, passing concerns on to appropriate entities, and posting relevant information on the County website.

5.2 Plan Maintenance Schedule

The HMPT agrees to meet annually during regularly scheduled CCEPAP meetings to report on and monitor progress as well as update the mitigation strategy when necessary. All members of the HMPT have been encouraged to join CCEPAP so they can give updates on process and notification. CCEPAP agendas are formatted in a way that all HMPT members will have an opportunity to comment on their portions of the Plan. Should a member of the HMPT now wish to join the CCEPAP group or is unable to attend a meeting, he or she is encouraged to forward pertinent information to group for review.

In conjunction with the other participating jurisdictions, a written update of the plan must be approved by the IHSESD and FEMA Region VII per Requirement §201.6(c)(4)(i) of the disaster Mitigation Act of 2000 and adopted by participating jurisdictions within a five-year period from the final approval of this plan unless disaster or other circumstances (e.g. changing regulations) require a change to this schedule.

5.3 Plan Maintenance Process

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

- Decreased vulnerabilities as a result of implementing the actions described in this plan,
- Increased vulnerabilities as a result of failed or ineffective mitigation actions, and/or
- Increased vulnerabilities as a result of new development or annexation.

Updates to this plan will:

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

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 will be enacted through written changes and submissions as deemed appropriate and necessary by the Hazard Mitigation Planning Team. Any changes to the plan will be approved by the governing boards of the participating jurisdictions.

5.4 Implementation through Existing Programs

The goals, actions, and timelines will be discussed with directions given by the Board of Supervisors, City Councils, Mayors and Superintendents for inclusion of these mitigation measures into their Budgets for implementation. The jurisdictions will continue to include mitigation projects in the Capital Improvements Plan and the Comprehensive Land Use Plan for implementation on a planned basis whenever feasible. Land use decisions will incorporate the findings of the HM Plan.

5.5 Responsible Parties

The various jurisdictions, along with the recommendations of the Hazard Mitigation Planning Team, are ultimately responsible for decisions related to all mitigation projects and their implementation. The jurisdictions will continue to include mitigation projects in the Capital Improvements Plan and/or Budgets for implementation on a planned basis whenever feasible.

5.6 Continuing Public Involvement

In order to ensure that the public remains involved in the implementation of this plan, the plan shall be made available at Clinton County offices for citizens who requests to see it. The jurisdictions will continue to invite and involve Clinton citizens to participate in the planning and budgetary processes. All meetings will be advertised in accordance with the Iowa Open Meetings Laws. Input from academia, volunteer agencies, and neighboring jurisdictions will also be sought. Their input is regularly solicited and will continue to be requested for the HM process.

Appendix A:

Planning Process Documentation

Clinton County
Multi-Jurisdictional Hazard Mitigation
Planning Team Meeting
March 30, 2010

Agenda

- Introductions
- Benefits of a MJHM Plan
- Parameters of the MJHM Plan
 - Invite neighboring jurisdictions
 - Post notices of public meetings
 - Attend planning meetings or assign proxy in writing
 - W-9 - county
 - Chart of Accounts - county
 - Distribution of funds
 - Rank hazards
 - Supply Community Assets portion
 - Each community must pass own resolution
- Clinton County Hazard Risk Assessment
 - By county
 - Drought
 - Earthquake
 - Extreme heat
 - Hailstorm
 - Grass or wild land fire
 - Severe winter storm
 - Thunderstorm and lightning
 - Tornado
 - Windstorm
 - By community
 - Dam failure
 - Flash flood
 - Landslide
 - Levee failure

- River flood
- Sinkholes
- Timeline
 - Work in reverse order of current expiration date, unless there is a project for which the community is applying for funding.
 - Clinton County
 - Clinton
 - DeWitt
 - Wheatland
 - Calamus
 - Camanche
 - Toronto
 - Welton
 - Low Moor
 - Charlotte
 - DeImar
 - Lost Nation
 - Goose Lake
 - Grand Mound
 - Andover
 - Next county-wide meeting on Thursday, April 15.
 - Adjourn.

Clinton County
Multi-Jurisdictional Hazard Mitigation
Planning Team Meeting
April 15, 2010

Agenda

- Introductions
- Benefits of a MJHM Plan
- Parameters of the MJHM Plan
 - Invite neighboring jurisdictions
 - Post notices of public meetings
 - Attend planning meetings or assign proxy in writing
 - W-9 - county
 - Chart of Accounts - county
 - Distribution of funds
 - Rank hazards
 - Supply Community Assets portion
 - Each community must pass own resolution
- Clinton County Hazard Risk Assessment
 - By county
 - Drought
 - Earthquake
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 - Hailstorm
 - Grass or wild land fire
 - Severe winter storm
 - Thunderstorm and lightning
 - Tornado
 - Windstorm
 - By community
 - Dam failure
 - Flash flood
 - Landslide
 - Levee failure

- River flood
- Sinkholes
- Timeline
 - Work in reverse order of current expiration date, unless there is a project for which the community is applying for funding.
 - Clinton County
 - Clinton
 - DeWitt
 - Wheatland
 - Calamus
 - Camanche
 - Toronto
 - Welton
 - Low Moor
 - Charlotte
 - Delmar
 - Lost Nation
 - Goose Lake
 - Grand Mound
 - Andover
 - Next county-wide meeting on Thursday, April 15.
 - Adjourn.

Jurisdiction: Clinton Co.
 Hazard Mitigation Planning Meeting #: 2
 Date: 4-15-10
 Meeting Time: 6PM
 Team Leader's Name: Chance Kness
 Street Address of Meeting: Clinton Co. Supervisor's Mtg Rm

see reverse for add'l sigs

6-9F

Print Name	Signature	Department OR Organization OR Citizen, City	Street Address OR Email Address OR Telephone #	Local Match Info		
				Start Time	End Time	Rate
Example: J. Smith	<i>J. Smith</i>	Anytown City Clerk	555-555-1212			
Jennifer Walker	<i>J Walker</i>	ECIA	JKWALKER@ECIA.ORG			6P
Leslie Sullivan	<i>LSullivan</i>	Student	LSULLIVAN@JULIAD.COM			
PAUL VARNER	<i>Paul Varner</i>	CAMAUCHE	SOTVARNER@YCHSI.COM			
John Staszewski	<i>John Staszewski</i>	Clinton County				
Chance Kness	<i>Chance Kness</i>	County Emergency Management	CKness@ClintonCounty-EM.org			
Charles Freese	<i>Charles Freese</i>		CFreese@CCL-USA.org			
Dan Peterson	<i>Dan Peterson</i>	Central Schools - West	dan.peterson@central-clinton.k12.ny.us			
Tom Roth	<i>Tom Roth</i>	Canaanache	tom.roth@nchsi.com			
Jennifer Packner	<i>J. Packner</i>	CCEMA	J.Packner@ClintonCounty-14.gov			
Rick Warrion	<i>Rick Warrion</i>	Clinton Co Bmt	563-243-3160			
Roberta Lewis	<i>Roberta Lewis</i>	BOS	563-243-6210			
Melissa Clay	<i>Melissa Clay</i>	Clinton CH	563-243-6210			
Christy Lew	<i>Christy Lew</i>	Recorder	243-6210			

Clinton County
Multi-Jurisdictional Hazard Mitigation
Planning Team Meeting
May 3, 2010
Agenda

- Introductions
- Benefits of a MJHM Plan
- Parameters of the MJHM Plan
 - Invite neighboring jurisdictions
 - Post notices of public meetings
 - Attend planning meetings or assign proxy in writing
 - W-9 - county
 - Chart of Accounts - county
 - Distribution of funds
 - Rank hazards
 - Supply Community Assets portion
 - Each community must pass own resolution
- Clinton County Hazard Risk Assessment
 - By county
 - Drought
 - Earthquake
 - Extreme heat
 - Hailstorm
 - Grass or wild land fire
 - Severe winter storm
 - Thunderstorm and lightning
 - Tornado
 - Windstorm
 - By community
 - Dam failure
 - Flash flood
 - Landslide
 - Levee failure
 - River flood
 - Sinkholes
 - Review hazard mitigation goals from April 2005 plan
 - Assess natural hazards specific to County
 - New goals specific to county
- Adjourn

Jurisdiction: Clinton County
 Hazard Mitigation Planning Meeting #: 3
 Date: May 3-2010
 Meeting Time: 6PM-9PM

Team Leader's Name: Chance Kness
 Street Address of Meeting: Clinton Co. Supervisors Board Room

14 x 3

Print Name	Signature	Department OR Organization OR Citizen, City	Street Address OR Email Address OR Telephone #	Local Match Info		
				Start Time	End Time	Rate
Example: J. Smith	J. Smith	Arytown City Clerk	555-555-1212			
Jennifer Parkner	J. Parkner	CCEMA	563-242-5712			
Chance Kness	Chance Kness	CCEMA	563-242-5712			
John Staszewski	John Staszewski	BUS				
Todd Kinney	Todd Kinney	County Engineer	563-241-0564			
Walt Wickham	Walt Wickham	Conservation Director	563-847-7202			
Ed Staszewski	Ed Staszewski	Clinton County Clerk	563-219-6427			
Ed Staszewski	Ed Staszewski	Clinton Co Bell Mtg	563-243-2160			
Ed Staszewski	Ed Staszewski	Clinton Co	563-242-1151			
Ed Staszewski	Ed Staszewski	NETS AFFAIR	563-244-0575			
Ed Staszewski	Ed Staszewski	BUS	563-244-0575			
Ed Staszewski	Ed Staszewski	BUS	563-244-0575			
Ed Staszewski	Ed Staszewski	Bldg Maint	563-243-2160			
Ed Staszewski	Ed Staszewski	BUS	563-243-6210			
Christy Lew	Christy Lew	Recorder	243-6210			

City of Clinton
Multi-Jurisdictional Hazard Mitigation
Planning Team Meeting
May 17, 2010
Agenda

- Introductions
- Benefits of a MJHM Plan
- Parameters of the MJHM Plan
 - Invite neighboring jurisdictions
 - Post notices of public meetings
 - Attend planning meetings or assign proxy in writing
 - Supply Community Assets portion
 - Each community must pass own resolution
- Clinton County Hazard Risk Assessment
 - By county
 - Drought
 - Earthquake
 - Extreme heat
 - Hailstorm
 - Grass or wild land fire
 - Severe winter storm
 - Thunderstorm and lightning
 - Tornado
 - Windstorm
 - By community
 - Dam failure
 - Flash flood
 - Landslide
 - Levee failure
 - River flood
 - Sinkholes
 - Review hazard mitigation goals from previous plan
 - Assess natural hazards specific to County
 - New goals specific to county
- Adjourn

Jurisdiction: Clinton County MJHMP (City of Clinton)

Hazard Mitigation Planning Meeting #: 4

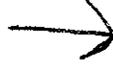
Date: MAY 17, 2010

Meeting Time: 6-

Team Leader's Name: Chance Kness

Street Address of Meeting: City Hall

6-845



Print Name	Signature	Department OR Organization OR Citizen, City	Local Match Info		
			Start Time	End Time	Rate
Example: J. Smith	<i>J. Smith</i>	Arytown City Clerk	555-555-1212		
Jennifer Walker	<i>J. Walker</i>	ECIA	JKWALKER@ECIA.ORG		
Chance Kness	<i>Chance Kness</i>	Clinton County EMA	ckness@clintoncounty-ia.gov		
Jenny Parker	<i>Jenny Parker</i>	CCEMA	J.Parker@ClintonCounty-IA.gov		
Brian Co	<i>Brian Co</i>	Clinton Police	chiefj@jpr911.us		
Mike Brown	<i>Mike Brown</i>	Clinton Fire	mikebrown@clinton-ia.us		
Jeff Horv	<i>Jeff Horv</i>	City Atain	jeffhorv@clinton-ia.us		
Gary Schellhorn	<i>Gary Schellhorn</i>	City Public Works	garyschellhorn@ci.clinton.ia.us		
Rosee Acorn	<i>Rosee Acorn</i>	CITY CLINTON MAYOR	roseeacorn@ci.clinton.ia.us		
Mike Reynolds	<i>Mike Reynolds</i>	City of Clinton	mike.reynolds@ci.clinton.ia.us		

Clinton County
Multi-Jurisdictional Hazard Mitigation
Planning Team Meeting
May 25, 2010
Agenda

- Introductions
- Rank Hazard specific to Community
 - Dam failure
 - Flash flood
 - Landslide
 - Levee failure
 - River flood
 - Sinkholes
- Review hazard mitigation goals from March 2005 plan
- New Goals
- Critical Facilities/Vulnerable Population Centers
- Adjourn

Print Name	Signature	Title	Contact phone or email
Jennifer Walker		ECLA	jwalker@ecia.org
Dave Ricketzen		Camanche PW	563-259-9410
Sheryl Jindrich		City Clerk	sherylj@mchsi.com 259-8342
Tom Roth		City Administrator	tom_roth@mchsi.com
GARY KAMPF		City Council	gary.kampf@live.com
DAVE VARNER		CITY COUNCIL	SOFTVARNER@MCHSI.COM
Jim Robertson		Mayor	563-357-4480 259-8446
Ken Fahlbek		City Council	KFH13@hotmail.com
TOM PARKER		SUPT. OF SCHOOLS	thomas.parker@camanche.k12.ia.us
Chance Kness		County Emergency Management	ckness@clintoncounty-ia.gov

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Clinton County
Multi-Jurisdictional Hazard Mitigation

Planning Team Meeting

June 14, 2010

Agenda

- Introductions
- Rank Hazard specific to Community
 - Dam failure
 - Flash flood
 - Landslide
 - Levee failure
 - River flood
 - Sinkholes
- Review hazard mitigation goals from March 2005 plan
- New Goals
- Critical Facilities/Vulnerable Population Centers
- Adjourn

Clinton County
Multi-Jurisdictional Hazard Mitigation

Planning Team Meeting

June 15, 2010

Agenda

- Introductions
- Rank Hazard specific to Community
 - Dam failure
 - Flash flood
 - Landslide
 - Levee failure
 - River flood
 - Sinkholes
- Review hazard mitigation goals from March 2005 plan
- New Goals
- Critical Facilities/Vulnerable Population Centers
- Adjourn

Jurisdiction: Clinton County

Hazard Mitigation Planning Meeting #: 7

Date: ~~September~~ June 15 - 2010

Meeting Time: 7 PM - 9:30 PM

Team Leader's Name: Chance Kness

Street Address of Meeting: Ericksen Community Center
Clinton

Print Name	Signature	Department OR Organization OR Citizen, City	Street Address OR Email Address OR Telephone #	Local Match Info		
				Start Time	End Time	Total Time
Example: J. Smith	J. Smith	Anytown City Clerk	555-555-1212			
Chance Kness	<i>Chance Kness</i>	CCEMA	563-242-5712			
Jenny Pawkner	<i>J. Pawkner</i>	CCEMA	242-5712			
Don Thiltgen	<i>Don Thiltgen</i>	Mayor	563 659 3811			
Beth Goltz	<i>Beth Goltz</i>	ARC	563 242 5223			
John Starzewski	<i>John Starzewski</i>	Clinton Co				
Steven Kopp	<i>Steven Kopp</i>	Clinton Police	243-1458			
AJ Steines	<i>AJ Steines</i>	ADM	241-1786			
Aaron Venters	<i>Aaron Venters</i>	Vertex	563-243-2000 x301			
KURT HUBBART	<i>Kurt Hubbard</i>	ALLIANT ENERGY	563-241-1515			
John Burken	<i>John Burken</i>	Dewitt Fire	563-249-7678			
Mark Regenwether	<i>Mark Regenwether</i>	Clinton Fire Dept	563.357.0177			
PAULA L. RIVER	<i>Paula L. River</i>	Genesis Medical Center (GMA)	563-659-4347			
Michele Cullen	<i>Michele Cullen</i>	CCPH/Gemosis USA	563-242-7165			

Clinton County
Multi-Jurisdictional Hazard Mitigation
Planning Team Meeting
June 15, 2010
Low Moor Agenda

- Introductions
- Rank Hazard specific to Community
 - Dam failure
 - Flash flood
 - Landslide
 - Levee failure
 - River flood
 - Sinkholes
- Review hazard mitigation goals from March 2005 plan
- New Goals
- Critical Facilities/Vulnerable Population Centers
- Adjourn

Clinton County
Multi-Jurisdictional Hazard Mitigation
Planning Team Meeting
June 22, 2010
Low Moor Agenda

- Introductions
- Rank Hazard specific to Community
 - Dam failure
 - Flash flood
 - Landslide
 - Levee failure
 - River flood
 - Sinkholes
- Review hazard mitigation goals from March 2005 plan
- New Goals
- Critical Facilities/Vulnerable Population Centers
- Adjourn

Clinton County
Multi-Jurisdictional Hazard Mitigation
Planning Team Meeting
July 20, 2010
Agenda

- Introductions
- Rank Hazard specific to Community
 - Dam failure
 - Flash flood
 - Landslide
 - Levee failure
 - River flood
 - Sinkholes
- Review hazard mitigation goals from March 2005 plan
- New Goals
- Critical Facilities/Vulnerable Population Centers
- Adjourn

Clinton County
Multi-Jurisdictional Hazard Mitigation

Planning Team Meeting

July 26, 2010

Agenda

- Introductions
- Rank Hazard specific to Community
 - Dam failure
 - Flash flood
 - Landslide
 - Levee failure
 - River flood
 - Sinkholes
- Review hazard mitigation goals from March 2005 plan
- New Goals
- Critical Facilities/Vulnerable Population Centers
- Adjourn

Clinton County
Multi-Jurisdictional Hazard Mitigation
Planning Team Meeting
August 2, 2010
Agenda

- Introductions
- Rank Hazard specific to Community
 - Dam failure
 - Flash flood
 - Landslide
 - Levee failure
 - River flood
 - Sinkholes
- Review hazard mitigation goals from March 2005 plan
- New Goals
- Critical Facilities/Vulnerable Population Centers
- Adjourn

Jurisdiction: **Clinton County**

Hazard Mitigation Planning Meeting #: **12**

Date: **August 2, 2010**

Meeting Time: **6PM**

Team Leader's Name: **Chance Kneass**

Street Address of Meeting: **Anderson / Goose Lake**

74 /

Print Name

Signature

Department
OR Organization
OR Citizen, City
Street Address
OR Email Address
OR Telephone #

Local Match Info

Start Time End Time Total Time Rate Local Match

Jennifer Walker *JW* **ECIA** **563-556-4166** **6P-7P**

GLENN MAEVE *Glenn Maeve* **Mayor** **563-243-4282**

Leon Bott *Leon Bott* **Anderson Fire** **563-219-1236**

Kevin Diercks *Kevin Diercks* **Anderson City Council** **563-212-0360**

Jason Johnson *Jason Johnson* **Anderson Council** **563-682-7330**

Leslie Schroeder *Leslie Schroeder* **Anderson Ambulance** **563-219-5050**

Wayne Hornsby *Wayne Hornsby* **Anderson City Council** **563-682-7443**

Chace Kneass *Chace Kneass* **Anderson City Council** **563-682-7443**

ROGER WILKE *Roger Wilke* **ANDOVER CITY COUNCIL** **563-682-7443**

Clinton County
Multi-Jurisdictional Hazard Mitigation
Planning Team Meeting
August 17, 2010

Agenda

- Introductions
- Rank Hazard specific to Community
 - Dam failure
 - Flash flood
 - Landslide
 - Levee failure
 - River flood
 - Sinkholes
- Review hazard mitigation goals from March 2005 plan
- New Goals
- Critical Facilities/Vulnerable Population Centers
- Adjourn

Jurisdiction: Clinton County
 Hazard Mitigation Planning Meeting #: 13
 Date: August 17-2010
 Meeting Time: 6PM-830
 Team Leader's Name: Chance Knuss
 Street Address of Meeting: Erickson Community Center
 Clinton Iowa

1472.5

Print Name	Signature	Department OR Organization OR Citizen, City	Street Address OR Email Address OR Telephone #	Local Match Info		
				Start Time	End Time	Total Time Rate Local Match
Example: J. Smith	J. Smith	Anytown City Clerk	555-555-1212			
Michele Callen	<i>[Signature]</i>	Genesio CINA CCBDH	culienm@genesish.com			
Charleen Smith	Charleen Smith	Cl. Co. B.O.H.	Lovebeek's 312@att.net			
Dan Birdsley	Dan Birdsley	Clinton County Sheriff's Office	danielbirdsley@gapa.ia.us			
Eric Van Lancker	<i>[Signature]</i>	Clinton Co. Auditor	vanlancker@clintoncounty-ia.gov			
VICKI SOWLE	VICKI SOWLE	MURPHY	sowle@mercyhealth.com			
DAVID MURPHY	<i>[Signature]</i>	MERCY HOSPITAL	MURPHY.DM@MERCYHEALTH.COM			
Tom Rohle	Tom Rohle	Clinton A.D.	thomsohler@gapa.ia.us			
Brian Guy	<i>[Signature]</i>	Clinton P.D.	Chiguy@gapa.ia.us			
Rick Lincoln	Chiguy	SHERIFF	sheriff.lincoln@gapa.ia.us			
Lorrie Miller	Lorrie Miller	Human Services	lmiller@dhs.state.ia.us			
BETHANEE CONKLIN	<i>[Signature]</i>	Region 6 - Genesio	conklinb@genesish.com			
John Starcewsk	<i>[Signature]</i>	County B.O.S				
Beth Goltz	<i>[Signature]</i>	AKC	bethgoltz@akc.org			

- Don Thiltgen Don Thiltgen City of Detroit cdmayore@gmtdel.net
- Jennifer Parker D Park CCEMA

Clinton County
Multi-Jurisdictional Hazard Mitigation
Planning Team Meeting
August 24, 2010

Agenda

- Introductions
- Rank Hazard specific to Community
 - Dam failure
 - Flash flood
 - Landslide
 - Levee failure
 - River flood
 - Sinkholes
- Review hazard mitigation goals from March 2005 plan
- New Goals
- Critical Facilities/Vulnerable Population Centers
- Adjourn

- City of Welton + Charlotte
- August 24 - 2010
- Welton Fire Station

Hazard Mitigation Planning Meeting #14

NAME	organization	contact	time
- Jennifer Walker	ECIA	563-556-4166	6:30-8:30
- Billy C. Koranda	WELTON Fireman City Councilman	563-659-9968	6:30-8:30
- JC MARTENSEN	City Employee WELTON FIRE	563-659-5945	6:30-8:30
- Jan Huffman	Welton Mayor	563-659-3387	6:30-8:30
- Helen McCallister	Welton City Clerk	563-659-7516	6:30-8:30
- Chance Kress	CC Emergency Management	563-219-5050	6:30-8:30

Clinton County
Multi-Jurisdictional Hazard Mitigation
Planning Team Meeting
September 30, 2010

Agenda

- Introductions
- Review draft of Hazard Mitigation Plan
- STAPLEE
- Rank Goals
- Review Maps & Critical Facilities/Vulnerable Populations
- Adjourn

Jurisdiction: **Clinton County**

20 x 3 =

Hazard Mitigation Planning Meeting #:

Date: **Sept 30 - 2010**

Meeting Time: **6:30 P**

Team Leader's Name: **Chance Kneass**

Street Address of Meeting: **Dewitt Library**

Print Name	Signature	Department OR Organization OR Citizen, City	Street Address OR Email Address OR Telephone #	Local Match Info		
				Start Time	End Time	Rate Local Match
Example: J. Smith	J. Smith	Arytown City Clerk	555-555-1212			
Jennifer Walker	J Walker	ECIA	563-556-4166	6:30P		
James Robertson	James Robertson	Mayor - Camanche	563-259-8446	1830 hrs		
Brian Long	Long	Police Chief	563-243-1455	1830 hrs		
Patty Hardin	Patty Hardin	Mayor - Delmar	563-574-4312	6:30		
Jaw Kneass	Jim Huffman	Mayor - Wetten	563-659-3387	6:30		
Virgil Noel	Virgil Noel	Mayor	563-374174	6:30		
TERRY STEVES	Terrey Steves	Mayor - Calamus	563-246-2671	6:30		
Dorothy Hagen	Ronald Hagen	Mayor Dewitt	563-659-3811	6:30		
Rick Lincoln	Bob Purdy	SHERIFF	563-242-9211	6:30		
Jim Schroeder	Jim Schroeder	Mayor Lost Nation	563-678-2307	6:30		
TERESA Lindstrom	Teresa Lindstrom	City Clerk - Goose Lake	543-577-2300	6:30		
Jennifer Packus	J. Packus	CCEMT	563-242-5712	6:30		
Chance Kneass	Chance Kneass	CCEMTA	563-242-5712	6:30		

Appendix B:

Announcements of Meetings & Draft Posting

Jennifer Walker

From: Jennifer Walker
Sent: Monday, April 12, 2010 12:17 PM
To: jim_cox@northeast.k12.ia.us; rbasden@clintonia.org; cfreese@cal-wheat.k12.ia.us; dan.peterson@central-clinton.k12.ia.us; tparker@camanche.k12.ia.us; brodenberg@midland.k12.ia.us; sgoodall@delwood.k12.ia.us
Cc: Kness, Chance R.; Paukner, Jennifer; Jennifer Walker
Subject: FW: Clinton County Multi-Jurisdictional Hazard Mitigation Planning Meeting

Dear Superintendents:

Please see information and invitation below to a meeting this Thursday to discuss Clinton County's Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). A new requirement by FEMA of these plans is that all school districts that operate in the specified area be included in the MJHMP as their own jurisdiction and to pass their own resolution approving the Plan when it is completed. Each school district would be provided a small section in the MJHMP noting that it does not have any natural hazards specific to the district or site, or that there is. For example, if one of the districts has a problem with flash flood or river flood, we would need to note that in the section specific to your district.

The reason FEMA is now requiring this is so that the school districts can apply for grant funding as their own entity. In the past, the school district has been able to go through the community that the school resides in to apply for funding. This, for example, was how we did it last year when Northeast Community School District applied for a tornado safe room grant and we just identified the mitigation action in the City of Goose Lake HM Plan. That will no longer work, I am told. Of course, participation in the MJHMP is optional, but should a school district want to apply for grant funding in the future and not be a participating jurisdiction in the MJHMP, it would be ineligible for funding. We would have to amend the entire plan and add the district as a jurisdiction to be eligible. Believe me, it will be easier to do this on the front end!

To that end, I do hope that you will be able to send a representative to the meeting on Thursday evening or to a future meeting that may be closer to your location. Watch for future invitations and please do not hesitate to contact me or the Clinton County Emergency Management Coordinator, Chance Kness, with any questions.

Regards,
 Jennifer Walker
 ECIA Project Manager

From: Jennifer Walker
Sent: Monday, April 12, 2010 11:23 AM
To: Martha Gantzer-Kueter ; Lyn Medinger; cgritton@cedarcountry.org; jcarpenter@cedarcountry.org; auditor@scottcountyiowa.com; auditor@co.jones.ia.us; auditor@clintoncounty-ia.gov; ltibbets@clintoncounty-ia.gov; supervisors@clintoncounty-ia.gov; citydwt@gmtel.net; cityofandover@yahoo.com; pschulz@fbcom.net; sherylj@mchsi.com; clerk@iowatelecom.net; delmarc@fbcom.net; teresa12@netins.net; gmcity@gmtel.net; jsb0557@hotmail.com; lmclek@telecom.net; wltncity@hotmail.com; whtland@fbcom.net; patvanloo@ci.clinton.ia.us
Cc: Kness, Chance R.; Matt; cdadmin@mmtel.net; calfire@fbcom.net; ktmncros@gmtel.net; jpaukner@clintoncounty.ia.gov; wheatlandrepari@fbcom.net; Koboit, Danette; Jennifer Walker
Subject: Clinton County Multi-Jurisdictional Hazard Mitigation Planning Meeting

Hello!

As you may know, Clinton County was awarded a planning grant to assist the County in preparing their Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). East Central Intergovernmental Association (ECIA) was

11/23/2010

contracted to help Clinton County with this process.

One of the first steps is to form a MJHMP team to assist in the development of the plan and to invite neighboring jurisdictions such as Jackson, Jones, Cedar and Scott Counties to participate in the planning process.

To that end, we would like to invite representatives from each of Clinton's participating communities and neighboring counties to a public planning session this **Thursday, April 15, 2010**. The meeting will be held at **6 PM at the County Administration Building in the Supervisors' Meeting Room**. The address is **1900 North 3rd St., Clinton, Iowa**.

At the meeting we will discuss the planning parameters and timeline, as well as identify and rank the natural hazards that affect the community as a whole. For those who attended the meeting on March 30, please do not feel that you need to attend this week, as it will be a repeat of that session. For those of you did not attend the earlier session, we would welcome and appreciate your participation and input to the planning process. I would appreciate it if you could let me know if you are able to send a representative to Thursday's meeting. If you can't, no worries, we will notify you in the future of additional planning meetings.

I look forward to hearing from you.

Regards,
Jennifer Walker

Jennifer Walker, Project Manager
ECIA
7600 Commerce Park
Dubuque, Iowa 52002
t563.556.4166 x254
f563.556.0348

Jennifer Walker

From: city of delmar [delmarc@fbcom.net]
Sent: Tuesday, June 22, 2010 10:40 AM
To: Patty Hardin
Cc: Jennifer Walker; Jim Schroeder-Lost Nation; LEANN MC*CALLISTER; Marty & Lori Jahn
Subject: Emergency Management

There will be a multi jurisdictional meeting with Clinton County Emergency Management in Delmar on Tuesday, July 20th @ 6:30 p.m. at the Fire Station at 613 1\2 Main Street. Please notify your fire departments and publics works personnel. Chance and Jennifer would like to see as many people as possible at this meeting.

Thanks!

Laurie Ganzer
City of Delmar (514)
Ph: 563-574-4256
Fax: 563-574-4262
delmarc@fbcom.net

PUBLIC NOTICE

A draft of the Clinton County Multi-Jurisdictional Multi-Hazard Mitigation Plan is available for public review and comment at the Clinton County Emergency Management Agency, 612 North 2nd Street, Suite 105, Clinton, IA. The Plan will be available from October 20, 2010 to November 20, 2010 during normal office hours from 8:00 a.m. – 4:00 p.m., Monday through Friday. Comments on the plan may be submitted in writing to P.O. Box 2957, Clinton, IA 52733 or via email to EmergencyManagement@ClintonCounty-IA.gov.

Appendix C:

Modified STAPLEE Criteria

CLINTON COUNTY STAPLEE RESULTS

After developing the mitigation strategy, the Planning Team conducted a prioritization activity to determine which actions were the most feasible, and would be addressed first. This activity placed particular emphasis on an economic analysis, weighing the cost of one action against the cost of another action. The economic analysis also weighed the cost of each action against the anticipated benefit.

The criteria applied by the Clinton County Hazard Mitigation Planning Team utilized a system also used by the State of Iowa in the statewide hazard mitigation plan. It involves application of the following criteria used to determine the viability of a proposed mitigation action. This process is referred to as the STAPLEE process:

- To be **SOCIALLY** acceptable, the community must support the overall implementation strategy and specific mitigation actions. The mitigation measure is evaluated in terms of community acceptance or whether the measure will treat all individuals and groups in the community equitably or whether it will result in a negative impact.
- To be **TECHNICALLY** feasible, the measure can be developed in a plan and implemented in a practical manner. The measure is evaluated in terms of whether it will reduce losses in the long term and has only minimal secondary impacts. It will also be evaluated as to whether it is a whole or partial solution and whether it solves problems instead of symptoms.
- To be **ADMINISTRATIVELY** capable, the agencies that are required to carry out the measure must have the skill, experience, knowledge, ability, staffing, funding, and maintenance capability to do so. The measure is evaluated by determining if personnel and administrative capabilities, funding, and maintenance requirements are adequate and also if the measure can be completed in a timely manner.
- To be **POLITICALLY** desirable, the measure will need the support of the community. That support can come from any number of sources, including elected officials, public or private agencies, administrators, and/or the general public.
- To have **LEGAL** authority, the measure must be supported by some legal source, such as a local code or ordinance, state law, or federal law. The unit of government undertaking the mitigation action should be identified and include an analysis of the interrelationships between local, regional, state, and federal governments.
- To be **ECONOMICALLY** beneficial, the measure's benefits must exceed the costs. The measure should contribute to overall economic goals of the community. Other considerations are whether there are current sources of funds to implement actions without incurring long-term debts and whether there is an increased burden on the tax base or economy if a proposed action is implemented.

• To be **ENVIRONMENTALLY** beneficial, the measure must not impact the natural environment negatively and in many instances may produce a positive impact. A proposed mitigation action will be evaluated as to how it affects the natural environment and whether it complies with local, state, and federal environmental laws and regulations.

Each of the STAPLEE criteria were considered separately and given a positive (+), negative (-), or neutral (0) rating. For example, if a mitigation action would be acceptable to a community, it would receive a positive (+) rating or if a mitigation action would adversely impact one of more segments of a community, it would receive a (-) rating. The results of this activity can be seen in Table 10 below:

Mitigation Action	S	T	A	P	L	E	E	Score
Install GIS System to better track critical facilities and vulnerable populations as well as respond to emergencies.	+	0	0	+	+	-	+	4
Create call down list of all critical personnel	+	+	+	+	+	+	+	7
Create and implement procedure to backup all critical data to prevent loss in the event of hazard	+	0	0	+	+	+	+	6
Update snow and ice equipment as needed to better respond to snow and ice events	+	+	+	+	+	-	+	5
Update fire and rescue equipment as needed to better respond to emergencies.	+	+	+	+	+	-	+	5
Provide backup power generators and wiring for critical facilities.	+	+	+	+	+	-	+	5
Consider building a tornado safe room for all new construction.	0	-	-	+	+	-	+	0
Purchase or elevate structures, add lift stations, increase/reinforce culvert size, and add curb and gutter to streets in areas in flood zones with severe and repetitive flood damage to prevent reoccurrence.	+	0	0	+	0	-	+	2
Continue to maintain existing outdoor warning systems.	+	+	+	+	+	+	+	7
Purchase barricades and signage as deemed necessary to better communicate flood information.	+	+	0	+	+	-	+	4

Mitigation Action	S	T	A	P	L	E	E	Score
Distribute pamphlets throughout the community on use of new warning sirens.	+	+	+	+	+	+	+	7
Train personnel as weather spotters.	+	+	+	+	+	+	+	7
Work with Andover Meat Locker, DNR and EPA to reduce contamination to City Lagoon.	+	0	0	+	0	0	+	3
Hire engineering firm to determine solutions to reduce contamination to City Lagoon.	+	+	+	+	+	-	+	5
Bury electric lines	+	+	+	+	+	+	+	7
Add another lift station and three pumps to better handle storm water runoff and drainage.	+	+	+	+	+	-	+	5
Once a year discharge lagoon – sometimes up to 2 times per year	+	+	+	+	+	+	+	7
Perform smoke and other studies to see who is dumping into sewage system to enforce cleanup so system will not be overloaded in event of storm or to locate damage to pipes.	+	0	+	0	+	-	+	3
Convert WWTF to lift station and contract with City of Clinton to provide WWTF to better handle infiltration and overload during storm events.	+	+	+	+	+	-	+	5
Purchase sand-bagging equipment to better respond to flooding.	+	+	+	+	+	-	+	5
Purchase riprap and install as necessary to prevent erosion on river banks.	+	+	+	+	+	-	+	5
Install stick gauges on Deep Creek to better monitor and warn of flooding.	+	+	+	+	+	+	+	7
Position “Do Not Feed the Birds” signs along levee to prevent erosion.	0	+	+	+	+	+	+	6
Continue annual inspection of levee to ensure safety.	+	+	+	+	+	+	+	7
Bait and capture gophers along levee to stop them from burrowing in structure and thus weakening it.	0	+	+	+	+	+	+	6

Mitigation Action	S	T	A	P	L	E	E	Score
Create Public Information Campaign to educate the public about levee safety and maintenance.	+	+	+	+	+	+	+	7
Maintain floodgates and gate wells to continue protective measures and prevent flooding.	+	+	+	+	+	+	+	7
Continue ongoing sewer separation to prevent infiltration and flooding.	+	+	+	+	+	+	+	7
Complete dam failure study and levee certification by 2011.	+	+	+	+	+	+	+	7
Implement recommendation of dam failure study.	0	0	0	0	+	0	0	1
Build new fire station and emergency response facility to accommodate equipment and to better prepare for emergency response.	+	-	-	+	+	-	+	1
Continue to upgrade water supply system to get rid of dead-end mains so water will re-circulate and be more readily available for emergency response.	+	0	0	+	+	-	+	3
Acquire city-owned diesel storage tank in town so fuel will be more readily available for emergency response vehicles.	+	0	0	0	+	-	-	0
Jet the storm drains on Main Street and add larger storm sewers where needed.	+	+	+	+	+	-	+	5
Continue to repair water system and replace sections of rusting pipe.	+	+	+	+	+	-	+	5
Continue site development with DNR & EPA approval to use for debris management	+	+	+	+	+	+	+	7
Install additional ground storage with booster pump or new tower to increase water pressure for fire/emergency coverage.	+	0	0	+	+	-	+	3
Add fire hydrants between where water flow is low on SW edge of old part of town (7 th St.	+	+	+	+	+	-	+	5

Appendix D:

Resolutions

JAN 06 2011

December 20, 2010

RESOLUTION #2010 -334

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa.

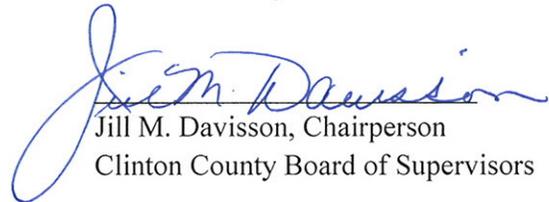
WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards; and

WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of Clinton County, Iowa in the form of a resolution and further requesting approval of the plan at the Federal Level; and

NOW, THEREFORE, the governing body of Clinton County, Iowa does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 20th day of December, 2010.

Roll Call:	Starling	<u>yes</u>
	Staszewski	<u>yes</u>
	Davisson	<u>yes</u>


Jill M. Davisson, Chairperson
Clinton County Board of Supervisors

ATTEST:


Eric Van Lancker, County Auditor

DEC 27 2010

RESOLUTION 2010-4

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

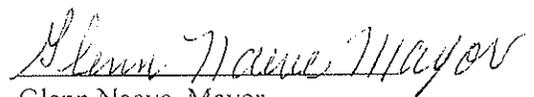
WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the City of Andover.

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

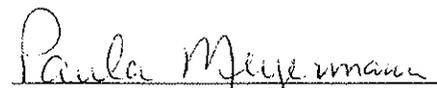
WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the City of Andover in the form of a resolution and further requesting approval of the plan at the Federal Level; and

NOW, THEREFORE, the governing body of the City of Andover does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 8th day of December, 2010.


Glenn Naeve, Mayor

ATTEST:


Paula Meyermann, City Clerk

RESOLUTION 032010

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the City of CALAMUS,

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the City of CALAMUS in the form of a resolution and further requesting approval of the plan at the Federal Level; and

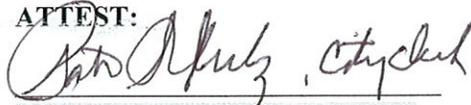
NOW, THEREFORE, the governing body of the City of CALAMUS does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 6 day of DECEMBER, 2010.

 - Mayor

TERRY STEINES, MAYOR

ATTEST:

 City Clerk

PATRICIA SCHULZ,, City Clerk

DEC 14 2010

Resolution 10-30

A RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN AND REQUESTING APPROVAL OF THE PLAN AT THE FEDERAL LEVEL

Whereas, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes, and

WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from the East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the City of Camanche, and

WHEREAS, the purpose of the mitigation plan was to lessen the effects of disasters by increasing the disaster resistance of the county and participating jurisdictions located within the planning boundary by identifying the hazards that affect the county and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

Whereas, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the City of Camanche in the form of a resolution and further requesting approval of the plan at the federal level

NOW THEREFORE BE IT RESOLVED that the City Council as the governing body of the City of Camanche, Iowa does hereby adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and hereby requests approval of said plan at the federal level.

Adopted by the Camanche City Council this 7th day of December, 2010.


James Robertson, Mayor


Attest: Sheryl Jindrich, City Clerk

RESOLUTION 2011-04

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the City of Charlotte.

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the City of Charlotte in the form of a resolution and further requesting approval of the plan at the Federal Level; and

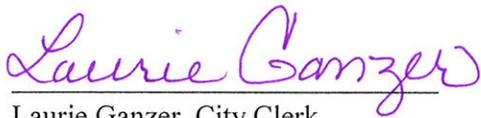
NOW, THEREFORE, the governing body of the City of Charlotte does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 7th day of December, 2010.



Marty Jahn, Mayor

ATTEST:



Laurie Ganzer, City Clerk

DEC 27 2010

RESOLUTION NO. 2010-490

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

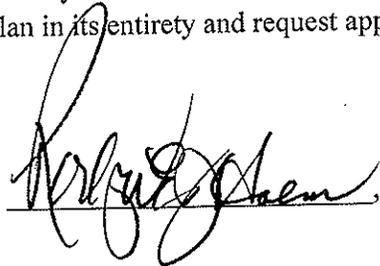
WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the City of Clinton.

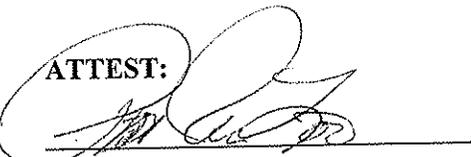
WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the City of Clinton in the form of a resolution and further requesting approval of the plan at the Federal Level; and

NOW, THEREFORE, the governing body of the City of Clinton does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.


_____, Mayor

ATTEST:



City Clerk

ADOPTED: December 14, 2010

RESOLUTION 2011-06

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

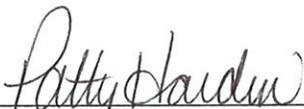
WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the City of Delmar.

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the City of Delmar in the form of a resolution and further requesting approval of the plan at the Federal Level; and

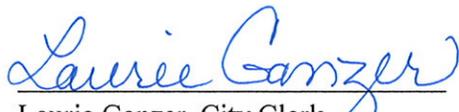
NOW, THEREFORE, the governing body of the City of Delmar does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 8th day of December, 2010.



Patty Hardin, Mayor

ATTEST:



Laurie Ganzer, City Clerk

RESOLUTION 2010-109

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

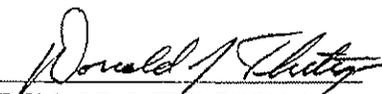
WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the City of DeWitt.

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

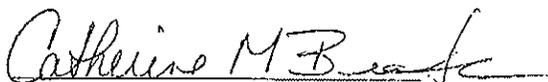
WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the City of DeWitt in the form of a resolution and further requesting approval of the plan at the Federal Level; and

NOW, THEREFORE, the governing body of the City of DeWitt does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 20th day of December, 2010.


DONALD J. THILTGEN, Mayor

ATTEST:


CATHERINE M. BENTHIN, City Clerk

RESOLUTION NO 9265

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

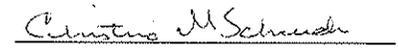
WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the City of Goose Lake, Iowa.

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the City of Goose Lake in the form of a resolution and further requesting approval of the plan at the Federal Level; and

NOW, THEREFORE, the governing body of the City of Goose Lake does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 16th day of December, 2010.


Christina M Schneider, Mayor

ATTEST:


Teresa Lindstrom, City Clerk

RESOLUTION 2010-09**RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.**

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

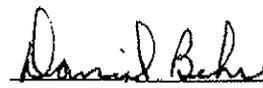
WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the City of Grand Mound.

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the City of Grand Mound in the form of a resolution and further requesting approval of the plan at the Federal Level; and

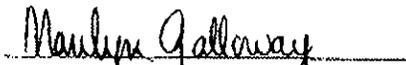
NOW, THEREFORE, the governing body of the City of Grand Mound does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 13th day of December, 2010.



Dan Behr, Mayor

ATTEST:


Marilyn Galloway, City Clerk

FEB 03 2011

RESOLUTION 010111

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

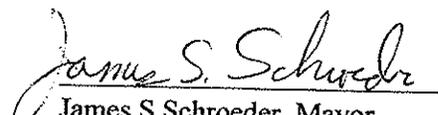
WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the City of Lost Nation.

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the City of Lost Nation in the form of a resolution and further requesting approval of the plan at the Federal Level; and

NOW, THEREFORE, the governing body of the City of Lost Nation does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 3rd day of January, 2011.


James S Schroeder, Mayor

ATTEST:


Janet S Burke, City Clerk

JAN 26 2011

RESOLUTION 11-01

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

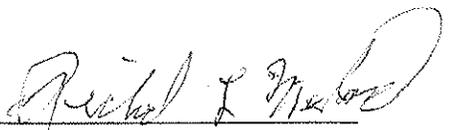
WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the City of Low Moor.

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

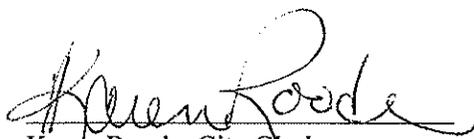
WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the City of Low Moor in the form of a resolution and further requesting approval of the plan at the Federal Level; and

NOW, THEREFORE, the governing body of the City of Low Moor does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 4th day of January, 2011.


Richard Meland, Mayor

ATTEST:


Karen Roode, City Clerk

RESOLUTION 010111

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

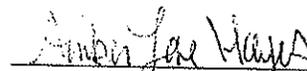
WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the City of Toronto.

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the City of Toronto in the form of a resolution and further requesting approval of the plan at the Federal Level; and

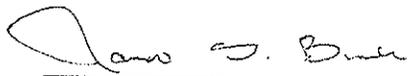
NOW, THEREFORE, the governing body of the City of Toronto does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 10th day of January, 2011.



Amber Hayes, Mayor

ATTEST:



Janet S Burke, City Clerk

RESOLUTION 12-7-10**RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.**

WHEREAS, the Federal Disaster Mitigation Act of 2010 was signed in to law 12-7-10, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

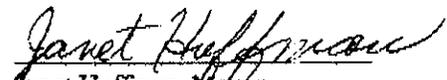
WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the City of Welton.

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

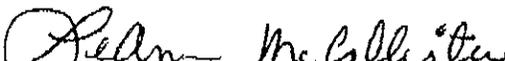
WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the City of Welton in the form of a resolution and further requesting approval of the plan at the Federal Level; and

NOW, THEREFORE, the governing body of the City of Welton does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 7, December 2010.


Janet Huffman, Mayor

ATTEST:


LeAnn McCallister, City Clerk

DEC 16 2010

RESOLUTION 2011-06

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

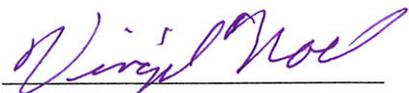
WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the City of Andover.

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the City of Wheatland in the form of a resolution and further requesting approval of the plan at the Federal Level; and

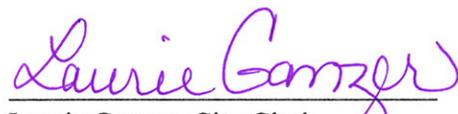
NOW, THEREFORE, the governing body of the City of Wheatland does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 13th day of December, 2010.



Virgil Noel, Mayor

ATTEST:



Laurie Ganzer, City Clerk

RESOLUTION NO. 12-2010

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

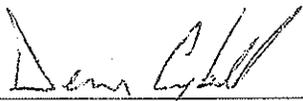
WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the Central Community School District of Clinton County.

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the Central Community School District of Clinton County in the form of a resolution and further requesting approval of the plan at the Federal Level; and

NOW, THEREFORE, the governing body of the Central Community School District of Clinton County does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 8th day of December, 2010.


Dennis Campbell, Board President

ATTEST:


Cindy McAleer, Board Secretary

DEC 22 2010

RESOLUTION

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

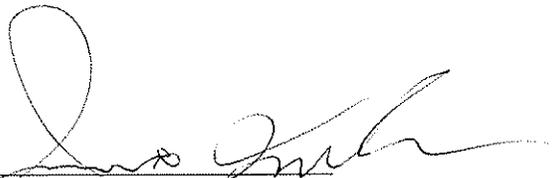
WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the Clinton Community School District.

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

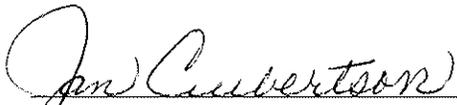
WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the Clinton Community School District in the form of a resolution and further requesting approval of the plan at the Federal Level; and

NOW, THEREFORE, the governing body of the Clinton Community School District does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 13th day of December, 2010.


James McGraw, School Board President

ATTEST:


Jan Culbertson, School Board Secretary

DEC 27 2010

RESOLUTION

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed into law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

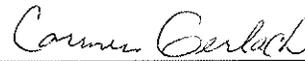
WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the Delwood Community School District.

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the Delwood Community School District in the form of a resolution and further requesting approval of the plan at the Federal Level; and

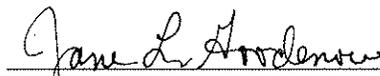
NOW, THEREFORE, the governing body of Delwood Community School District does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 20th day of December, 2010.



Carmen Gerlach,
President Delwood Board of Education

ATTEST:



Jane Goodenow
Delwood Business Manager

RESOLUTION

RESOLUTION APPROVING THE ADOPTION OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed into law on October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the Northeast Community Schools; and

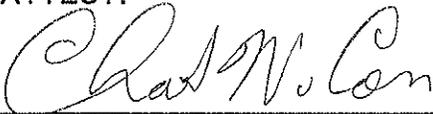
WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards; and

WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the Northeast Community Schools in the form of a resolution and further requesting approval of the plan at the Federal Level; and

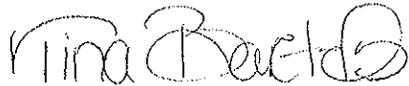
NOW, THEREFORE, the governing body of the Northeast Community Schools does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED: December 15, 2010

ATTEST:



Charles Corr, President
Northeast Community School Board



Tina Bartels, Board Secretary/Treasurer
Northeast Community School District

RESOLUTION

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the Calamus/Wheatland Community School District.

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the Calamus/Wheatland Community School District in the form of a resolution and further requesting approval of the plan at the Federal Level; and

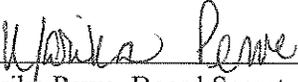
NOW, THEREFORE, the governing body of the Calamus/Wheatland Community School District does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 13th day of June, 2011.



Ryan VanderHeiden, President

ATTEST:



Marika Pewe, Board Secretary

RESOLUTION

RESOLUTION APPROVING THE ADOPTING OF THE CLINTON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN, AND REQUEST APPROVAL OF PLAN AT THE FEDERAL LEVEL.

WHEREAS, the Federal Disaster Mitigation Act of 2000 was signed in to law October 30, 2000, placing new emphasis on state and local mitigation planning for natural hazards and requiring communities to adopt a hazard mitigation action plan to be eligible for pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, a Multi-jurisdictional Hazard Mitigation Plan was prepared by Clinton County with assistance from East Central Intergovernmental Association (ECIA) of Dubuque, Iowa, which includes the Camanche Community School District.

WHEREAS, the purpose of the mitigation plan was to lessen the affects of disasters by increasing the disaster resistance of the County and participating jurisdictions located within the planning boundary by identifying the hazards that affect the County and prioritize mitigation strategies to reduce potential loss of life and property damage from those hazards, and

WHEREAS, FEMA regulations require documentation that the plan has been formally adopted by the governing body of the Camanche Community School District in the form of a resolution and further requesting approval of the plan at the Federal Level; and

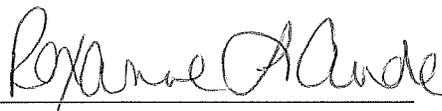
NOW, THEREFORE, the governing body of the Camanche Community School District does herewith adopt the Clinton County Multi-jurisdictional Hazard Mitigation Plan in its entirety and request approval of the plan at the Federal Level.

PASSED AND APPROVED this 20th day of June, 2011.



Mike Dunn, President

ATTEST:



Roxanne Aude, Board Secretary

Appendix E:

National Oceanic & Atmospheric Administration
(NOAA)

And

National Climatic Data Center (NCDC)
Data for Clinton County, Iowa

CLINTON COUNTY NOAA/NCDC DATE

11 DROUGHT event(s) were reported in **Clinton County, Iowa** between **01/01/1950** and **08/31/2010**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Iowa

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 All Of Iowa	08/01/1995	0000	Drought	N/A	0	0	0	0.5B
2 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	08/01/2003	12:00 AM	Drought	N/A	0	0	0	312.5M
3 IAZ041>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	07/01/2005	12:00 AM	Drought	N/A	0	0	0	154.7M
4 IAZ041>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	08/01/2005	12:00 AM	Drought	N/A	0	0	0	42.7M
5 IAZ041>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	09/01/2005	12:00 AM	Drought	N/A	0	0	0	0
6 IAZ041>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	10/01/2005	12:00 AM	Drought	N/A	0	0	0	0
7 IAZ042 - 052>054 - 063>068 - 076>078 - 087>089 - 098>099	11/01/2005	12:00 AM	Drought	N/A	0	0	0	0
8 IAZ042 - 052>054 - 063>068 - 076>078 - 087>089 - 098>099	12/01/2005	12:00 AM	Drought	N/A	0	0	0	0
9 IAZ042 - 052>054 - 063>068 - 076>078 - 087>089 - 098>099	01/01/2006	12:00 AM	Drought	N/A	0	0	0	0
10 IAZ042 - 053>054 - 063>068 - 076>078 - 087>089 - 098>099	02/01/2006	12:00 AM	Drought	N/A	0	0	0	0
11 IAZ053>054 - 063>068 - 076>078 - 087>089 - 098>099	03/01/2006	12:00 AM	Drought	N/A	0	0	0	0
TOTALS:					0	0	0	1.010B

56 FLOOD event(s) were reported in **Clinton County, Iowa** between **01/01/1950** and **08/31/2010**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Iowa

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 East Central Iowa	01/01/1993	0600	Flooding	N/A	0	0	5K	0
2 Much Of Iowa	02/19/1994	0600	Flooding	N/A	0	0	500K	0
3 Much Of Iowa	03/03/1994	1200	Flooding	N/A	0	0	500K	0
4 IAZ001>099	06/22/1994	2330	Flooding	N/A	0	0	500K	500K
5 CLINTON	08/19/1994	1745	Urban Flooding	N/A	0	0	50K	1K
6 CLINTON	04/09/1995	0145	Urban Flooding	N/A	0	0	10K	0
7 IAZ033 - 034 - 045>052 - 057>068 - 070>078 - 081>089 - 092>099	05/07/1995	1200	Flooding	N/A	0	0	200K	10K
8 IAZ004>011 - 015>019 - 023>030 - 035>042 - 047>054 - 060>068 - 074>078 - 084>089 - 095>099	06/06/1995	2300	Flood	N/A	0	0	50K	100K
9 CLINTON	07/26/1995	1800	Urban Flood	N/A	0	0	25K	2K
10 Countywide	02/20/1997	04:00 PM	Flood	N/A	0	0	0	0
11 IAZ042 - 054 - 066>068 - 078 - 089 - 099	04/08/1997	06:00 AM	Flood	N/A	0	0	0	0
12 IAZ040>042 - 052>054 - 063>068 - 078 - 089 - 098>099	05/17/1999	09:00 AM	Flood	N/A	0	0	0	0
13 IAZ065>068 - 078 - 089	07/03/1999	07:00 PM	Flood	N/A	0	0	0	0
14 IAZ040 - 051>053 - 064>068 - 078 - 089	07/23/1999	07:00 AM	Flood	N/A	0	0	0	0

15 IAZ040>042 - 052>054 - 063>068 - 078 - 089 - 098>099	06/01/2000	07:30 AM	Flood	N/A	0	0	0	0
16 Clinton	06/24/2000	05:26 PM	Urban/sml Stream Fld	N/A	1	0	0	0
17 IAZ063>068	07/01/2000	12:00 AM	Flood	N/A	0	0	0	0
18 Countywide	02/24/2001	09:00 AM	Urban/sml Stream Fld	N/A	0	0	0	0
19 IAZ042 - 052 - 054 - 066>068 - 078 - 089 - 099	04/14/2001	05:30 AM	Snowmelt Flooding	N/A	0	0	0	0
20 IAZ042 - 054 - 066>068 - 078 - 089 - 099	05/01/2001	01:00 AM	Flood	N/A	0	0	0	0
21 IAZ042 - 054 - 066>068 - 078 - 089	04/21/2002	06:27 PM	Flood	N/A	0	0	0	0
22 Dewitt	04/24/2002	11:59 AM	Urban/sml Stream Fld	N/A	0	0	0	0
23 Bleidorn	06/04/2002	02:00 PM	Flash Flood	N/A	0	0	0	0
24 Malone	06/04/2002	02:00 PM	Flash Flood	N/A	0	0	0	0
25 Wheatland	06/04/2002	06:07 AM	Urban/sml Stream Fld	N/A	0	0	0	0
26 Charlotte	06/04/2002	07:03 AM	Flash Flood	N/A	0	0	0	0
27 Dewitt	06/04/2002	07:20 AM	Flash Flood	N/A	0	0	0	0
28 Charlotte	06/04/2002	08:07 AM	Flash Flood	N/A	0	0	0	0
29 Toronto	06/04/2002	08:07 AM	Flash Flood	N/A	0	0	0	0
30 Dewitt	06/04/2002	10:00 AM	Flash Flood	N/A	0	0	0	0
31 Charlotte	06/04/2002	12:30 PM	Flash Flood	N/A	0	0	0	0
32 Dewitt	06/04/2002	12:45 PM	Flash Flood	N/A	0	0	0	0

33 IAZ066 - 068	05/16/2003	07:30 AM	Flood	N/A	0	0	1.0M	0
34 IAZ066 - 068	05/22/2004	10:36 PM	Flood	N/A	0	0	0	0
35 IAZ053 - 063>068 - 076>078 - 087>089 - 099	06/01/2004	12:00 AM	Flood	N/A	0	0	0	0
36 Toronto	05/09/2006	10:50 PM	Flood	N/A	0	0	0	0
37 Clinton	07/03/2007	23:21 PM	Flash Flood	N/A	0	0	50K	0K
38 Charlotte	07/04/2007	00:50 AM	Flash Flood	N/A	0	0	150K	0K
39 Dewitt	07/04/2007	04:30 AM	Flash Flood	N/A	0	0	1K	0K
40 Dewitt	07/09/2007	18:45 PM	Flash Flood	N/A	0	0	0K	0K
41 Dewitt	04/01/2008	00:00 AM	Flood	N/A	0	0	0K	0K
42 Wheatland	05/01/2008	00:00 AM	Flood	N/A	0	0	0K	0K
43 Toronto	06/01/2008	00:00 AM	Flood	N/A	0	0	0K	0K
44 Clinton	06/12/2008	22:11 PM	Flash Flood	N/A	0	0	5K	0K
45 Toronto	05/02/2009	17:00 PM	Flood	N/A	0	0	125K	0K
46 Welton	08/26/2009	10:57 AM	Flash Flood	N/A	0	0	0K	0K
47 Toronto	08/27/2009	00:45 AM	Flood	N/A	0	0	500K	0K
48 Welton	08/27/2009	08:15 AM	Flash Flood	N/A	0	0	500K	0K
49 Toronto	05/18/2010	12:00 PM	Flood	N/A	0	0	250K	0K
50 Dewitt	05/25/2010	15:00 PM	Flash Flood	N/A	0	0	0K	0K

51 Toronto	06/17/2010	05:30 AM	Flood	N/A	0	0	500K	0K
52 Dewitt	06/23/2010	06:25 AM	Flash Flood	N/A	0	0	10K	0K
53 Toronto	07/08/2010	06:00 AM	Flood	N/A	0	0	150K	0K
54 Toronto	07/12/2010	12:00 PM	Flood	N/A	0	0	250K	0K
55 Toronto	07/28/2010	12:00 PM	Flood	N/A	0	0	250K	0K
56 Toronto	08/14/2010	18:00 PM	Flood	N/A	0	0	125K	0K
TOTALS:					1	0	5.706M	613K

74 HAIL event(s) were reported in Clinton County, Iowa between 01/01/1950 and 08/31/2010.

Mag: Magnitude
 Dth: Deaths
 Inj: Injuries
 PrD: Property Damage
 CrD: Crop Damage

Iowa

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 CLINTON	04/27/1956	2000	Hail	2.00 in.	0	0	0	0
2 CLINTON	08/07/1958	1550	Hail	4.00 in.	0	0	0	0
3 CLINTON	08/26/1965	2345	Hail	2.00 in.	0	0	0	0
4 CLINTON	08/06/1967	1900	Hail	2.00 in.	0	0	0	0
5 CLINTON	07/17/1972	1435	Hail	1.00 in.	0	0	0	0
6 CLINTON	06/14/1974	1455	Hail	1.00 in.	0	0	0	0
7 CLINTON	06/14/1974	1500	Hail	0.75 in.	0	0	0	0
8 CLINTON	06/14/1974	1530	Hail	1.75 in.	0	0	0	0
9 CLINTON	06/22/1974	0435	Hail	0.75 in.	0	0	0	0
10 CLINTON	08/05/1979	1815	Hail	1.00 in.	0	0	0	0
11 CLINTON	08/05/1979	1855	Hail	1.75 in.	0	0	0	0
12 CLINTON	08/05/1979	1905	Hail	0.75 in.	0	0	0	0
13 CLINTON	06/07/1980	1030	Hail	2.00 in.	0	0	0	0
14 CLINTON	09/17/1983	1258	Hail	1.75 in.	0	0	0	0
15 CLINTON	05/26/1985	1805	Hail	1.75 in.	0	0	0	0
16 CLINTON	06/23/1985	1005	Hail	1.75 in.	0	0	0	0
17 CLINTON	04/02/1988	1710	Hail	1.75 in.	0	0	0	0
18 CLINTON	07/18/1989	1520	Hail	1.00 in.	0	0	0	0
19 CLINTON	07/18/1989	1523	Hail	1.75 in.	0	0	0	0
20 CLINTON	03/13/1990	1350	Hail	1.75 in.	0	0	0	0
21 CLINTON	03/13/1990	1415	Hail	0.87 in.	0	0	0	0
22 CLINTON	04/10/1992	1910	Hail	1.75 in.	0	0	0	0
23 CLINTON	06/17/1992	1130	Hail	0.75 in.	0	0	0	0
24 Clinton	07/19/1994	1340	Hail	0.75 in.	0	0	5K	5K

25 Delmar	08/19/1994	1624	Hail	1.00 in.	0	0	5K	50K
26 Clinton	08/19/1994	1635	Hail	0.75 in.	0	0	5K	50K
27 Elvira	08/19/1994	1650	Hail	0.75 in.	0	0	5K	50K
28 Clinton	08/19/1994	1655	Hail	0.75 in.	0	0	5K	50K
29 Camanche	05/09/1995	1650	Hail	1.00 in.	0	0	5K	0
30 Clinton	05/09/1995	1700	Hail	1.75 in.	0	0	0	0
31 Clinton	05/09/1995	1700	Hail	1.75 in.	0	0	50K	0
32 Calamus	07/27/1995	1636	Hail	2.75 in.	0	0	250K	20K
33 Grand Mound	07/27/1995	1641	Hail	1.75 in.	0	0	10K	10K
34 Grand Mound	07/27/1995	1646	Hail	1.75 in.	0	0	10K	10K
35 Dewitt	07/27/1995	1650	Hail	2.75 in.	0	0	175K	10K
36 Grand Mound	07/27/1995	1650	Hail	2.75 in.	0	0	100K	10K
37 Clinton Airport	07/27/1995	1727	Hail	2.75 in.	0	0	200K	40K
38 Dewitt	05/18/1997	04:15 PM	Hail	0.75 in.	0	0	0	0
39 Clinton	06/18/1998	04:15 PM	Hail	0.75 in.	0	0	0	0
40 Clinton	06/06/1999	01:15 PM	Hail	1.00 in.	0	0	0	0
41 Andover	07/21/1999	05:35 PM	Hail	0.75 in.	0	0	0	0
42 Dewitt	09/19/1999	03:17 PM	Hail	0.75 in.	0	0	0	0
43 Dewitt	05/11/2000	06:37 AM	Hail	0.88 in.	0	0	0	0
44 Dewitt	05/11/2000	07:35 AM	Hail	1.00 in.	0	0	0	0
45 Clinton	05/11/2000	07:53 AM	Hail	1.00 in.	0	0	0	0
46 Charlotte	05/08/2001	02:45 PM	Hail	1.75 in.	0	0	0	0
47 Lost Nation	05/10/2001	07:25 PM	Hail	1.75 in.	0	0	0	0

48 Welton	04/18/2002	03:40 PM	Hail	1.75 in.	0	0	0	0
49 Dewitt	04/24/2002	11:00 AM	Hail	0.75 in.	0	0	0	0
50 Delmar	05/08/2002	09:12 PM	Hail	0.75 in.	0	0	0	0
51 Clinton	07/20/2002	04:30 PM	Hail	1.75 in.	0	0	0	0
52 Goose Lake	09/18/2002	02:20 PM	Hail	1.00 in.	0	0	0	0
53 Elvira	07/07/2003	05:53 AM	Hail	0.75 in.	0	0	15K	2K
54 Clinton	07/07/2003	05:57 AM	Hail	1.00 in.	0	0	50K	0
55 Camanche	07/07/2003	05:58 AM	Hail	1.00 in.	0	0	100K	10K
56 Wheatland	03/24/2004	08:36 AM	Hail	0.88 in.	0	0	1K	0
57 Dewitt	11/05/2005	03:15 PM	Hail	1.00 in.	0	0	5K	0
58 Folletts	05/17/2006	02:40 PM	Hail	0.75 in.	0	0	0	0
59 Folletts	05/27/2006	01:25 PM	Hail	0.88 in.	0	0	0	1K
60 Camanche	07/22/2006	03:27 PM	Hail	0.75 in.	0	0	0	0
61 Dewitt	07/09/2007	17:29 PM	Hail	1.00 in.	0	0	0K	0K
62 Welton	04/25/2008	15:15 PM	Hail	1.00 in.	0	0	0K	0K
63 Charlotte	05/02/2008	00:29 AM	Hail	0.75 in.	0	0	0K	0K
64 Charlotte	05/25/2008	22:32 PM	Hail	0.75 in.	0	0	0K	0K
65 Clinton	06/05/2008	05:59 AM	Hail	0.75 in.	0	0	0K	0K

66 Delmar	06/12/2008	08:06 AM	Hail	1.00 in.	0	0	0K	0K
67 Charlotte	06/12/2008	08:12 AM	Hail	1.00 in.	0	0	0K	0K
68 Low Moor	07/10/2008	14:10 PM	Hail	0.88 in.	0	0	0K	0K
69 Low Moor	07/10/2008	14:21 PM	Hail	1.00 in.	0	0	0K	0K
70 Elvira	06/25/2009	14:57 PM	Hail	0.75 in.	0	0	0K	0K
71 Dewitt	07/27/2009	22:35 PM	Hail	0.75 in.	0	0	0K	0K
72 Dewitt	04/30/2010	13:12 PM	Hail	0.75 in.	0	0	0K	0K
73 Goose Lake	06/18/2010	18:31 PM	Hail	0.88 in.	0	0	0K	0K
74 Calamus Eastvold Arp	06/21/2010	17:58 PM	Hail	1.75 in.	0	0	0K	0K
TOTALS:					0	0	996K	318K

27 HIGH WINDS event(s) were reported in **Clinton County, Iowa** between **01/01/1950** and **08/31/2010** with wind speed reaching **0** knots.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Iowa

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 All Of Iowa	04/14/1994	2200	High Winds	0 kts.	0	0	500K	0
2 Most Of Iowa	04/26/1994	0900	High Winds	0 kts.	0	3	5.0M	0
3 IAZ001>068 - 070>078 - 083>089	11/18/1994	0230	High Winds	0 kts.	0	0	200K	0
4 All Of Iowa	02/10/1995	0000	High Winds	0 kts.	0	0	100K	0
5 IAZ004>011 - 015>019 - 023>030 - 033>042 - 044>054 - 057>068 - 070>078 - 081>089 - 092>099	04/03/1995	1300	High Winds	0 kts.	0	0	125K	0
6 IAZ004>011 - 015>019 - 023>030 - 033>042 - 044>054 - 057>068 - 070>078 - 081>089 - 092>099	04/18/1995	0700	High Winds	0 kts.	0	0	500K	0
7 Clinton	04/18/1995	1215	High Winds	0 kts.	0	0	4K	0
8 Welton	04/18/1995	1215	High Winds	0 kts.	0	0	15K	0
9 CLINTON	05/08/1995	0800	High Winds	0 kts.	0	0	100K	0
10 Clinton	05/08/1995	0930	High Winds	0 kts.	0	0	10K	0
11 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098 - 099	12/08/1995	0600	Snow-High Wind-Wind	N/A	0	0	0	0

			Chill						
12 IAZ040>042 - 051 - 053>054 - 063>068 - 076>078 - 087>089 - 098>099	10/29/1996	04:30 PM	High Wind	52 kts.	0	1	20K	0	
13 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	04/06/1997	08:00 AM	High Wind	59 kts.	0	0	2.6M	0	
14 IAZ054 - 066	05/07/1997	10:30 PM	High Wind	60 kts.	0	0	0	0	
15 IAZ030 - 040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	09/29/1997	11:00 AM	High Wind	52 kts.	0	0	10K	0	
16 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	11/09/1998	04:00 AM	High Wind	59 kts.	0	0	0	0	
17 IAZ030 - 040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	02/25/2001	02:00 AM	High Wind	50 kts.	0	0	0	0	
18 IAZ066	04/07/2001	01:55 PM	High Wind	51 kts.	0	0	0	0	
19 IAZ053 - 065>066	06/12/2001	10:18 AM	High Wind	44 kts.	0	0	0	0	
20 IAZ042 - 066 - 068 - 088 - 098	03/09/2002	01:00 PM	High Wind	51 kts.	0	0	0	0	
21 IAZ040>042 - 051>054 - 063>068 - 077	02/11/2003	02:58 PM	High Wind	52 kts.	0	0	0	0	
22 IAZ066	05/04/2003	06:30 PM	High Wind	43 kts.	0	0	1.0M	0	
23 IAZ066	05/11/2003	08:10 AM	High Wind	36 kts.	0	0	250K	0	
24 IAZ054 - 063 - 066>068 - 087	11/12/2003	12:00 PM	High Wind	53 kts.	0	0	150K	0	
25 IAZ066	03/05/2004	08:35 AM	High Wind	50 kts.	0	0	5K	0	
26 IAZ040 - 040 - 051 - 053	12/12/2004	11:07	High	57	0	0	29K	0	

- 064 - 066		AM	Wind	kts.				
27 IAZ066	04/10/2008	13:10 PM	High Wind	56 kts.	0	0	25K	0K
TOTALS:					0	4	10.593M	0

8 LIGHTNING event(s) were reported in **Clinton County, Iowa** between **01/01/1950** and **08/31/2010**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Iowa

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 Low Moor	08/09/1993	1210	Lightning	N/A	0	1	1K	0
2 Clinton	07/19/1994	1405	Lightning	N/A	0	0	5K	0
3 Clinton	05/24/1996	09:00 AM	Lightning	N/A	0	0	10K	0
4 Camanche	09/16/1997	06:00 PM	Lightning	N/A	0	0	0	0
5 Clinton	07/21/1999	05:15 PM	Lightning	N/A	0	0	2K	0
6 Clinton	06/03/2002	11:50 PM	Lightning	N/A	0	0	0	0
7 Clinton	04/30/2003	09:32 PM	Lightning	N/A	0	0	10K	0K
8 Calamus	06/21/2006	03:35 AM	Lightning	N/A	0	0	2K	0
TOTALS:					0	1	30K	0

108 SNOW & ICE event(s) were reported in Clinton County, Iowa between 01/01/1950 and 08/31/2010.

Mag: Magnitude
 Dth: Deaths
 Inj: Injuries
 PrD: Property Damage
 CrD: Crop Damage

Iowa

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 T-	01/02/1994	0600	Snow/heavy Snow	N/A	0	0	500K	0
2 IAZ041 - 042 - 051>054 - 061>099	01/26/1994	1300	Freezing Rain	N/A	0	0	500K	0
3 Southeast Third Of Io	02/22/1994	1000	Snow	N/A	0	0	5K	0
4 Southern Iowa	12/06/1994	0000	Ice Storm	N/A	0	0	15.0M	0
5 IAZ006>066 - 069>075	12/07/1994	0600	Heavy Snow	N/A	0	0	500K	0
6 IAZ042 - 053 - 054 - 065>068 - 077 - 078 - 087>089 - 089 - 099	01/19/1995	0400	Heavy Snow	N/A	0	0	100K	0
7 IAZ001>004 - 012>015 - 020>028 - 031>099	01/26/1995	2300	Freezing Rain	N/A	0	0	100K	0
8 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098 - 099	11/10/1995	0400	Snow/sleet/freezing Rain	N/A	0	0	0	0
9 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098 - 099	11/27/1995	0400	Snow/sleet/freezing Rain	N/A	0	0	0	0

10 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098 - 099	12/08/1995	0600	Snow- High Wind- Wind Chill	N/A	0	0	0	0
11 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	01/18/1996	04:30 AM	Heavy Snow	N/A	0	0	0	0
12 IAZ040>042 - 051>054 - 063>067 - 076>078 - 087>089 - 098>099	01/26/1996	04:00 AM	Winter Storm	N/A	0	0	0	0
13 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>088 - 098>099	11/14/1996	06:00 AM	Winter Storm	N/A	1	11	184K	0
14 IAZ040>042 - 051>054 - 063>066	12/25/1996	05:00 PM	Winter Storm	N/A	0	0	0	0
15 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	12/27/1996	06:00 PM	Winter Storm	N/A	0	3	100K	0
16 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	01/09/1997	04:00 AM	Winter Storm	N/A	0	0	0	0
17 IAZ040>042 - 051>054 - 063>068 -	01/15/1997	04:00 AM	Winter Storm	N/A	0	0	0	0

076>078 - 087>089 - 098>099									
18 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	01/24/1997	04:00 AM	Winter Storm	N/A	0	0	0	0	0
19 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	02/03/1997	08:00 PM	Winter Storm	N/A	0	0	0	0	0
20 IAZ040>042 - 051>054 - 063>067 - 076>078 - 087>089 - 098>099	10/26/1997	02:00 AM	Heavy Snow	N/A	0	0	0	0	0
21 IAZ040>042 - 051>052 - 065>066 - 068	11/14/1997	09:00 PM	Winter Storm	N/A	0	0	0	0	0
22 IAZ030 - 063>068 - 076>078 - 087>089 - 098>099	12/09/1997	05:00 PM	Heavy Snow	N/A	0	0	0	0	0
23 IAZ030 - 042 - 052>054 - 063>068 - 076>078 - 087>089 - 098>099	12/24/1997	11:00 AM	Heavy Snow	N/A	0	0	0	0	0
24 IAZ054 - 065>068 - 078 - 089	01/08/1998	10:00 AM	Winter Storm	N/A	0	0	0	0	0
25 IAZ040>042 - 051>054 - 065>066	01/20/1998	10:00 PM	Winter Storm	N/A	0	0	0	0	0

26 IAZ040>042 - 051>054 - 063>066	12/06/1998	03:00 PM	Winter Storm	N/A	0	0	0	0
27 IAZ040>042 - 051>054 - 063>066	12/06/1998	03:00 PM	Winter Storm	N/A	0	0	0	0
28 IAZ030 - 040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	12/30/1998	04:00 PM	Winter Storm	N/A	0	0	0	0
29 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	01/01/1999	05:17 AM	Winter Storm	N/A	2	0	0	0
30 IAZ052 - 064>068 - 078 - 088>089 - 099	01/18/1999	04:05 AM	Winter Storm	N/A	0	0	0	0
31 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	03/05/1999	01:00 PM	Winter Storm	N/A	0	0	0	0
32 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	03/08/1999	03:00 PM	Winter Storm	N/A	0	0	0	0
33 IAZ066 - 068 - 087>088 - 098	12/05/1999	07:00 AM	Winter Storm	N/A	0	0	0	0
34 IAZ041 - 051>054 - 063>068 - 076>078 - 088>089 -	12/16/1999	07:00 PM	Winter Storm	N/A	0	0	0	0

098>099									
35 IAZ030 - 040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	12/19/1999	03:00 PM	Winter Storm	N/A	0	0	0	0	0
36 IAZ040>042 - 052>054 - 063>068 - 089	12/23/1999	02:00 PM	Winter Storm	N/A	0	0	0	0	0
37 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	01/03/2000	03:00 PM	Winter Storm	N/A	0	0	0	0	0
38 IAZ030 - 040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	01/17/2000	08:00 AM	Winter Storm	N/A	0	0	0	0	0
39 IAZ040>042 - 051>054 - 063>068 - 076>078 - 088>089	01/19/2000	10:00 AM	Winter Storm	N/A	0	0	0	0	0
40 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	01/29/2000	03:00 PM	Winter Storm	N/A	0	0	0	0	0
41 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	02/17/2000	07:00 PM	Winter Storm	N/A	0	0	0	0	0

42 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	12/01/2000	02:00 AM	Snow	N/A	0	0	0	0
43 IAZ040>042 - 051>054 - 064>068	12/07/2000	04:00 AM	Snow/freezing Rain	N/A	0	0	0	0
44 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	12/10/2000	10:00 PM	Winter Storm	N/A	0	0	0	0
45 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	12/15/2000	01:00 PM	Ice Storm	N/A	0	0	0	0
46 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	12/18/2000	04:00 AM	Snow/blowing Snow	N/A	0	0	0	0
47 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	12/20/2000	07:00 AM	Snow	N/A	0	0	0	0
48 IAZ040>042 - 051>054 - 063>064 - 066 - 068 - 076>078 - 087>089 - 098>099	12/28/2000	10:00 AM	Snow	N/A	0	0	0	0
49 IAZ040>042 - 051>054 - 063>068 - 078	01/01/2001	12:00 AM	Snow	N/A	0	0	0	0

50 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	01/13/2001	07:00 PM	Snow/freezing Rain	N/A	0	0	0	0
51 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	01/26/2001	02:00 AM	Snow/blowing Snow	N/A	0	0	0	0
52 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	01/28/2001	10:00 AM	Ice Storm	N/A	0	0	0	0
53 Countywide	02/07/2001	03:00 PM	Freezing Rain	N/A	0	0	0	0
54 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>088	02/14/2001	05:00 AM	Freezing Rain	N/A	0	0	0	0
55 IAZ063>068 - 076>078	02/23/2001	10:30 PM	Freezing Rain	N/A	0	0	0	0
56 IAZ040>042 - 054 - 066>068 - 078 - 087>089 - 098>099	03/15/2001	12:00 AM	Snow	N/A	0	0	0	0
57 IAZ042 - 052 - 054 - 066>068 - 078 - 089 - 099	04/14/2001	05:30 AM	Snowmelt Flooding	N/A	0	0	0	0
58 IAZ053>054 - 063>068 - 076>078 - 087>089 - 098>099	01/30/2002	03:00 AM	Winter Storm	N/A	0	0	0	0
59 IAZ040>042 - 051>054 -	03/01/2002	03:00 PM	Winter Storm	N/A	0	0	0	0

063>068 - 076>078 - 087>089 - 098>099									
60 IAZ040>042 - 051>054 - 063>066	01/28/2003	10:00 AM	Winter Storm	N/A	0	0	0	0	0
61 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	02/14/2003	04:00 PM	Winter Storm	N/A	0	0	0	0	0
62 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098	03/04/2003	01:00 PM	Winter Storm	N/A	0	0	0	0	0
63 IAZ063 - 066 - 068 - 076 - 078 - 087	01/03/2005	06:00 AM	Ice Storm	N/A	0	0	30K	0	0
64 IAZ040>042 - 051>054 - 063>064 - 066 - 076	01/05/2005	05:00 PM	Heavy Snow	N/A	0	0	120K	0	0
65 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	12/08/2005	03:00 AM	Winter Weather/mix	N/A	0	0	0	0	0
66 IAZ040>042 - 051>054 - 063>068 - 076>078 - 087>089 - 098>099	02/15/2006	08:30 PM	Winter Weather	N/A	0	0	37K	0	0
67 IAZ066	12/01/2006	02:15 AM	Winter Weather	N/A	0	0	0K	0K	0K
68 IAZ066	01/13/2007	14:00 PM	Winter Weather	N/A	0	0	0K	0K	0K

69 IAZ066	01/21/2007	01:30 AM	Winter Weather	N/A	0	0	OK	OK
70 IAZ066	02/06/2007	06:35 AM	Winter Weather	N/A	0	0	OK	OK
71 IAZ066	02/11/2007	21:15 PM	Winter Weather	N/A	0	0	OK	OK
72 IAZ066	02/13/2007	01:30 AM	Winter Storm	N/A	0	0	OK	OK
73 IAZ066	02/16/2007	17:50 PM	Winter Weather	N/A	0	0	OK	OK
74 IAZ066	02/24/2007	10:00 AM	Ice Storm	N/A	0	0	249K	OK
75 IAZ054 - 066	03/01/2007	18:55 PM	Winter Weather	N/A	0	0	OK	OK
76 IAZ054 - 066	12/01/2007	10:00 AM	Winter Storm	N/A	0	0	OK	OK
77 IAZ066	12/06/2007	15:30 PM	Winter Weather	N/A	0	0	OK	OK
78 IAZ054 - 063 - 066	12/11/2007	01:00 AM	Ice Storm	N/A	0	0	OK	OK
79 IAZ066	12/15/2007	01:15 AM	Winter Weather	N/A	0	0	OK	OK
80 IAZ066 - 078	12/22/2007	18:00 PM	Winter Storm	N/A	0	0	OK	OK
81 IAZ066	12/28/2007	04:55 AM	Winter Weather	N/A	0	0	OK	OK
82 IAZ066	12/31/2007	12:00 PM	Winter Weather	N/A	0	0	OK	OK
83 IAZ066	01/21/2008	00:30 AM	Winter Weather	N/A	0	0	OK	OK
84 IAZ066	01/31/2008	13:45 PM	Winter Weather	N/A	0	0	OK	OK
85 IAZ066	02/03/2008	15:00 PM	Winter Storm	N/A	0	0	OK	OK
86 IAZ066	02/05/2008	13:45 PM	Winter Storm	N/A	0	0	OK	OK

87 IAZ053 - 066	02/11/2008	12:00 PM	Winter Weather	N/A	0	0	OK	OK
88 IAZ054 - 065 - 066	02/17/2008	02:00 AM	Winter Storm	N/A	0	0	OK	OK
89 IAZ054 - 065 - 066	02/17/2008	02:00 AM	Winter Weather	N/A	0	0	OK	OK
90 IAZ040 - 054 - 066 - 076 - 077	02/25/2008	16:00 PM	Winter Weather	N/A	0	0	OK	OK
91 IAZ066	02/28/2008	18:00 PM	Winter Weather	N/A	0	0	OK	OK
92 IAZ054 - 066	11/30/2008	01:35 AM	Winter Weather	N/A	0	0	OK	OK
93 IAZ066 - 098	12/03/2008	09:00 AM	Winter Weather	N/A	0	0	OK	OK
94 IAZ066	12/16/2008	10:40 AM	Winter Weather	N/A	0	0	OK	OK
95 IAZ041 - 053>054 - 066	12/18/2008	22:00 PM	Heavy Snow	N/A	0	0	OK	OK
96 IAZ041 - 053>054 - 066	12/18/2008	22:00 PM	Winter Storm	N/A	0	0	OK	OK
97 IAZ042 - 054 - 066 - 068	12/24/2008	04:00 AM	Winter Weather	N/A	0	0	OK	OK
98 IAZ066	01/09/2009	19:50 PM	Heavy Snow	N/A	0	0	OK	OK
99 IAZ066	01/13/2009	21:15 PM	Heavy Snow	N/A	0	0	OK	OK
100 IAZ066	02/20/2009	23:00 PM	Winter Weather	N/A	0	0	OK	OK
101 IAZ065 - 066	12/08/2009	01:00 AM	Winter Storm	N/A	0	0	OK	OK
102 IAZ042 - 054 - 066	12/21/2009	18:00 PM	Winter Weather	N/A	0	0	OK	OK
103 IAZ066	12/25/2009	14:00 PM	Winter Weather	N/A	0	0	OK	OK
104 IAZ054 - 066 - 099	01/06/2010	19:00 PM	Winter Storm	N/A	0	0	OK	OK

105 IAZ066	01/25/2010	08:45 AM	Winter Weather	N/A	0	0	OK	OK
106 IAZ066	02/07/2010	22:30 PM	Winter Weather	N/A	0	0	OK	OK
107 IAZ066 - 068	02/21/2010	16:00 PM	Winter Weather	N/A	0	0	OK	OK
108 IAZ066	03/19/2010	22:00 PM	Winter Weather	N/A	0	0	OK	OK
TOTALS:					3	14	17.425M	0

31 TORNADO(s) were reported in **Clinton County, Iowa** between **01/01/1950** and **08/31/2010**.

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Iowa

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 CLINTON	04/11/1965	1305	Tornado	F4	0	3	2.5M	0
2 CLINTON	01/24/1967	1645	Tornado	F2	0	0	25K	0
3 CLINTON	01/24/1967	1715	Tornado	F2	0	0	25K	0
4 CLINTON	01/24/1967	1715	Tornado	F2	0	0	250K	0
5 CLINTON	08/01/1972	2015	Tornado	F0	0	0	25K	0
6 CLINTON	06/20/1974	1645	Tornado	F3	1	20	2.5M	0
7 CLINTON	11/09/1975	1915	Tornado	F2	0	2	250K	0
8 CLINTON	12/14/1975	0435	Tornado	F1	0	0	25K	0
9 CLINTON	05/16/1977	1815	Tornado	F	0	0	0K	0
10 CLINTON	08/05/1979	1725	Tornado	F1	0	1	250K	0
11 CLINTON	04/04/1981	0032	Tornado	F1	0	0	2.5M	0
12 CLINTON	04/12/1984	1120	Tornado	F0	0	0	3K	0
13 CLINTON	05/14/1985	1705	Tornado	F1	0	0	0K	0
14 CLINTON	07/29/1987	1530	Tornado	F1	0	0	250K	0
15 CLINTON	05/08/1988	1446	Tornado	F3	0	0	25.0M	0
16 CLINTON	08/08/1988	1530	Tornado	F0	0	0	250K	0
17 CLINTON	03/13/1990	1707	Tornado	F1	0	0	250K	0
18 CLINTON	03/22/1991	2000	Tornado	F2	0	0	2.5M	0
19 Elwood To	07/27/1995	1628	Tornado	F2	0	0	200K	150K
20 Dewitt	07/27/1995	1654	Tornado	F0	0	0	5K	10K
21 Goose Lake	04/19/1996	07:17 PM	Tornado	F0	0	0	0	0
22 Clinton	05/10/1996	01:40 AM	Tornado	F1	0	0	1.0M	0

23 Goose Lake	04/30/1997	03:40 PM	Tornado	F0	0	0	40K	0
24 Clinton	04/30/1997	03:45 PM	Tornado	F0	0	0	0	0
25 Lost Nation	04/30/1997	03:45 PM	Tornado	F0	0	0	0	0
26 Lost Nation	04/15/2001	02:15 PM	Tornado	F0	0	0	0	0
27 Delmar	04/20/2004	06:08 PM	Tornado	F1	0	0	30K	0
28 Welton	07/10/2008	13:10 PM	Tornado	F0	0	0	125K	0K
29 Dewitt	07/10/2008	13:42 PM	Tornado	F0	0	0	0K	0K
30 Charlotte	08/04/2008	16:47 PM	Tornado	F0	0	0	250K	0K
31 Goose Lake	06/05/2010	19:00 PM	Tornado	F0	0	0	0K	0K
TOTALS:					1	26	38.253M	160K

Appendix F:

Critical Facilities Maps

CLINTON COUNTY CRITICAL FACILITIES

Andover

Name of Asset	Address	Replacement Value if Known
1. Fire Station	1367 Washington Street	\$2,000,000
2. Water Pump House	1367 Washington Street	\$ 100,000

Calamus

Name of Asset	Address	Replacement Value if Known
1. Calco Community Center	201 Main Street	
2. Fire Station	98 Clinton Street	
3. Elementary School	80 2 nd Street	
4. Town Hall	198 2 nd Street	\$100,000
5. Water Tower 1	East Main Street	\$100,000
6. Water Tower 2	Davenport Street	\$300,000
7. Waste Water Treatment Facility	W Main and 1 st Streets	\$50,000
8. Country Store	Clinton Street	
9. F&B Communications	191 2 nd Street	

Camanche

Name of Asset	Address	Estimated Replacement Value in \$
1. Police Station	819 S. Washington	405,000
2. Central Fire Station	720 9 th Avenue	842,000
3. City Hall	917 3 rd Street	801,000
4. Wastewater Lift Station	100 Park Drive	1,800,000
5. Well #6 and water tower	910 Second Street	1,500,000
6. Water tower	9 th Street and Highway 67	900,000
7. Well #3	1201 6 th Avenue	100,000
8. Well #5	1201 4 th Avenue	75,000
9. Electric Substation	3508 9 th Street	Unknown
10. Lift Station #9	1901 9 th Street	75,000
11. Lift Station #10		
12. Lift Station #7	2400 7 th Avenue	100,000
13. Qwest Telephone Company	314 9 th Avenue	Unknown
14. Public Works Facility	405 9 th Avenue	700,000

Charlotte

Name of Asset	Address	Replacement Value if Known
1. Well & Pump House	109 Charles St.	*
2. Charlotte Area Activity Center (CAAC)	115 1 st St.	
3. Iowa Telecom	106 Broadway	
4. Fire Station	102 Charles St.	
5. Water Tower	Louise St.	
6. Maintenance Garage	104 Charles St.	
7. Sewage Plant	No recorded address	

*The City has a blanket insurance policy for \$950,441.00

Clinton

Name of Asset	Address	Replacement Value if Known
1. Water Storage Facilities/Wells		\$44,633,786
2. Power Plants		
3. Treatment Plant #1		
4. Treatment Plant #2		
4. Pumping Stations	3 rd Ave. So/River	\$3,978,919
5. Mercy Hospital	1410 North 4 th Street	
6. Courthouse	612 North 2 nd Street	
7. County Administration Building	1900 North 3 rd Street	
8. Sheriff's Office	241 7 th Avenue North	
9. City Hall	611 South 3 rd Street	\$5,151,375
10. Police Station	113 6 th Avenue south	\$0
11. Fire Stations	Central – 344 3 rd Ave S Chancy – 2303 S 14 th St. Lyons – 2311 Roosevelt St.	\$2,656,769
12. Radio/Cell Towers		
13. Telephone Co.		
14. National Guard Armory	1200 13 th Avenue North	
15. Red Cross	1220 13 th Avenue North	
16. Airport	2000 S. 60 th Street	\$4,219,159
17. Archer Daniel Midland Plant	1251 Beaver Channel Parkway	

Delmar

Name of Asset	Address	Replacement Value if Known
1. Fire Station	613 Main St.	*
2. City Hall	508 Main St.	
3. Waste Water Treatment Facility	130 th St.	
4. Water Tower	405 Clinton Ave.	
5. New Pump House	136 Market St.	
6. Delwood Community School	311 Delmar Ave.	
7. Lift Station #1	Market & 252 nd Ave.	
8. Lift Station #2	None Recorded	
9. Lift Station #3	None Recorded	
10. Old Pump House	None Recorded	
11. Maintenance Shed	618 Hurst St.	

*The City has a blanket insurance policy for \$1,954,165.00

DeWitt

Name of Asset	Address	Replacement Value if Known
1. Alliant Energy Substation	7 th Ave. just north of 13 th St.	
2. Alliant Energy Substation	213 S. 6 th Ave	
3. Alliant Energy Substation	300 & 400 Block	
4. Alliant Energy Substation	300 Block of 3 rd Ave. East	
5. Alliant Energy mixing station with dome pipeline	Elmwood Road at north City limits	
6. Iowa Telecom switching station	613 9 th St.	
7. Iowa Wireless antenna site on water tower	1919 Lake St.	
8. AT&T Broadband cable TV tower	Elmwood Road at north City limits	
9. US West Communications microwave tower	1616 8 th Ave.	
10. Genesis Hospital	1118 11 th St.	
11. South water elevated storage tank	1919 Lake St.	
12. Above ground water storage tank	124 8 th Ave.	\$1,000,000
13. North water elevated storage tank	1002 6 th Ave	\$1,000,000
14. Well #7	1725 11 th St.	\$1,000,000
15. Well #5	124 8 th Ave.	\$1,100,000
16. Well #6 and Lift Station	3 rd Ave. East and E. 2 nd St.	\$900,000

17. East Lift Station	500 Block of East Industrial Ave.	\$1,000,000
18. West Lift Station	1729 11 th St.	\$250,000
19. Wastewater Treatment Facility	511 6 th Ave. South	\$9,000,000
20. Lift Station	400 Block of Industrial St.	\$100,000
21. Fire Department	711 10 th St.	\$600,000
22. Police Station	606 9 th St.	\$600,000
23. City Hall	510 9 th St.	\$1,600,000
24. Clinton County Sheriff's Office Satellite Station	305 1 st St.	
25. Secondary Road Facility		

Goose Lake

Name of Asset	Address	Replacement Value if Known
City Hall	1 School Lane	1,321,632
Fire Department	Jackson Blvd.	258,058
Water Plant	Jackson Blvd.	361,929
Sewer Treatment Plant	None Recorded	40,278

Grand Mound

Name of Asset	Address	Estimated Replacement Value in \$
1. City Hall	615 Sunnyside St.	573,723
2. Fire Station	616 Clinton St.	267,000
3. Pump Building & Water Tower	615 Clinton St.	268,130
4. Wells & Water Treatment Facility	615 Sunnyside St.	444,600
5. Grand Mound Telephone	705 Clinton St.	250,000

Lost Nation

Name of Asset	Address	Replacement Value if Known
1. Substation	Highway 36	
2. Well #2/Fire Company	600 Main St.	\$21,685
3. Well #1	400 Broadway St.	\$50,000
4. Sewage Lagoons	140 th Avenue	\$50,000 (control station only)
5. Tri-Stop	302 Highway 136	
6. City Hall	301 Pleasant St.	\$112,500
7. American Legion Hall	511 Main St.	

Low Moor

Name of Asset	Address	Replacement Value if Known
1. Wastewater Treatment – 1 Cell Lagoon	3842 44 th Ave South	*
2. Water Tower	323 3 rd Ave	
3. City Hall	323 3 rd Ave	
4. Fire Building	Unknown	
5. Lift Station	3842 44 th Ave South	
6. Iowa Telecom Substation	Unknown	
7. Community Center	Unknown	

*Not provided.

Toronto**Table 3.31 Critical Facilities**

Name of Asset	Address	Replacement Value if Known
1. Old Fire Station	300 Mill St.	
2. City Hall	300 Mill St.	
3. Lift Station #1	North Mill St.	\$50,000
4. Lift Station #2	South Mill St.	\$50,000
5. Lift Station #3	Spring St.	\$50,000

Welton**Table 3.32 Critical Facilities**

Name of Asset	Address	Replacement Value if Known
1. Buzzy's	414 Main Street	
2. BP Truck Stop	2576 190 th Street	
3. Fire Station	95 Main Street	
4. Sewage Lagoon & Water Treatment building	190 th Street	\$2,900,000
5. Above ground water storage tank	95 Main Street	\$140,000
6. Natural Gas Pipeline	260 th Avenue	
7. Lift Station #1	Main Street – next to creek	\$500,000*
8. Lift Station #2	Near 618 Seven Day Road	
9. Lift Station #3	190 th Street (at lagoon)	

*All three lift stations.

Wheatland**Table 3.33 Critical Facilities**

Name of Asset	Address	Replacement Value if Known
1. School	110 E. Park Rd	*
2. Water Tower	110 1.2 E. Park Road	
3. Fire Station/Ambulance	206 Madison St.	
4. Carroll Assistance Center	102 W. Washington	
5. Daybreak Convenience Store	102 W. Hwy 30	
6. Wastewater Treatment Facility	2419 130 th Ave.	
7. F&B Communications	102 N Main St.	
8. Maintenance Shed	104 W. Vine St.	

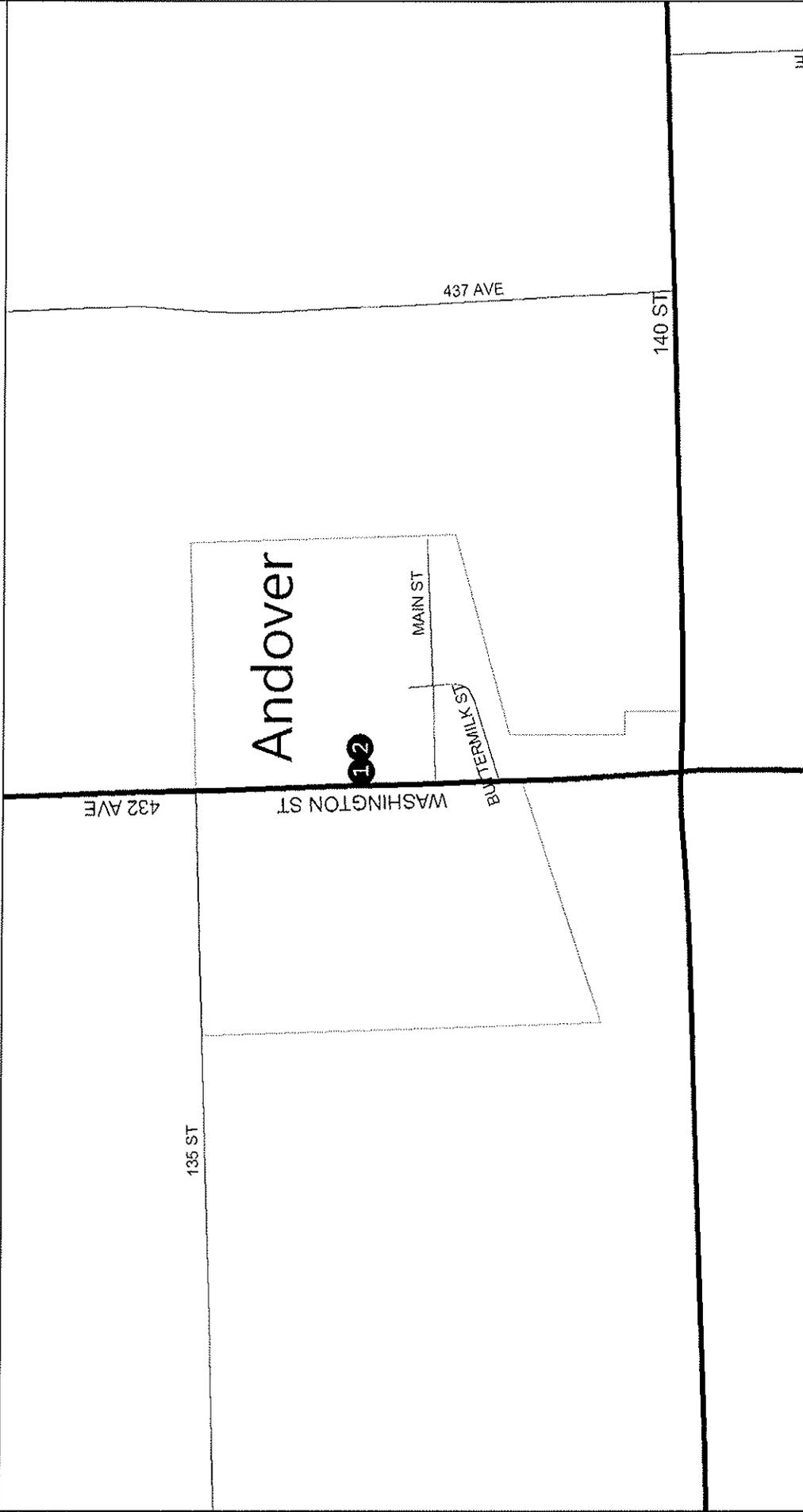
*The City has a blanket insurance policy for \$2,643,860.

Unincorporated Clinton County

Name of Asset	Address	Replacement Value if Known
Secondary Roads Building		

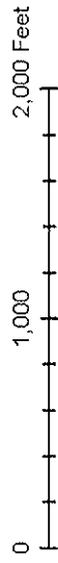
Clinton County Multi-Jurisdictional Hazard Mitigation Planning

City of Andover Critical Facilities



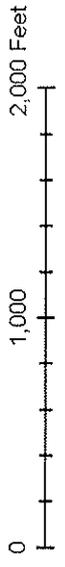
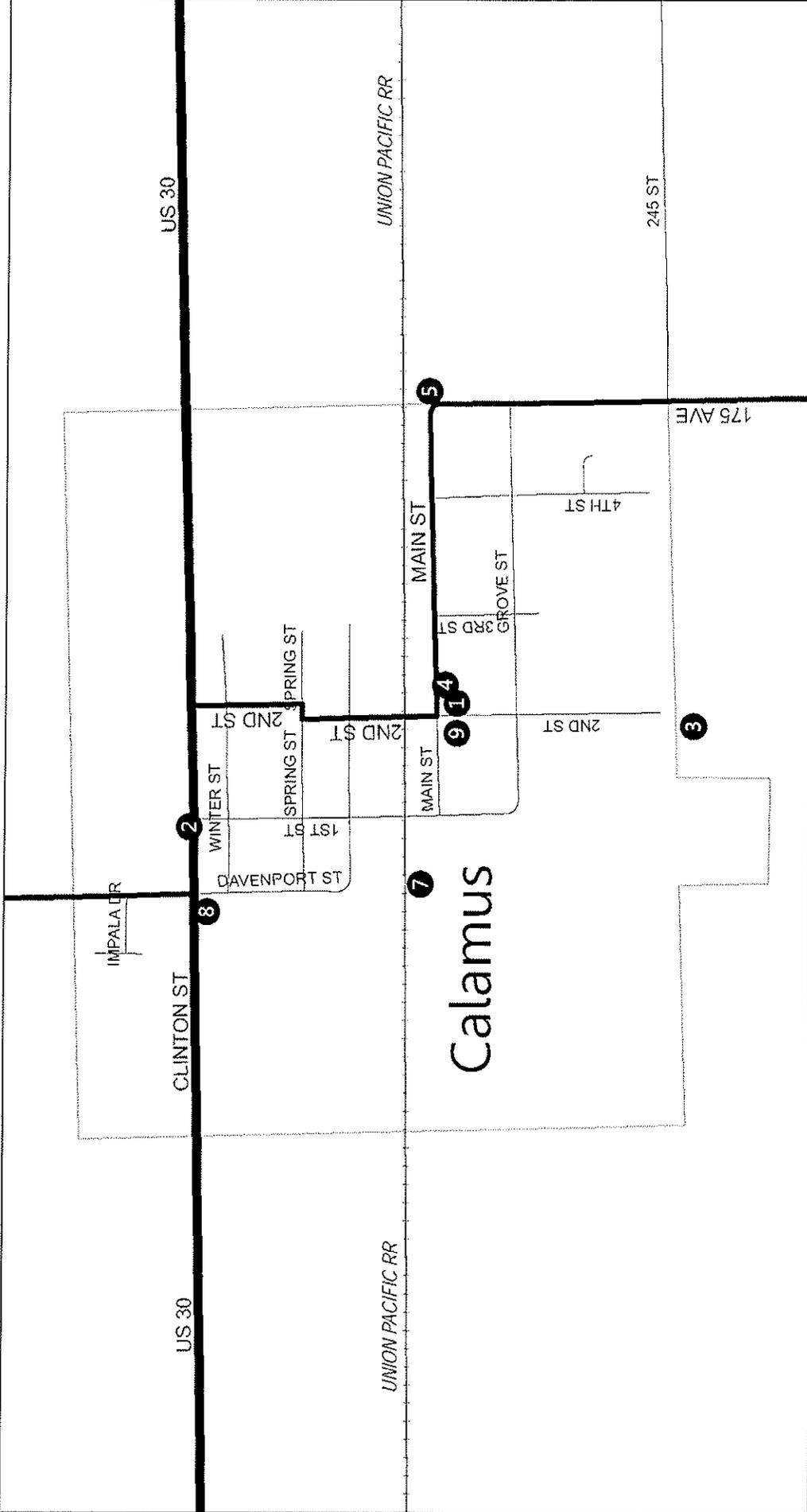
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 Corporate Boundary



Clinton County Multi-Jurisdictional Hazard Mitigation Planning

City of Calamus Critical Facilities

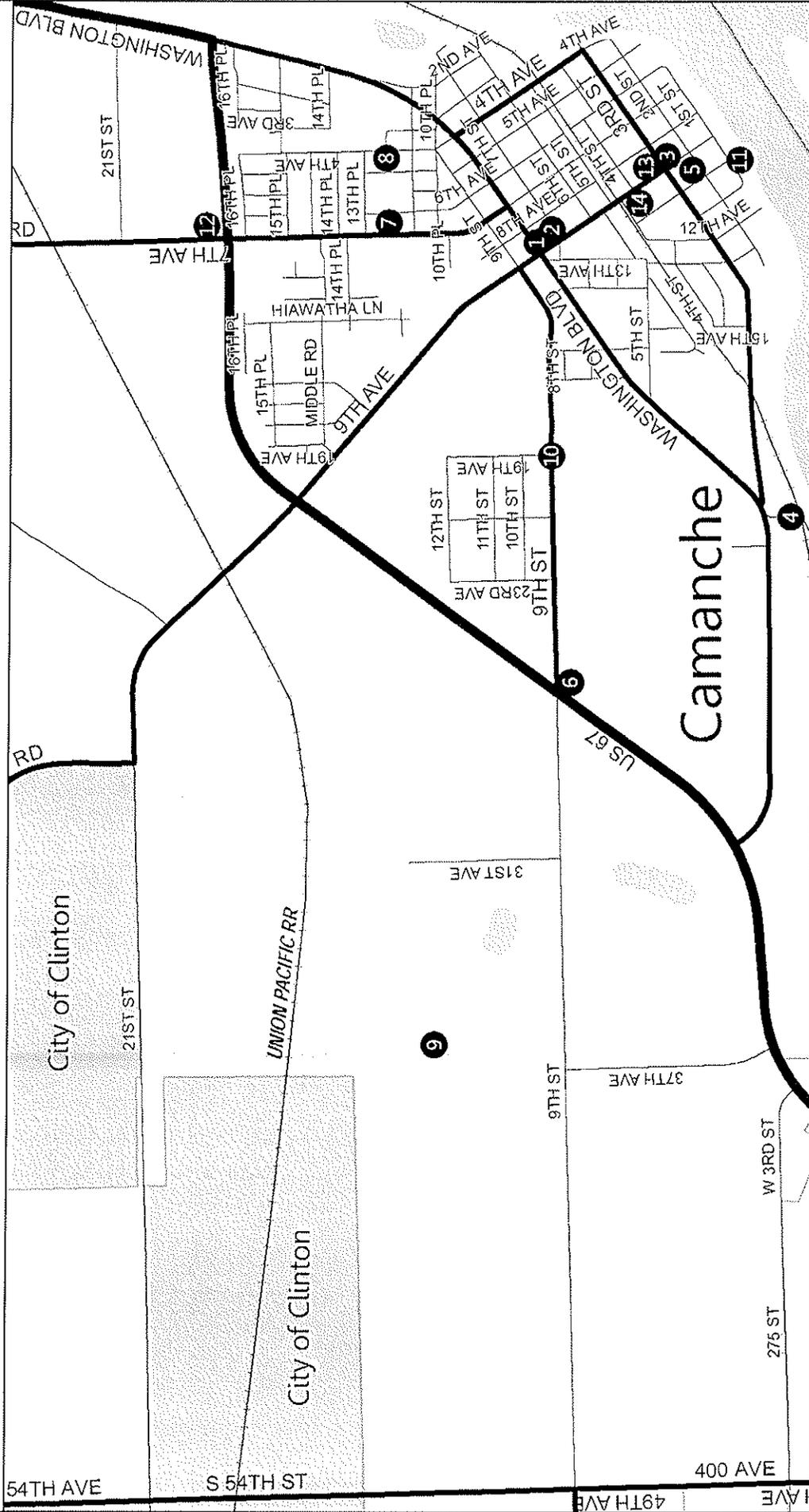


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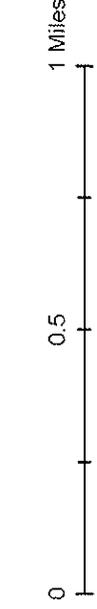


Clinton County Multi-Jurisdictional Hazard Mitigation Planning

City of Camanche Critical Facilities

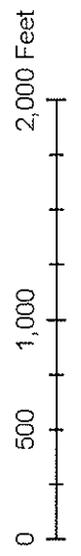
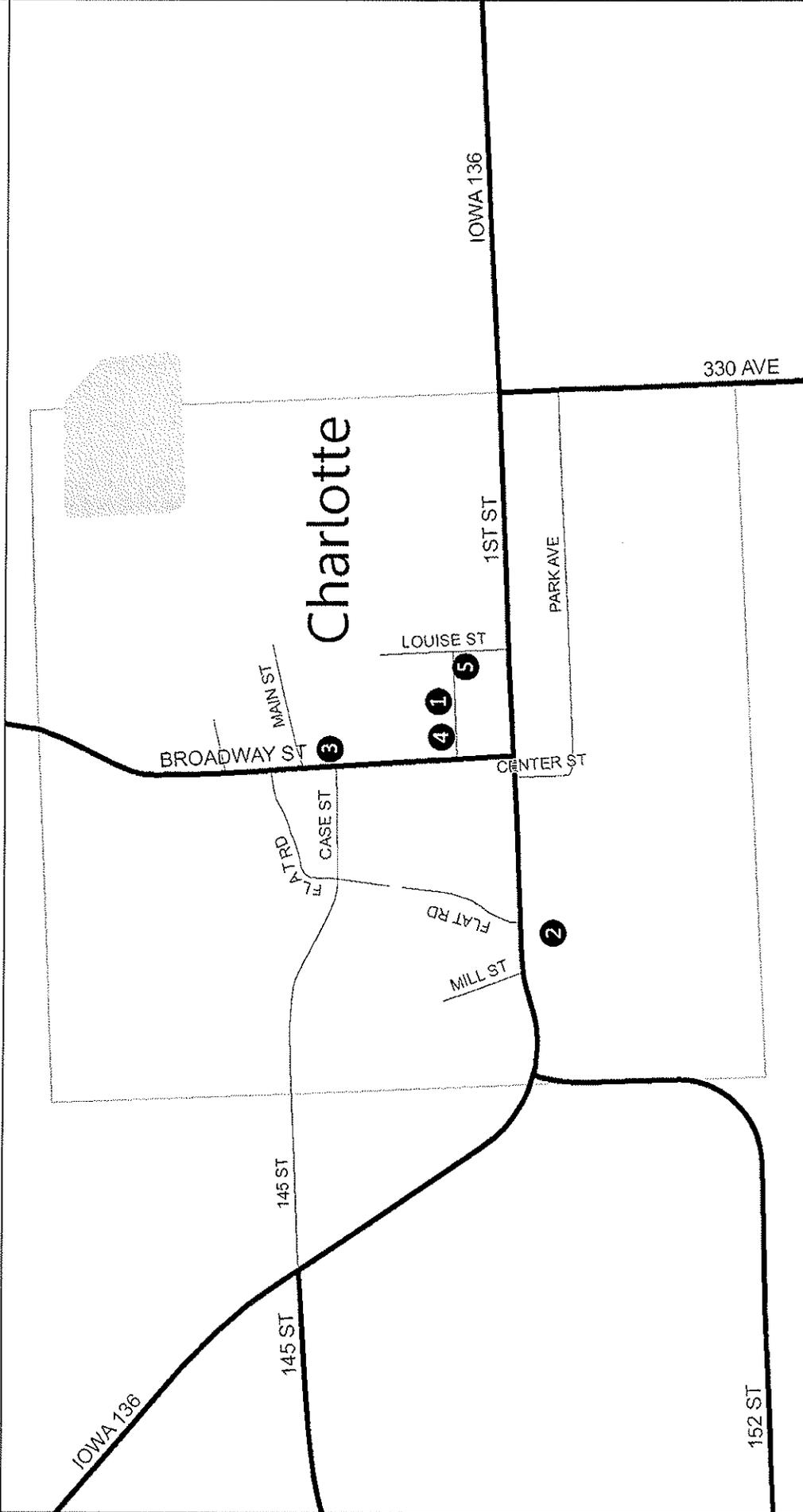


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Incorporated Places



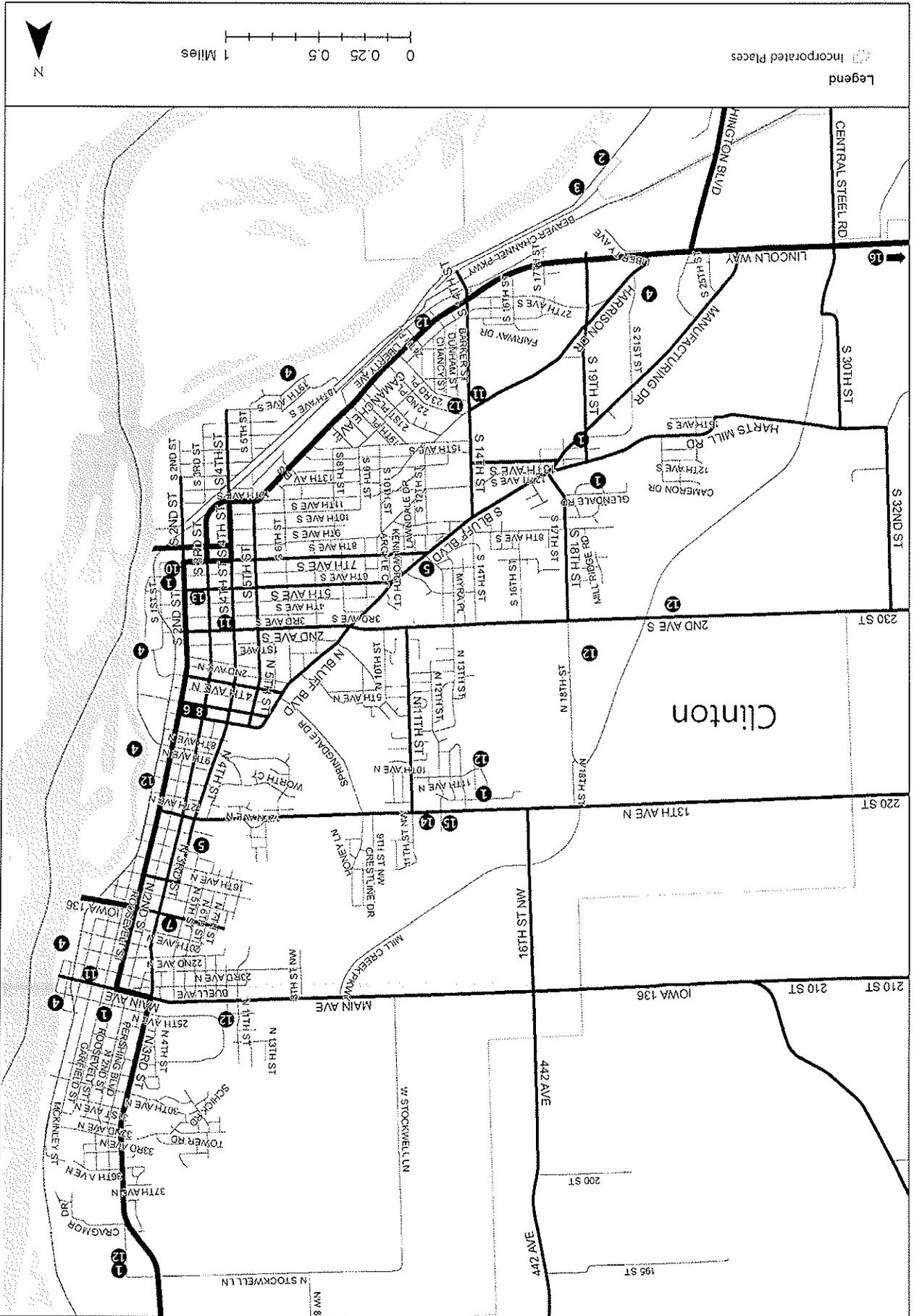
Clinton County Multi-Jurisdictional Hazard Mitigation Planning

City of Charlotte Critical Facilities



Legend
☐ Incorporated Places

Clinton County Multi-Jurisdictional Hazard Mitigation Planning
 City of Clinton Critical Facilities



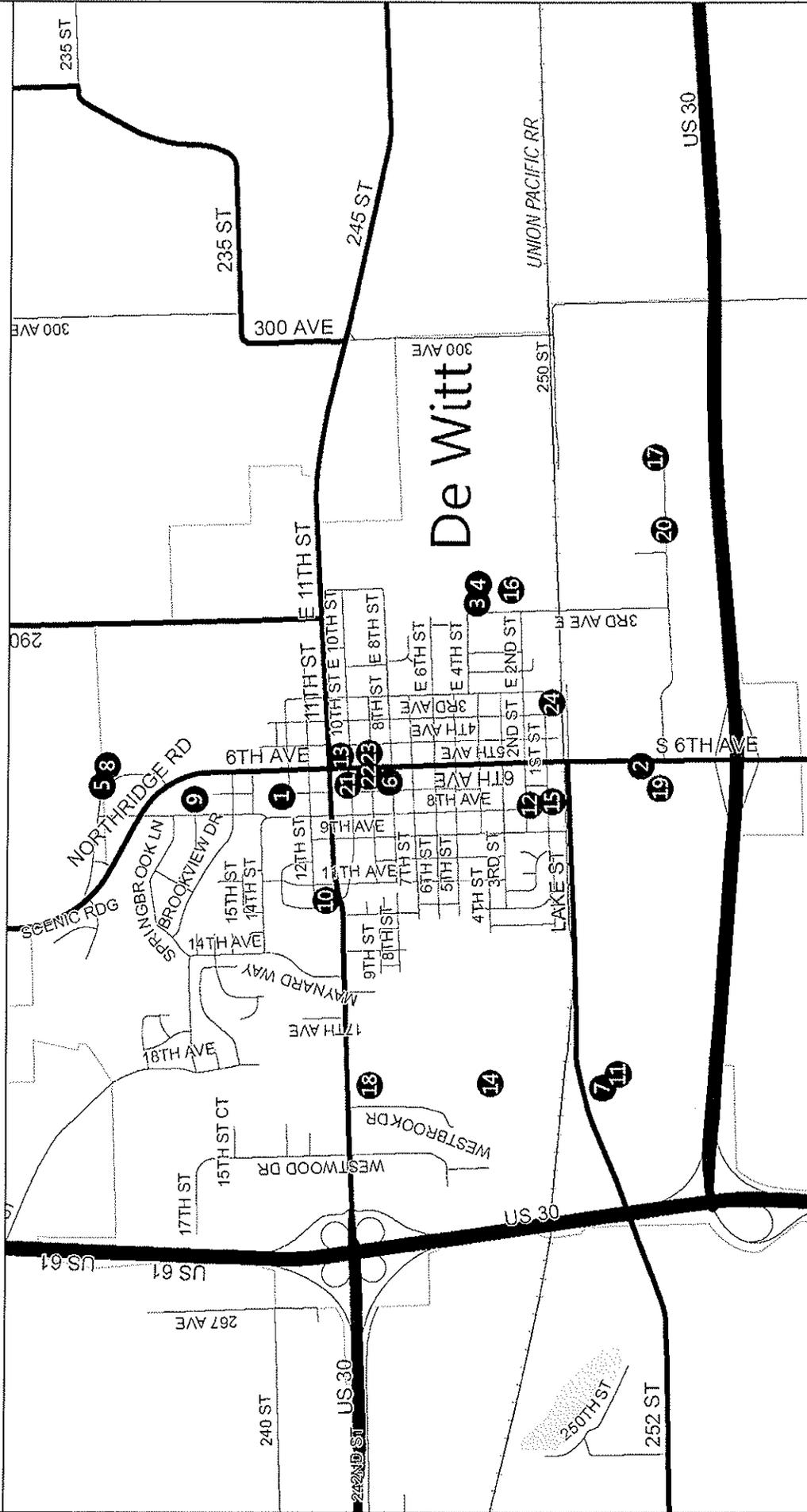
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 Incorporated Places

0 0.25 0.5 1 Miles



Clinton County Multi-Jurisdictional Hazard Mitigation Planning

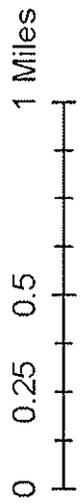
City of De Witt Critical Facilities



Legend

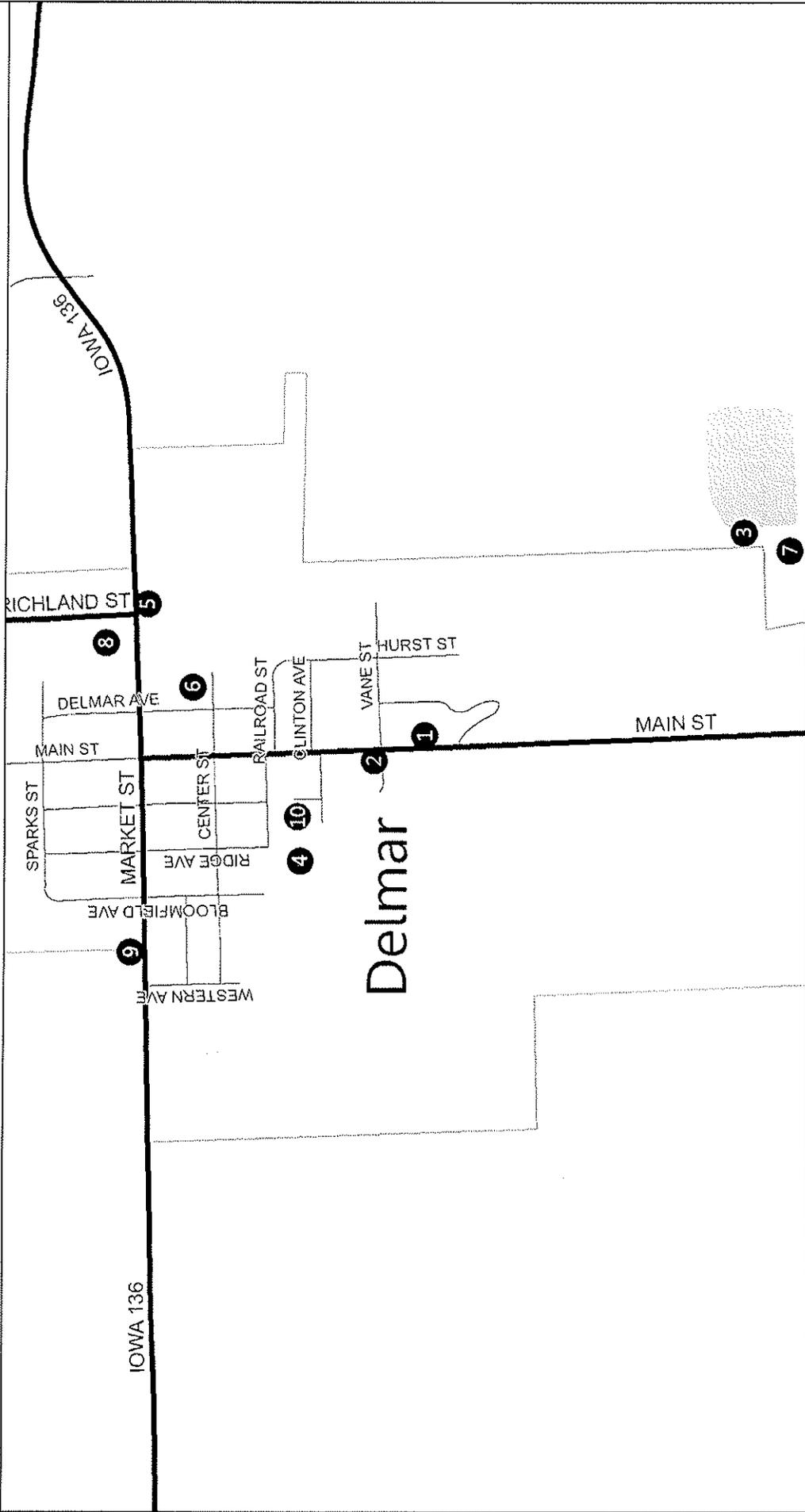


Incorporated Places



Clinton County Multi-Jurisdictional Hazard Mitigation Planning

City of Delmar Critical Facilities



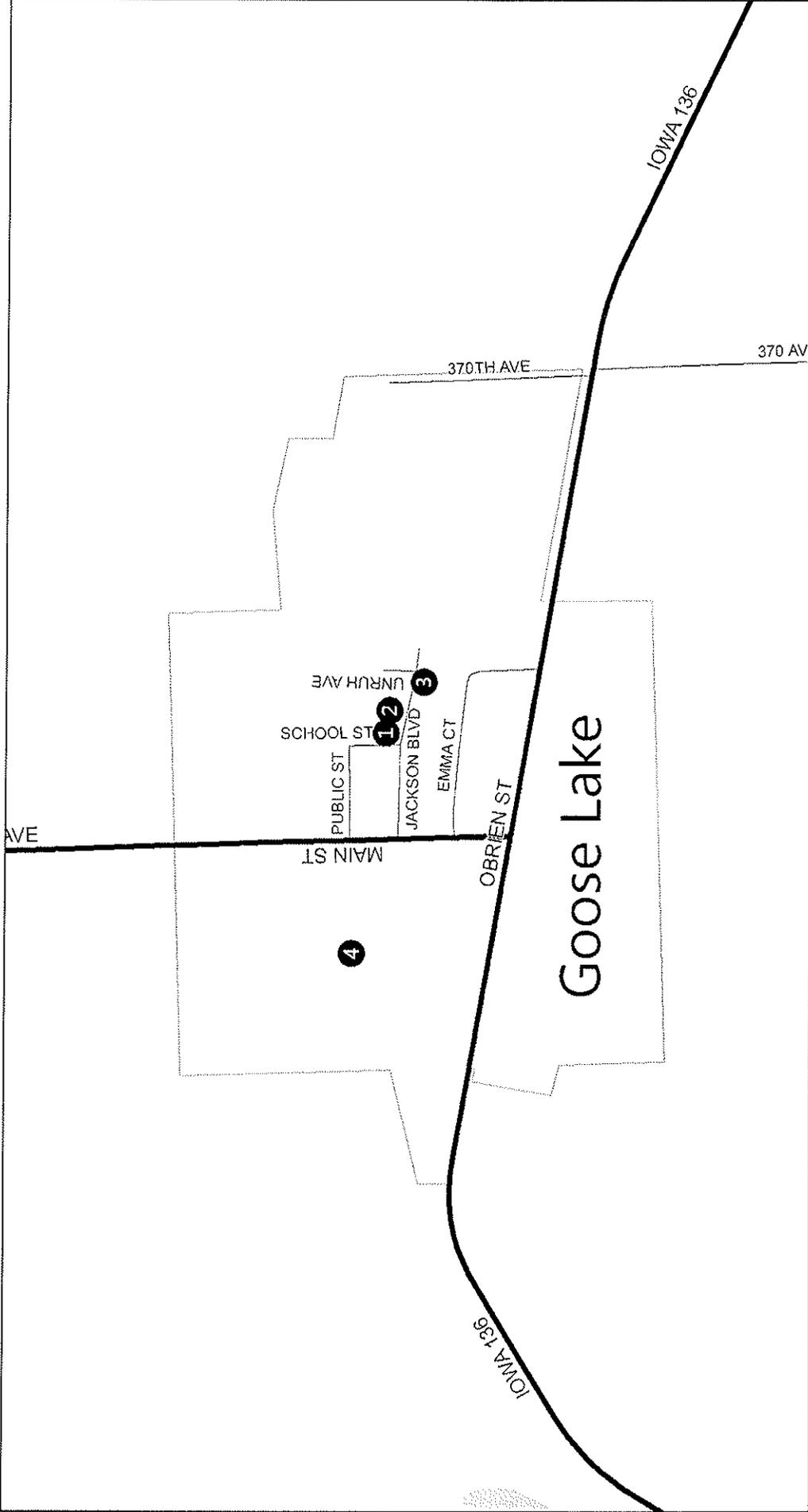
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 Incorporated Places

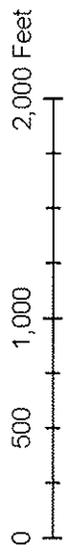


Clinton County Multi-Jurisdictional Hazard Mitigation Planning

City of Goose Lake Critical Facilities

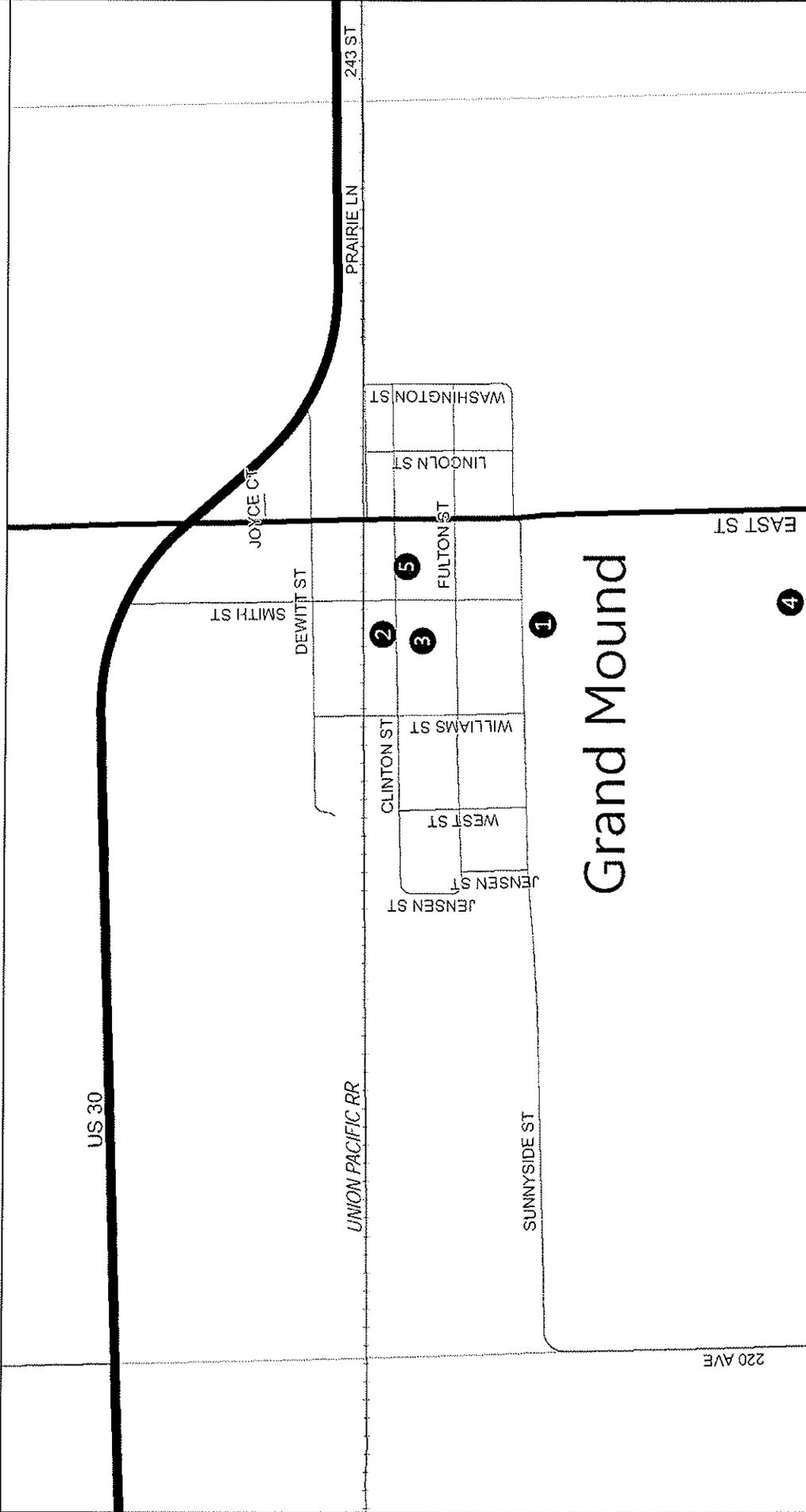


Legend
Incorporated Places



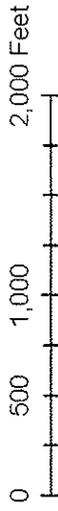
Clinton County Multi-Jurisdictional Hazard Mitigation Planning

City of Grand Mound Critical Facilities



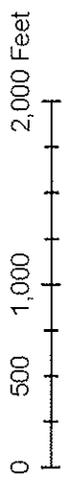
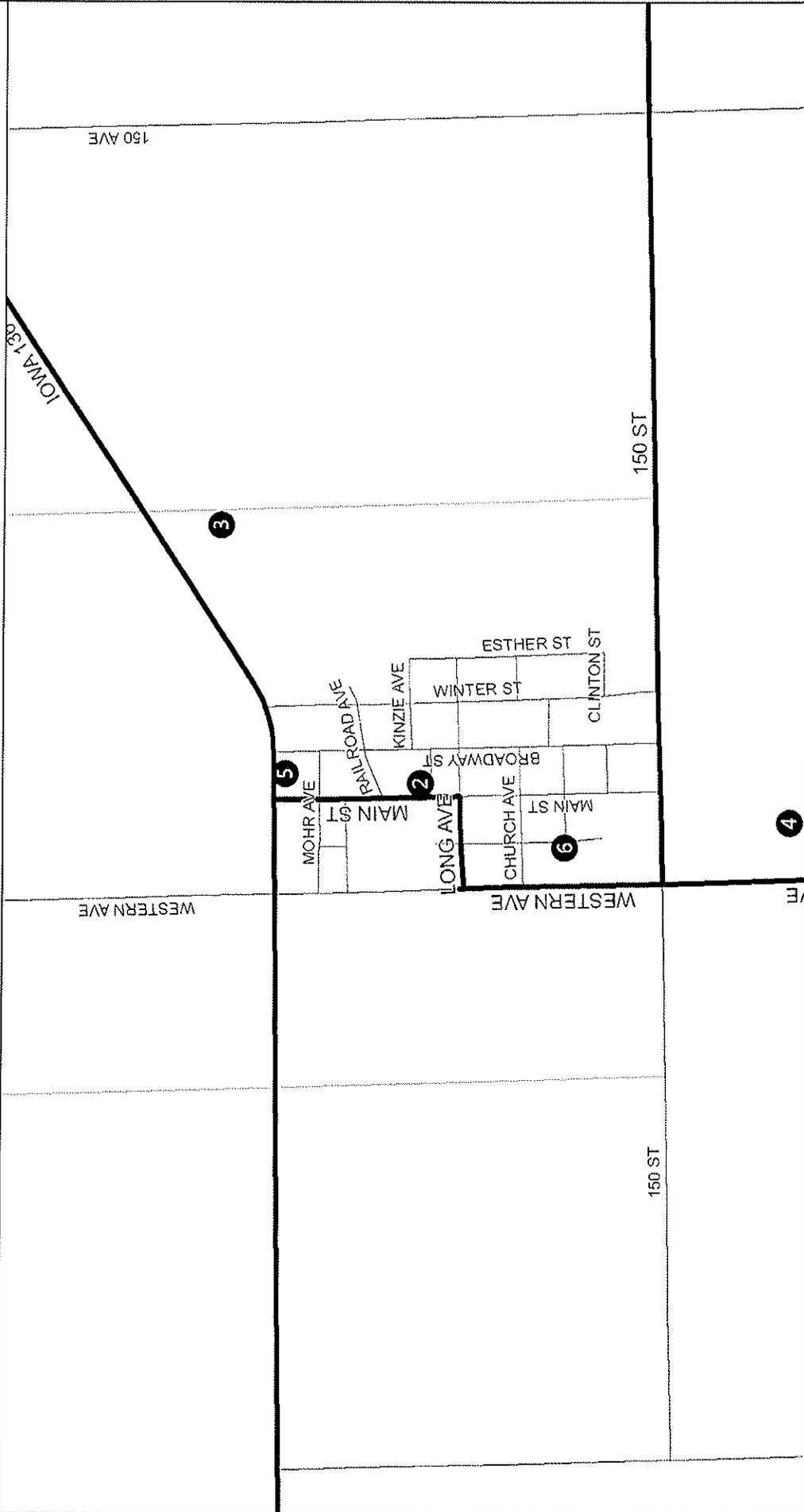
Legend

 Incorporated Places



Clinton County Multi-Jurisdictional Hazard Mitigation Planning

City of Lost Nation Critical Facilities

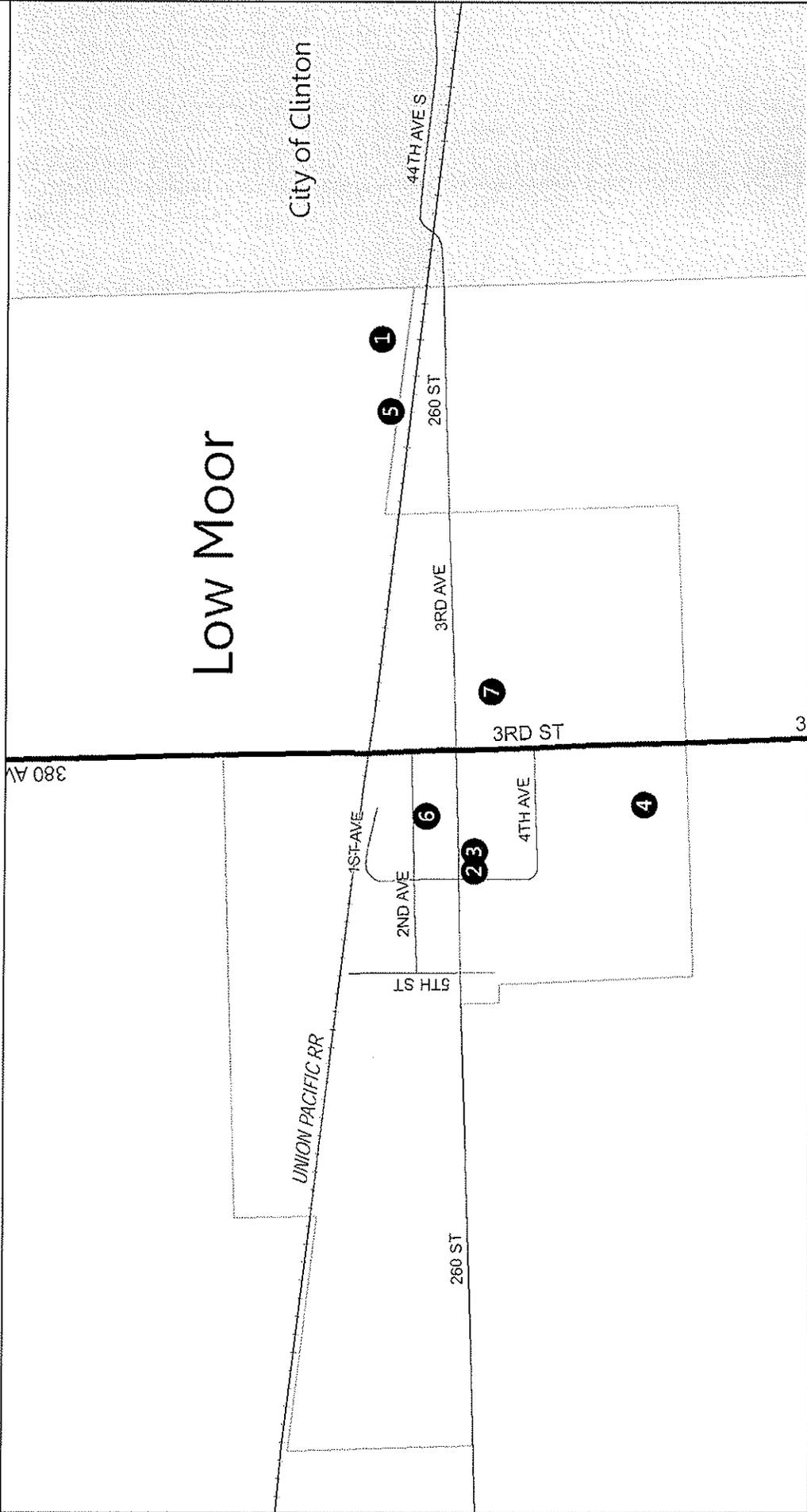


Legend

 Incorporated Places

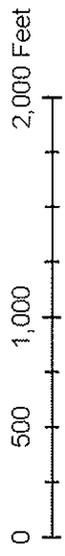
Clinton County Multi-Jurisdictional Hazard Mitigation Planning

City of Low Moor Critical Facilities



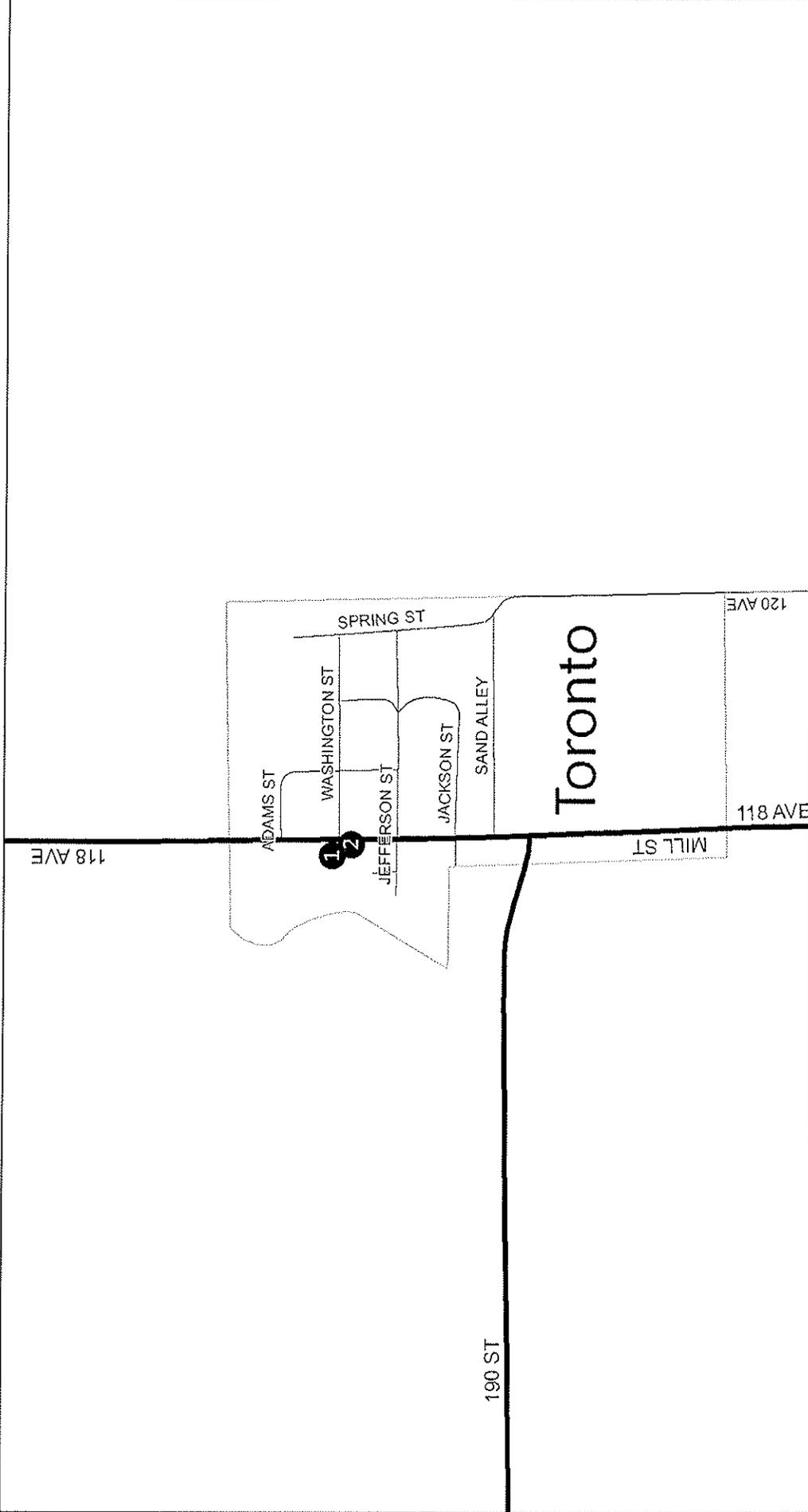
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 Incorporated Places



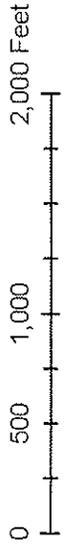
Clinton County Multi-Jurisdictional Hazard Mitigation Planning

City of Toronto Critical Facilities



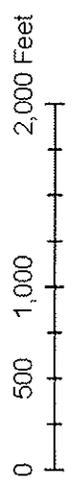
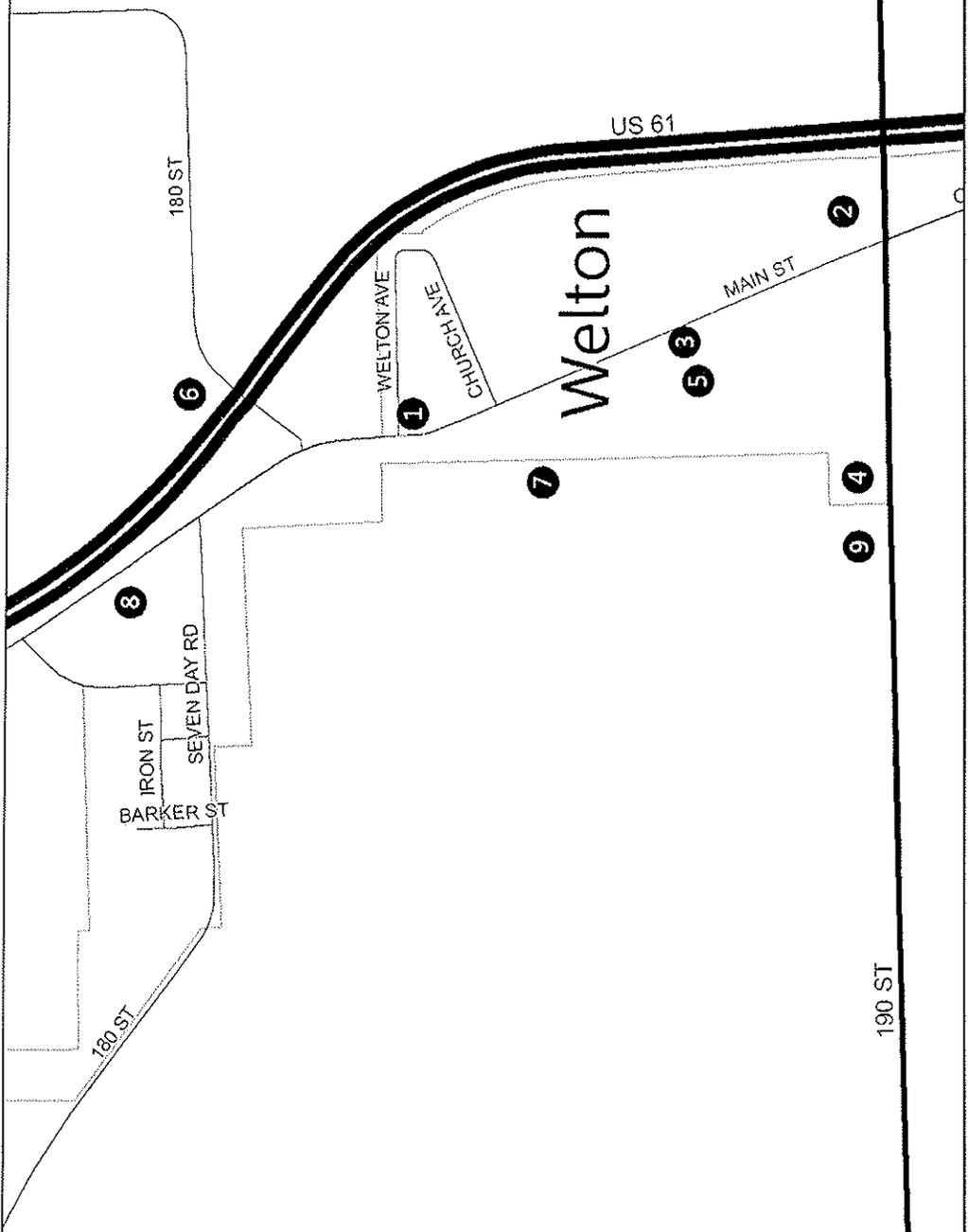
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 Incorporated Places



Clinton County Multi-Jurisdictional Hazard Mitigation Planning

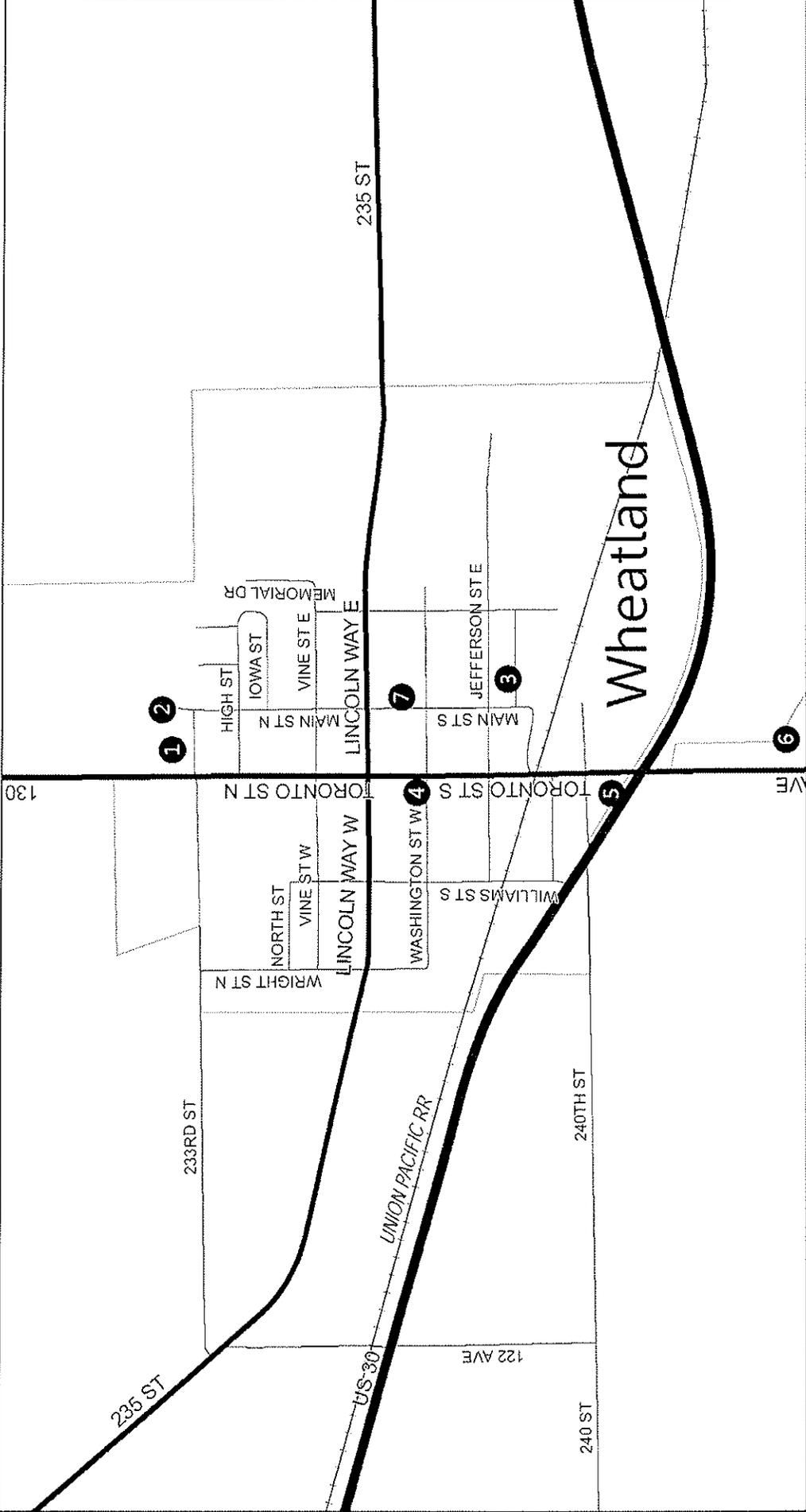
City of Welton Critical Facilities



Legend
Incorporated Places

Clinton County Multi-Jurisdictional Hazard Mitigation Planning

City of Wheatland Critical Facilities



Legend



0 500 1,000 2,000 Feet



Appendix G:

Clinton County Licensed Day Care Centers
And
Preschools

CLINTON COUNTY LICENSED DAYCARE AND PRESCHOOL FACILITIES

Name	Address	City	St	Zip
Buckner, Melanie	100 Railroad Street PO Box 164	Calamus	IA	52729
Camanche After School				
Camanche After School	914 12 th Place (mail)	Camanche	IA	52730
Hagen, Corie/McDonald, Karie	621 7 th Street	Camanche	IA	52730
Head Start	1400 9th Street	Camanche	IA	52730
Kids First Academy	706 13 th Avenue	Camanche	IA	52730
Mielk, Jenny & Lanhart, Beth	1421 S Washington Blvd	Camanche	IA	52732
McDonnough, Jenna				
McDonnough, Jenna	631 14 th Place	Camanche	IA	52730
Ashford Univ Children's C				
Ashford Univ Children's C	400 N Bluff Blvd	Clinton	IA	52732
Austin, Jennifer	1137 4 th Avenue N	Clinton	IA	52732
Blum, Segwenda				
Blum, Segwenda	3026 N 2 nd Street	Clinton	IA	52732
Bostic, Lawanda	507 5 th Avenue S	Clinton	IA	52732
Bradley, Jill	602 N 13 th Street	Clinton	IA	52732
Chase, Tonya				
Chase, Tonya	1859 27 th Avenue S	Clinton	IA	52732
Clark, Becky	2398 Barker Street	Clinton	IA	52732
Craig, Jessica				
Craig, Jessica	2220 Pershing Blvd	Clinton	IA	52732
Decker, Shannon				
Decker, Shannon	230 36 th Avenue N	Clinton	IA	52732
Dake, Stacy	709 10 th Avenue S	Clinton	IA	52732
Fay, Laurie				
Fay, Laurie	806 5 th Avenue N	Clinton	IA	52732
Harlock, Pamela				
Harlock, Pamela	510 6 th Avenue N	Clinton	IA	52732
Heiken, Kathy				
Heiken, Kathy	3506 N 3 rd Street	Clinton	IA	52732
Hill, Jodi	2617 N 4 th Street	Clinton	IA	52732
Hintz, Michelle	838 12 th Avenue S	Clinton	IA	52732
IECT Child Care Head Start	350 5th Avenue North	Clinton	IA	52732
Johnson, Krista	1148 Bobetta Court	Clinton	IA	52732
Kelly, Carrie	441 1 st Avenue	Clinton	IA	52732
Kiger, Lynn				
Kiger, Lynn	910 South 15 th Street	Clinton	IA	52732
Lehmkuhl, Sheila				
Lehmkuhl, Sheila	1117 Briarcliff Lane	Clinton	IA	52732
Leonard, Sarah (Biggs)				
Leonard, Sarah (Biggs)	1181 Garfield Street	Clinton	IA	52732
Letsch, Barbara				
Letsch, Barbara	2525 Prospect Avenue	Clinton	IA	52732
Lockhart, Lorri & Baker, Debra				
Lockhart, Lorri & Baker, Debra	1114 N 12 th Street	Clinton	IA	52732
Mercy Child Care & PreSchool				
Mercy Child Care & PreSchool	638 S Bluff Blvd	Clinton	IA	52732

IA

Parham, Tracy	2569 Camanche Ave	Clinton	IA 52732
Parsons, Barbara/Mark & Feller	543 Randy Drive	Clinton	IA 52732
Prince of Peace Early Learning	312 S 4 th Street	Clinton	IA 52732

IA

IA

IA

Rosenboom, Lorraine	5000 Lincolnway Lot 31	Clinton	IA 52732
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IA

IA

IA

Sels, Ruth	744 6 th Avenue S	Clinton	IA 52732
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Smith, Charlotte	1223 S 7 th Street	Clinton	IA 52732
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Snyder, Heather	746 6 th Avenue S	Clinton	IA 52732
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Stadel, Kelly	738 15 th Avenue S	Clinton	IA 52732
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Stay N Play Child Care /PreSchool	1811 27 th Avenue S	Clinton	IA 52732
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St. John's Lutheran Preschool	416 Main Avenue	Clinton	IA 52732
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Taliaferro, Nancy Jean	1813 Camanche Ave	Clinton	IA 52732
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VanDorn, Gayla	5000 Lincoln way Lot 33	Clinton	IA 52732
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Wee School	949 12 th Avenue N	Clinton	IA 52732
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Williams, Caletria	1515 Lazy Ln	Clinton	IA 52732
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IA

YWCA Children Center	317 7 th Avenue S	Clinton	IA 52732
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Zion Childcare/Preschool	439 3 rd Avenue S	Clinton	IA 52732
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Borgstrom, Richell	528 2 nd Avenue S	Clinton	IA 52732
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Bragg, Vickie	363 22 nd Place PO 302	Clinton	IA 52732
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Garrett, Annette	1709 8 th Avenue S	Clinton	IA 52732
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Jones, Deborah	2330 12 th Avenue S	Clinton	IA 52732
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Judge, Joshua	442 8 th Avenue S	Clinton	IA 52732
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Mangelsen, Anna	2616 N 3 rd Street	Clinton	IA 52732
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Reed, Destiny	430 11 th Avenue S PO Box 1642	Clinton	IA 52732
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Vogel, Lorie	1724 S Bluff Blvd	Clinton	IA 52732
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Snyder, Kim	523 N 4 th Street	Clinton	IA 52732
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IA

IA

Creative Learning Center	1300 8 th Avenue	DeWitt	IA 52742
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Delich, Cristy	321 6 th Avenue	DeWitt	IA 52742
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Kids Business of DeWitt	1313 May Nard Way	DeWitt	IA 52742
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Penniston, Sarah	2621 252 nd Avenue	DeWitt	IA 52742
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Sampson, Kathryn	512 13 th Street	DeWitt	IA 52742
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Stamp, Lori & Hansen, Amanda	907 12 th Street	DeWitt	IA 52742
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Vance, Ruth	310 6 th Avenue	DeWitt	IA 52742
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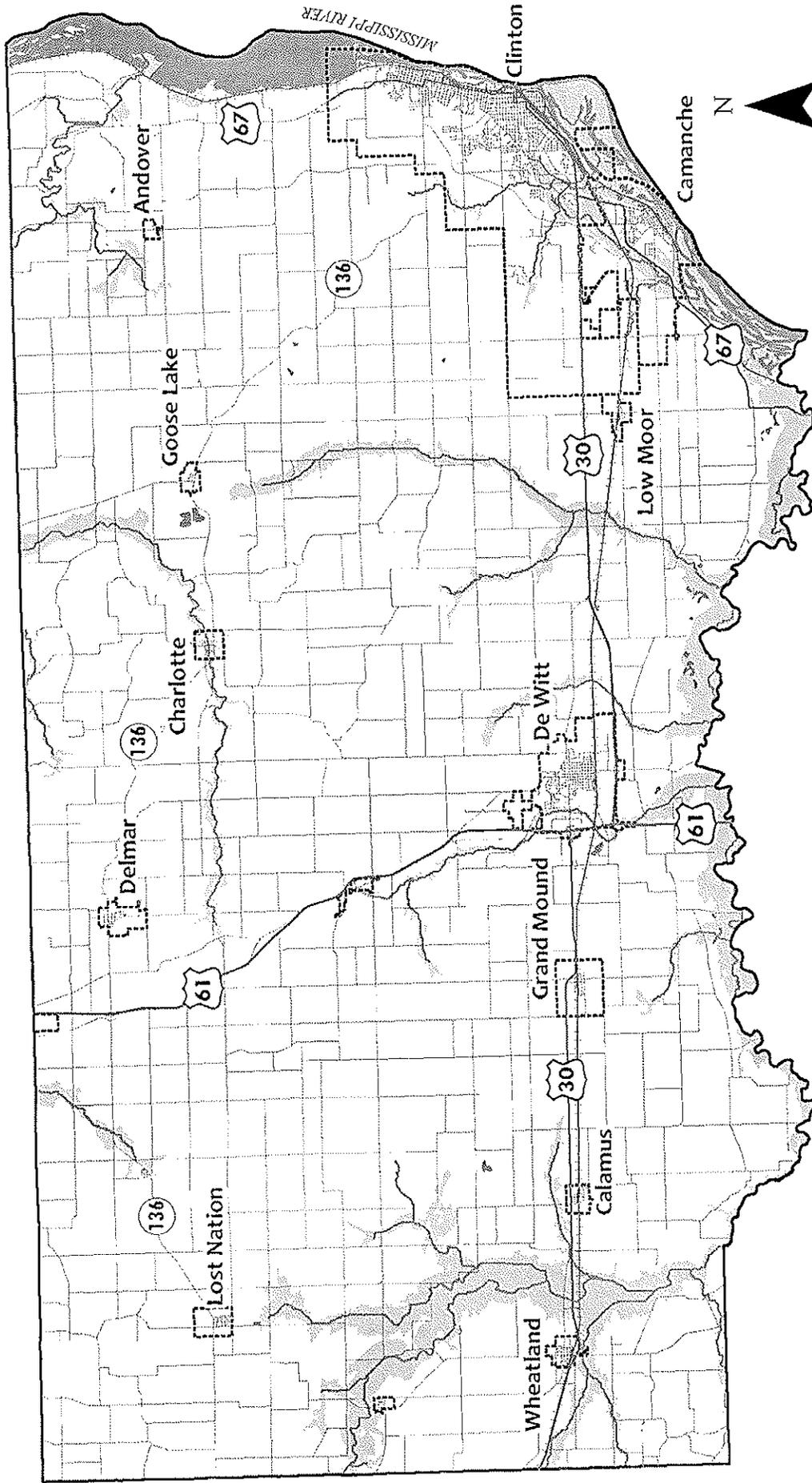
Goose Lake Giggle N Grow	1 School Lane Road	Goose Lake	IA 52750
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Burken, Alicia	809 DeWitt St PO Box 63	Grand Mound	IA	52751
Mead, Jamie	704 Fulton St	Grand Mound	IA	52751
[REDACTED]				
Suthers, Amber	202 Broadway PO Box 161	Lost Nation	IA	52254
[REDACTED]				
Hendrickson, Erin	102 E Washington St. PO Box 48	Wheatland	IA	52777
[REDACTED]				
Roman, Tina M	116 West Lincoln Way PO Box 38	Wheatland	IA	52777
Wiese, Tami	301 Memorial Dr. PO Box 266	Wheatland	IA	52777
[REDACTED]				

Appendix H:

Flood Plain Maps

Clinton County HAZUS Floodplain



100 year floodplain modeled by HAZUS MH MR4

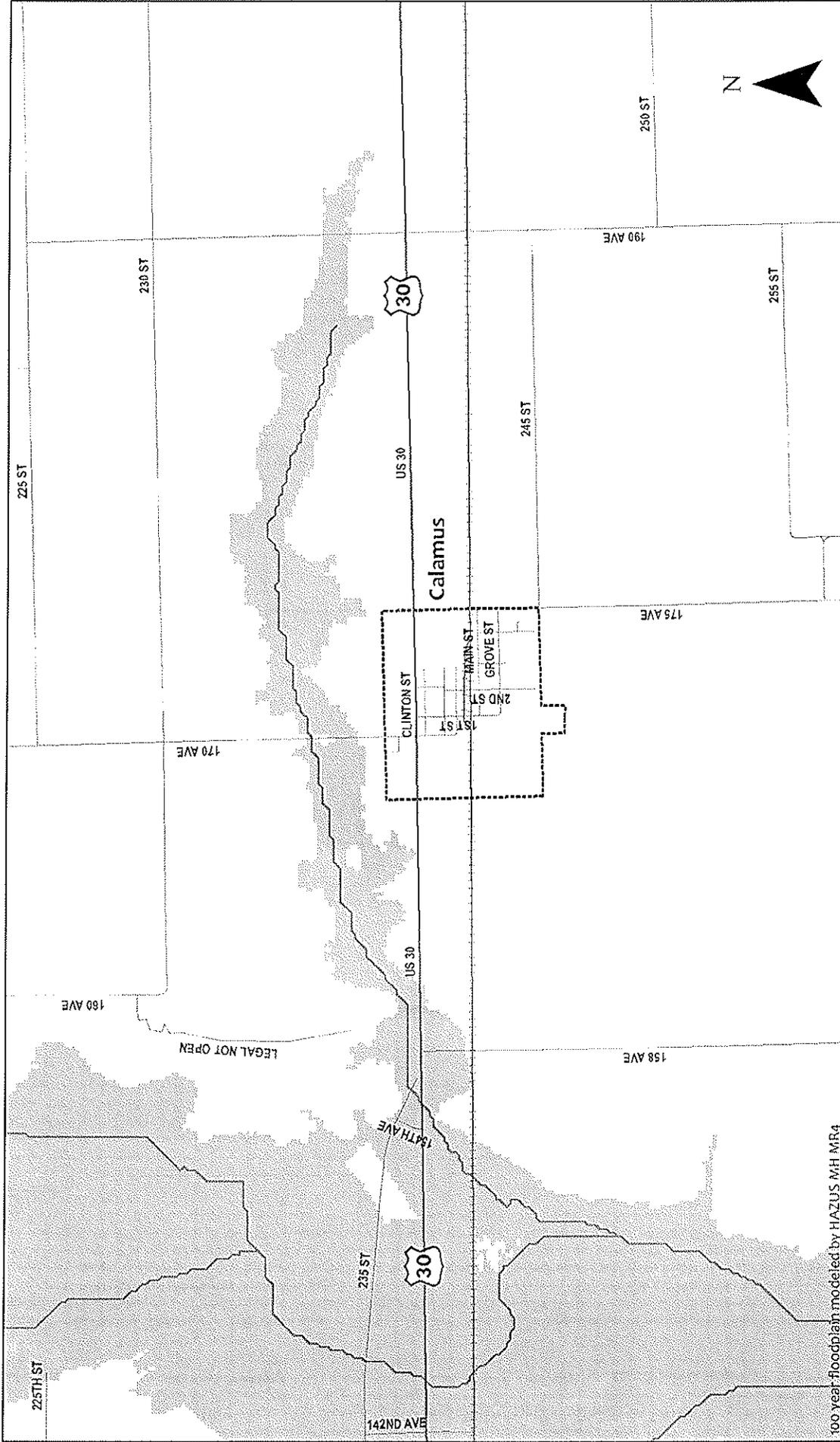
Legend

-  Principal Arterial Roads
-  Other Roads
-  Railroads
-  Incorporated Places
-  Waterways
-  HAZUS Floodplain



(c) 1997-2003 FEMA

City of Calamus HAZUS Floodplain



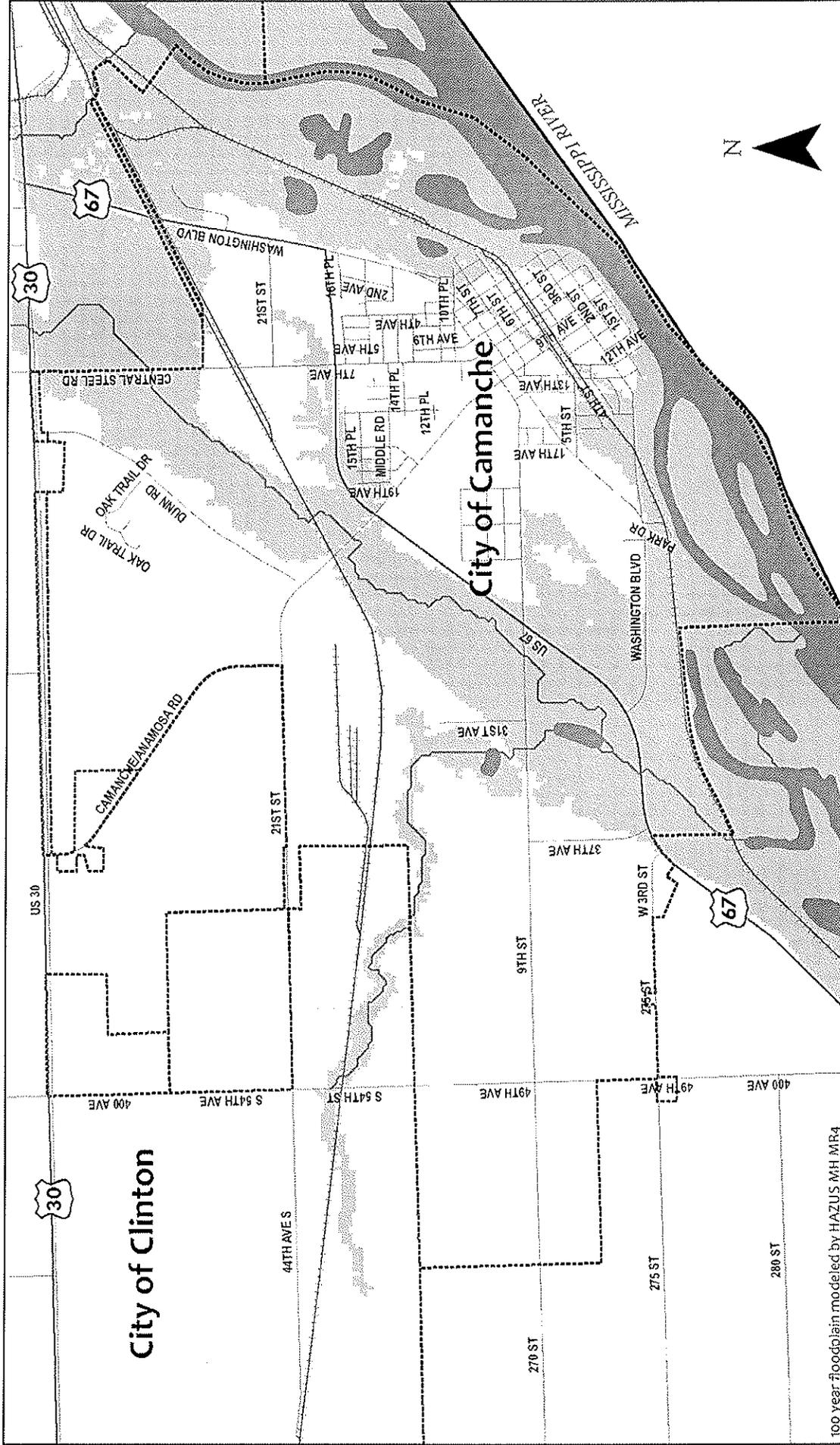
100 year floodplain modeled by HAZUS MH MR4

Legend

- Principal Arterial Roads
- Other Roads
- Incorporated Places
- Railroads
- Waterways
- HAZUS Floodplain



City of Camanche HAZUS Floodplain



100 year floodplain modeled by HAZUS MH MR4

Legend

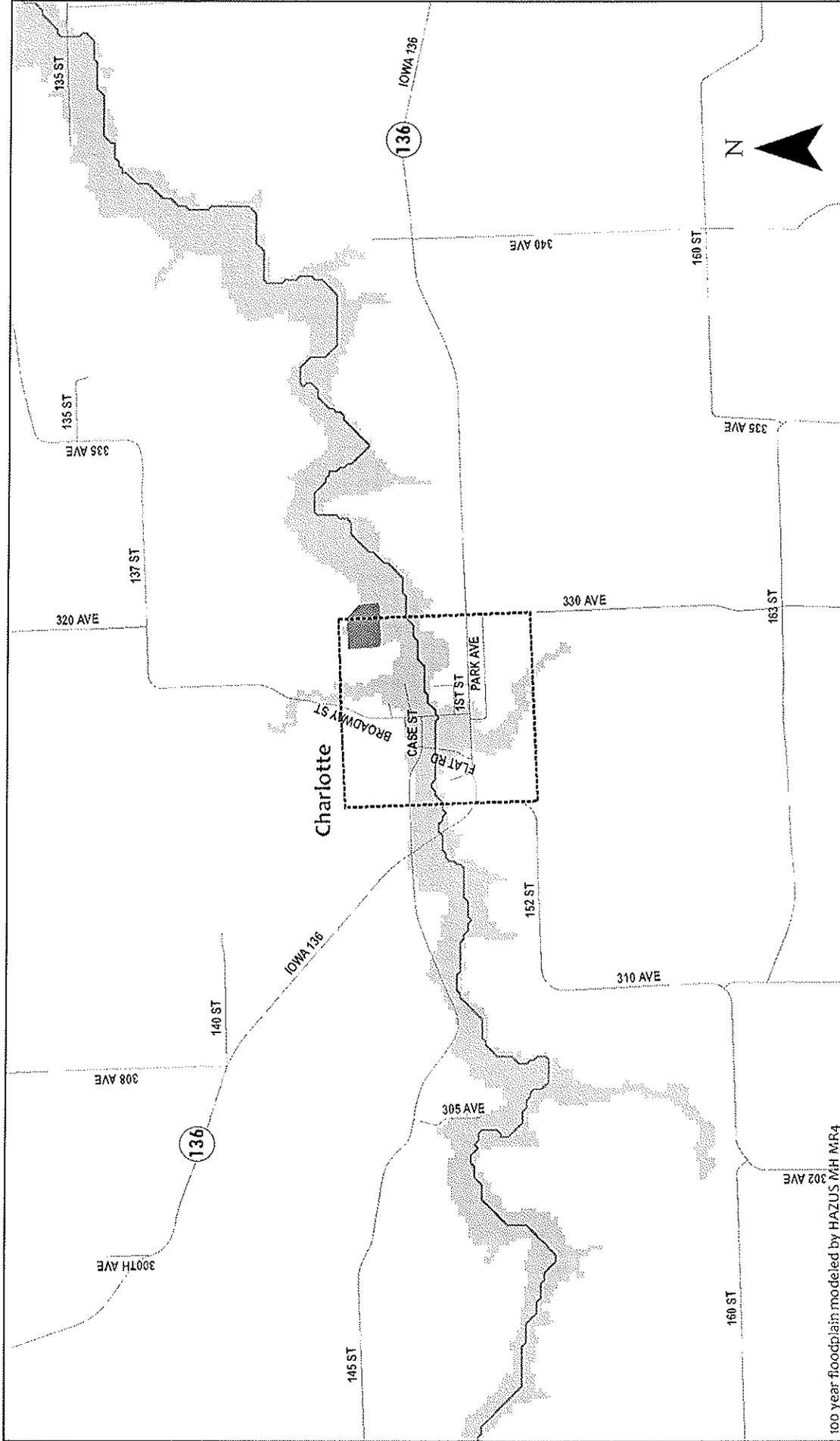
- Principal Arterial Roads
- Other Roads
- Incorporated Places
- Railroads
- Waterways
- HAZUS Floodplain

3,000 1,500 0 3,000 Feet



(c) 1997-2003 FEMA

City of Charlotte HAZUS Floodplain



Legend

- Principal Arterial Roads
- Other Roads
- Incorporated Places
- Railroads
- Waterways
- HAZUS Floodplain

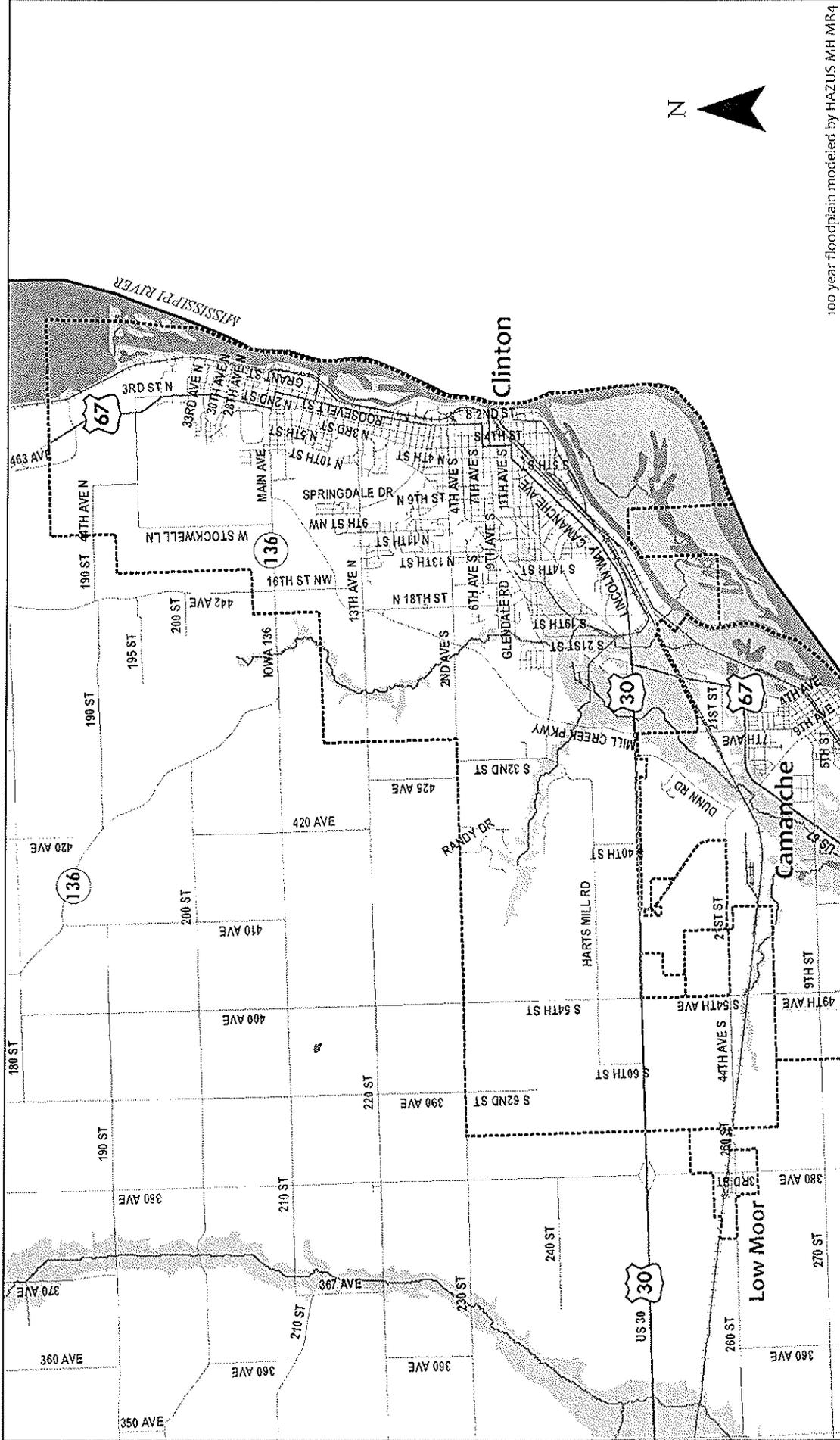


100 year floodplain modeled by HAZUS MH MR4



(c) 1997-2003 FEMA

City of Clinton HAZUS Floodplain



100 year floodplain modeled by HAZUS MH MR4

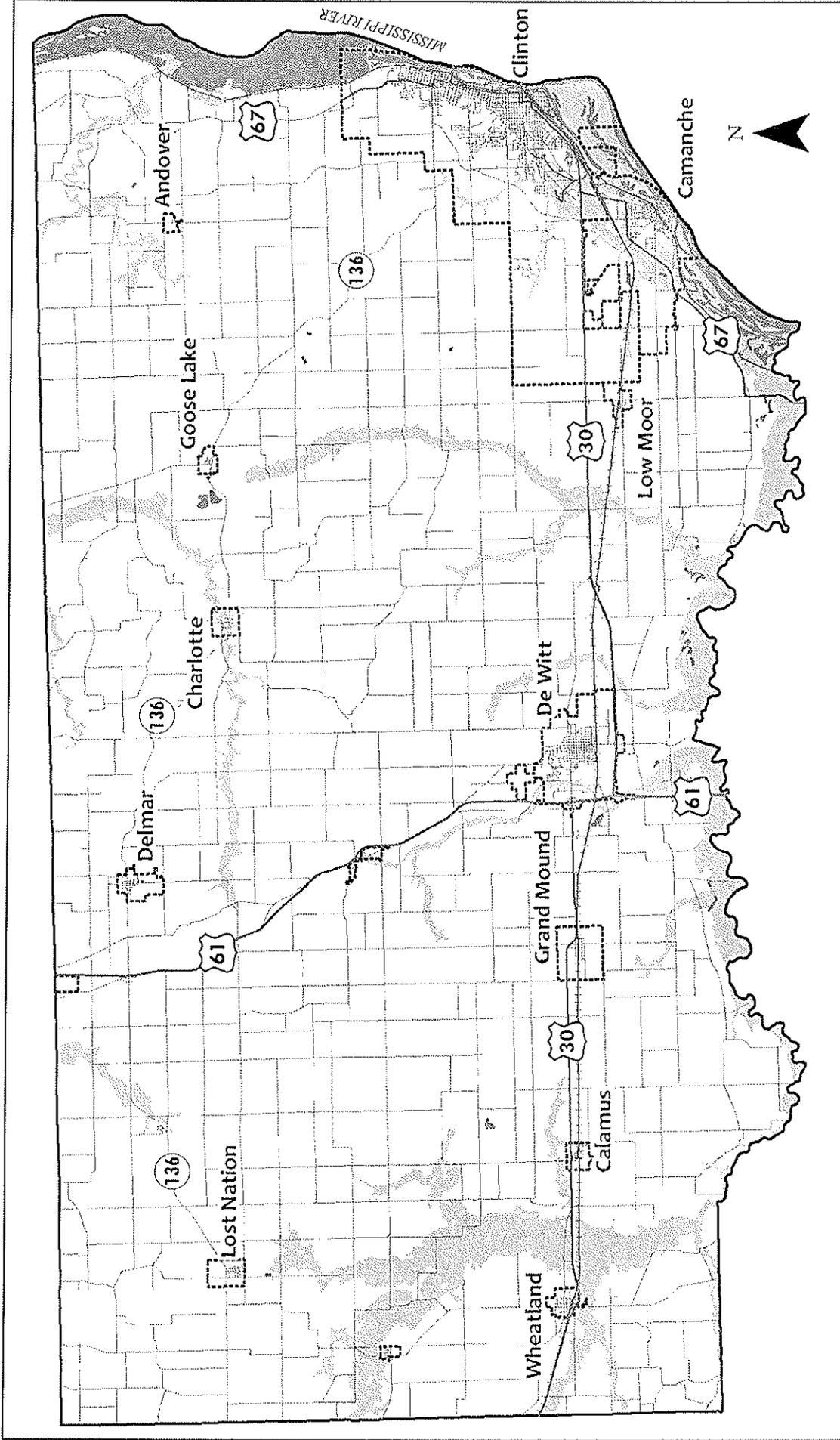
Legend

- Principal Arterial Roads
- Other Roads
- Incorporated Places
- Railroads
- Waterways
- HAZUS Floodplain

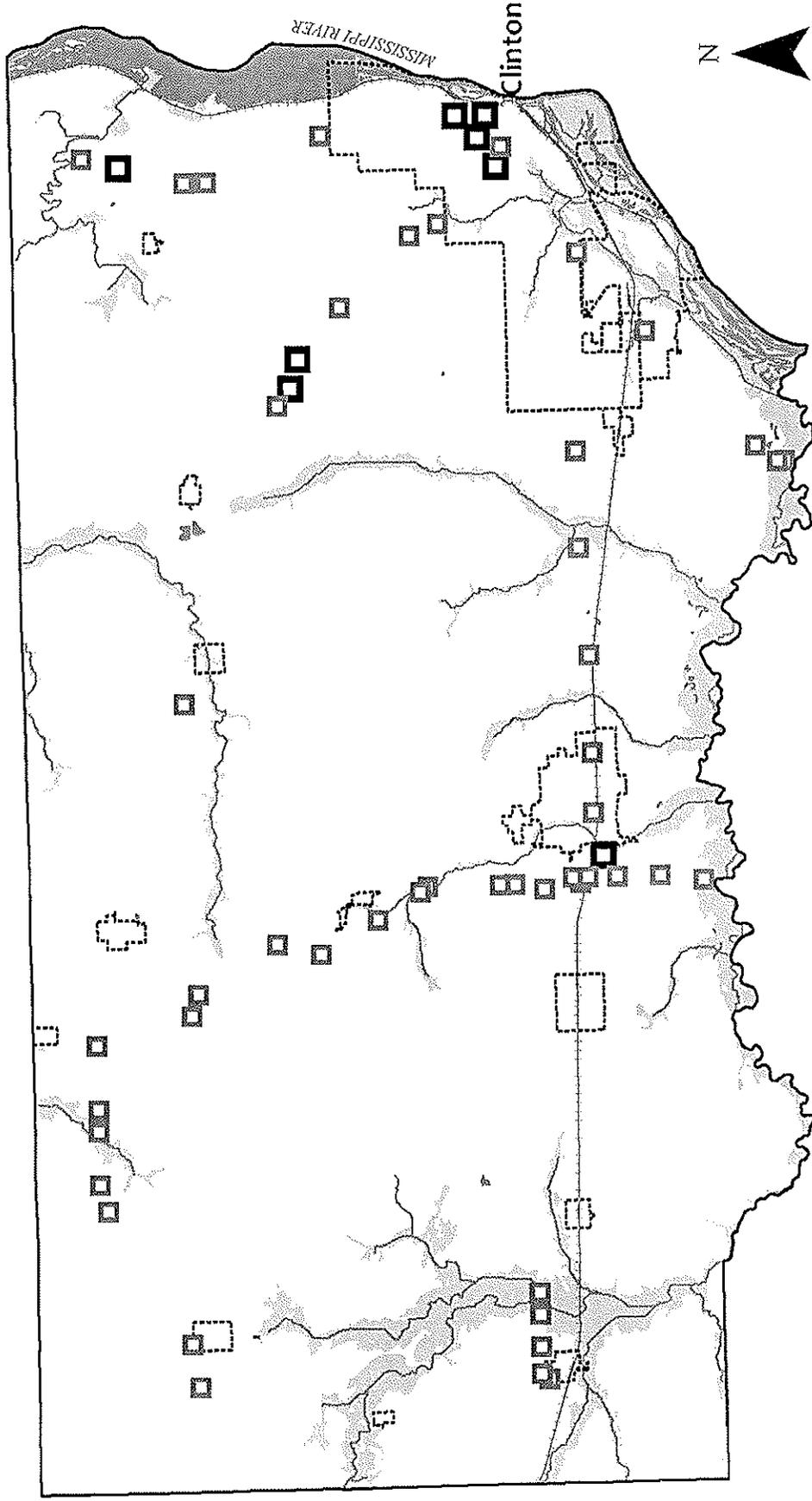


(c) 1997-2003 FEMA.

Clinton County HAZUS Floodplain



Clinton County Dams and Bridges Inventory



100 year floodplain modeled by HAZUS MH MR4
Bridge and Dam data source: HAZUS MH MR4



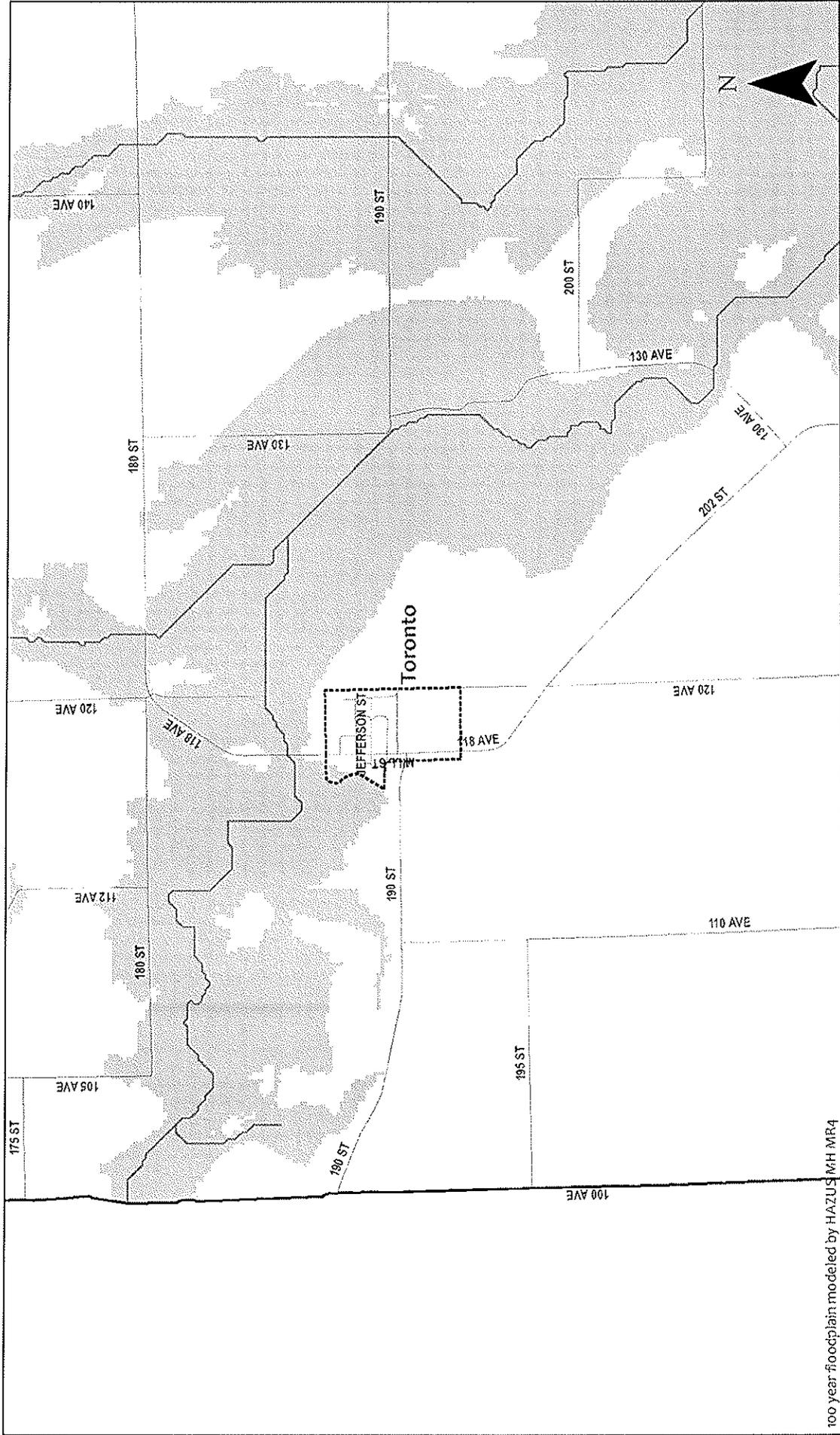
Legend

- Highway Bridge
- Dams
- Incorporated Places
- Railroads
- Waterways
- HAZUS Floodplain



(c) 1997-2003 FEMA.

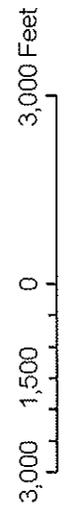
City of Toronto HAZUS Floodplain



100 year floodplain modeled by HAZUS MH MR4

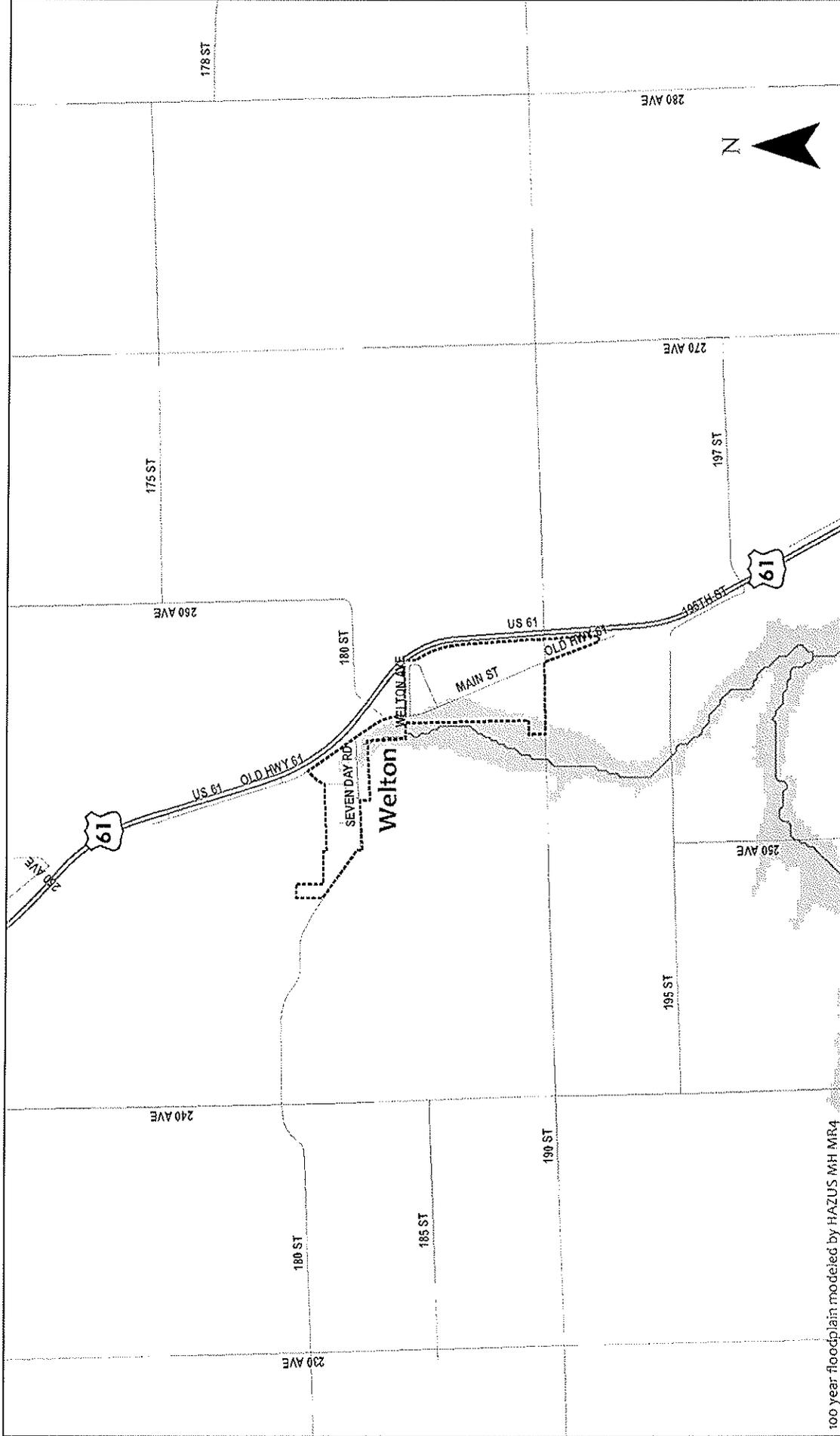
Legend

- Principal Arterial Roads
- Other Roads
- Incorporated Places
- Railroads
- Waterways
- HAZUS Floodplain



(c) 1997-2003 FEMA.

City of Welton HAZUS Floodplain



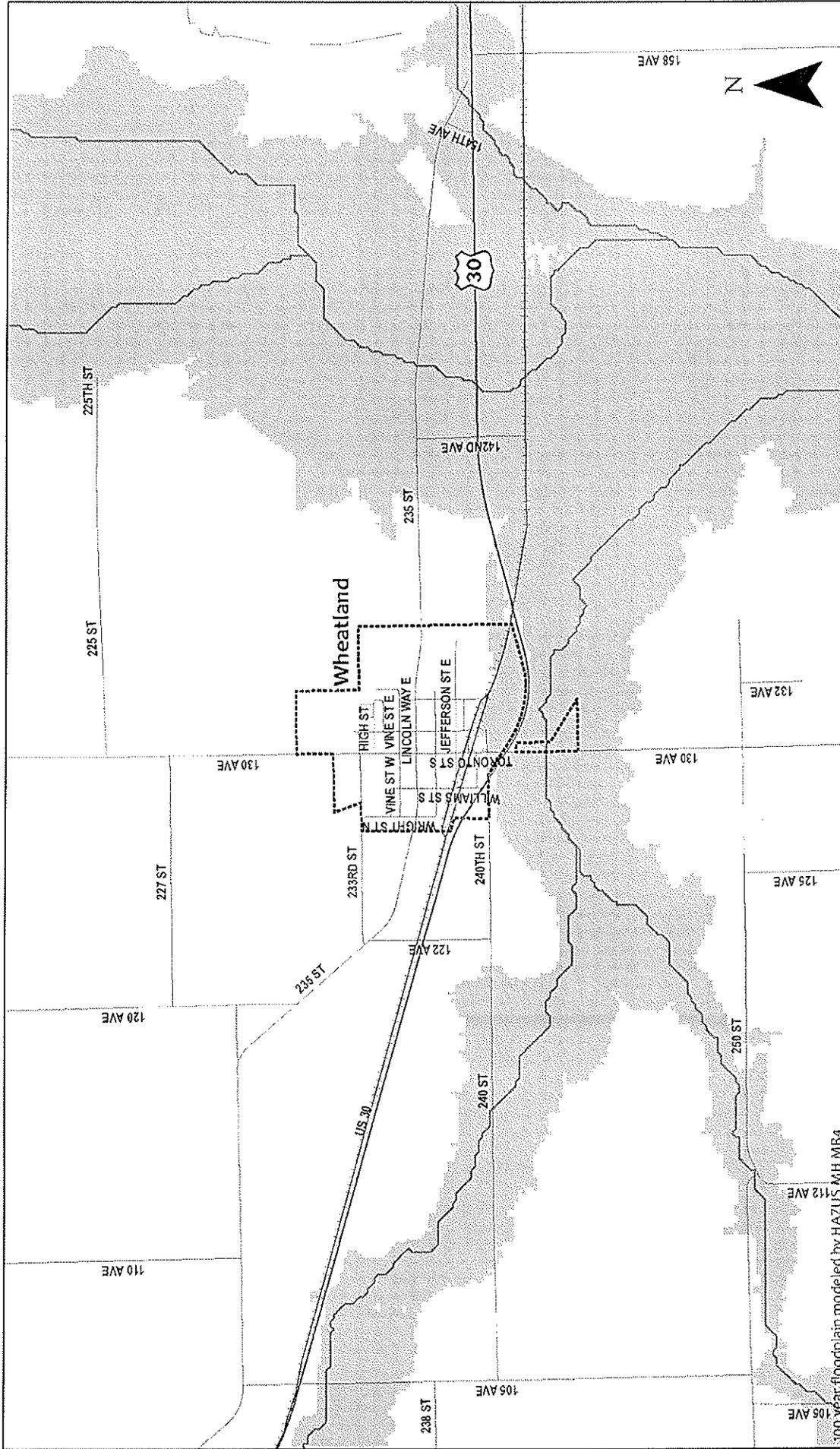
Legend

- Principal Arterial Roads
- Other Roads
- Incorporated Places
- HAZUS Floodplain
- Railroads
- Waterways



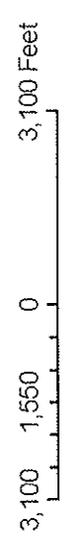
(c) 1997-2003 FEMA.

City of Wheatland HAZUS Floodplain



Legend

- Principal Arterial Roads
- Other Roads
- Incorporated Places
- Railroads
- Waterways
- HAZUS Floodplain



(c) 1997-2003 FEMA.

Appendix I:

FEMA Crosswalk

LOCAL MITIGATION PLAN REVIEW SUMMARY The plan cannot be approved if the plan has not been formally adopted. Each requirement includes separate elements. All elements of the requirement must be rated “Satisfactory” in order for the requirement to be fulfilled and receive a score of “Satisfactory.” Elements of each requirement are listed on the following pages of the Plan Review Crosswalk. A “Needs Improvement” score on elements shaded in gray (recommended but not required) will not preclude the plan from passing. Reviewer’s comments must be provided for requirements receiving a “Needs Improvement” score.

Prerequisite(s) (Check Applicable Box)	NOT MET	MET
1. Adoption by the Local Governing Body: §201.6(c)(5) OR		X
2. Multi-Jurisdictional Plan Adoption: §201.6(c)(5) AND		X
3. Multi-Jurisdictional Planning Participation: §201.6(a)(3)		X
Planning Process		
4. Documentation of the Planning Process: §201.6(b) and §201.6(c)(1)		X
Risk Assessment		
5. Identifying Hazards: §201.6(c)(2)(i)		X
6. Profiling Hazards: §201.6(c)(2)(i)		X
7. Assessing Vulnerability: Overview: §201.6(c)(2)(ii)		X
8. Assessing Vulnerability: Addressing Repetitive Loss Properties. §201.6(c)(2)(ii)		X
9. Assessing Vulnerability: Identifying Structures, Infrastructure, and Critical Facilities: §201.6(c)(2)(ii)(B)		X
10. Assessing Vulnerability: Estimating Potential Losses: §201.6(c)(2)(ii)(B)		X
11. Assessing Vulnerability: Analyzing Development Trends: §201.6(c)(2)(ii)(C)		X
12. Multi-Jurisdictional Risk Assessment: §201.6(c)(2)(iii)		X

*States that have additional requirements can add them in the appropriate sections of the *Local Multi-Hazard Mitigation Planning Guidance* or create a new section and modify this Plan Review Crosswalk to record the score for those requirements.

SCORING SYSTEM

Please check one of the following for each requirement.

N – Needs Improvement: The plan does not meet the minimum for the requirement. Reviewer’s comments must be provided.

S – Satisfactory: The plan meets the minimum for the requirement. Reviewer’s comments are encouraged, but not required.

Mitigation Strategy

- 13. Local Hazard Mitigation Goals: §201.6(c)(3)(i)
- 14. Identification and Analysis of Mitigation Actions: §201.6(c)(3)(ii)
- 15. Identification and Analysis of Mitigation Actions: NFIP Compliance. §201.6(c)(3)(ii)**
- 16. Implementation of Mitigation Actions: §201.6(c)(3)(iii)
- 17. Multi-Jurisdictional Mitigation Actions: §201.6(c)(3)(iv)

	N	S
13. Local Hazard Mitigation Goals: §201.6(c)(3)(i)		X
14. Identification and Analysis of Mitigation Actions: §201.6(c)(3)(ii)		X
15. Identification and Analysis of Mitigation Actions: NFIP Compliance. §201.6(c)(3)(ii)		X
16. Implementation of Mitigation Actions: §201.6(c)(3)(iii)		X
17. Multi-Jurisdictional Mitigation Actions: §201.6(c)(3)(iv)		X

Plan Maintenance Process

- 18. Monitoring, Evaluating, and Updating the Plan: §201.6(c)(4)(ii)
- 19. Incorporation into Existing Planning Mechanisms: §201.6(c)(4)(ii)
- 20. Continued Public Involvement: §201.6(c)(4)(iii)

	N	S
18. Monitoring, Evaluating, and Updating the Plan: §201.6(c)(4)(ii)		X
19. Incorporation into Existing Planning Mechanisms: §201.6(c)(4)(ii)		X
20. Continued Public Involvement: §201.6(c)(4)(iii)		X

Additional State Requirements*

- Insert State Requirement
- Insert State Requirement
- Insert State Requirement

	N	S
Insert State Requirement		
Insert State Requirement		
Insert State Requirement		

LOCAL MITIGATION PLAN APPROVAL STATUS

PLAN APPROVED PENDING ADOPTION

See Reviewer’s Comments

PLAN APPROVED

Local Mitigation Plan Review and Approval Status

Jurisdiction: Clinton County, Iowa	Title of Plan: Clinton County Multi-jurisdictional Hazard Mitigation Plan	Date of Plan: June 14, 2011
Local Point of Contact: Jennifer Walker	Address: 7600 Commerce Park Dubuque, Iowa 52002	
Title: Project Manager		
Agency: ECIA		
Phone Number: 563-556-4166	E-Mail: jwalker@ecia.org	

State Reviewer:	Title:	Date:
------------------------	---------------	--------------

The following information must be completed by the State Reviewer prior to submission to the regional office:

Review Priority: Routine or **Immediate** **City of Camanche will begin a Safe Room Project upon FEMA MJP approval.**
 Pending Project Close-out
 Pending Declaration
 Other
 When plans are submitted simultaneously for immediate review, write numerical prioritization (e.g. 1, 2, 3, etc.) on each plan submitted

Funding Source: HMGP (DR# 1763) PDM-C (EMK #)
 FMA (EMK #) CRS
 PDM (EMK#) Other _____

Plan Submittal Status: New Plan Revised Plan Updated Plan

Request Approval for: DMA 2K Plan

**LOCAL MITIGATION PLAN REVIEW CROSSWALK
Clinton County MJP CLINTON COUNTY**

Initial Review

Region VII

FEMA Reviewer: Jolene Hynes Cathy Mallard	Title: Initial Reviewer QC Reviewer	Date: June 14, 2011 June 21, 2011
Date Received in FEMA Region	June 14, 2011	
Plan Not Approved		
Plan Approved		
Date Approved		

Jurisdiction:	DFIRM		NFIP Status*			
	In Plan	NOT in Plan	Y	N	N/A	CRS Class
1. Clinton County Unincorporated (HAZUS maps present) Res:12/20/10	X		X			
2. Andover Res:12/8/10				X	X	
3. Calamus (HAZUS map present) Res:12/6/10	X			X		
4. Camanche (HAZUS map present) Res:12/7/10	X		X			
5. Charlotte (HAZUS map present) Res:12/7/10	X		X			
6. Clinton (HAZUS map present) Res:12/14/10	X		X			
7. Delmar Res:12/8/10				X	X	
8. DeWitt (HAZUS map present) Res:12/20/10	X		X			
9. Goose Lake Res:12/16/10				X	X	
10. Grand Mound Res:12/13/10				X	X	
11. Lost Nation Res:1/3/11				X	X	
12. Low Moor Res:1/4/11				X	X	
13. Toronto (HAZUS map present) Res:1/10/11	X			X		
14. Welton (HAZUS map present) Res:12/7/10	X		X			

**LOCAL MITIGATION PLAN REVIEW CROSSWALK
Clinton County MJP CLINTON COUNTY**

Initial Review

Region VII

15. Wheatland (HAZUS map present) Res:12/13/10	X		X			
16. Northeast Community School District Res:12/15/10					X	
17. Clinton Community School District Res:12/13/10					X	
18. Cal-Wheat School District Res: 6/13/11					X	
19. Central Community School District of Clinton County Res:12/8/10					X	
20. Camanche School District Res: 6/20/11					X	
21. Delwood School District Res:12/20/10					X	

* Notes: Y = Participating N = Not Participating N/A = Not Mapped

PREREQUISITE(S)

1. Adoption by the Local Governing Body

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 Commissioner, Tribal Council).

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			NOT MET	MET
A. Has the local governing body adopted new or updated plan?	N/A			
B. Is supporting documentation, such as a resolution, included?	N/A			
SUMMARY SCORE				

2. Multi-Jurisdictional Plan Adoption

Requirement §201.6(c)(5): For multi-jurisdictional plans, each jurisdiction requesting approval of the plan **must** document that it has been formally adopted.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			NOT MET	MET
A. Does the new or updated plan indicate the specific jurisdictions represented in the plan?	Page 8			
B. For each jurisdiction, has the local governing body adopted the new or updated plan?	Appendix D			
C. Is supporting documentation, such as a resolution, included for each participating jurisdiction?	Appendix D			
SUMMARY SCORE				

3. Multi-Jurisdictional Planning Participation

Requirement §201.6(a)(3): *Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process ... Statewide plans will not be accepted as multi-jurisdictional plans.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			NOT MET	MET
A. Does the new or updated plan describe how each jurisdiction participated in the plan's development?	Pages 5-6, 10-13, Appendix A			
B. Does the updated plan identify all participating jurisdictions, including new, continuing, and the jurisdictions that no longer participate in the plan?	Page 8			
SUMMARY SCORE				

PLANNING PROCESS: *§201.6(b): An open public involvement process is essential to the development of an effective plan.*

4. Documentation of the Planning Process

Requirement §201.6(b): *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:*

- (1) *An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*
- (2) *An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and*
- (3) *Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

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.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan provide a narrative description of the process followed to prepare the new or updated plan?	Chapter 1 Pages 9-17			
B. Does the new or updated plan indicate who was involved in the current planning process? (For example, who led the development at the staff level and were there any external contributors such as contractors? Who participated on the plan committee, provided information, reviewed drafts, etc.?)	Chapter 1 Pages 9-17 Appendix A			

LOCAL MITIGATION PLAN REVIEW CROSSWALK
Clinton County MJP CLINTON COUNTY

Initial Review

Region VII

C. Does the new or updated plan indicate how the public was involved? (Was the public provided an opportunity to comment on the plan during the drafting stage and prior to the plan approval?)	Section 1.1, Appendix B			
D. Does the new or updated plan discuss the opportunity for neighboring communities, agencies, businesses, academia, nonprofits, and other interested parties to be involved in the planning process?	Section 1.1, Appendix B			
E. Does the planning process describe the review and incorporation, if appropriate, of existing plans, studies, reports, and technical information?	Section 2.2 Pages 20-36			
F. Does the updated plan document how the planning team reviewed and analyzed each section of the plan and whether each section was revised as part of the update process?	Sections 1-2, Pages 9-36 Appendices A, B,			
SUMMARY SCORE				

RISK ASSESSMENT: §201.6(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.*

5. Identifying Hazards

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

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan include a description of the types of all natural hazards that affect the jurisdiction?	Section 3, Pages 37-62			
SUMMARY SCORE				

6. Profiling Hazards

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.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the risk assessment identify the location (<i>i.e.</i> , geographic area affected) of each natural hazard addressed in the new or updated plan?	Section 3, Pages 37-62			
B. Does the risk assessment identify the extent (<i>i.e.</i> , magnitude or severity) of each hazard addressed in the new or updated plan?	Section 3, Pages 37-62			
C. Does the plan provide information on previous occurrences of each hazard addressed in the new or updated plan?	Section 3, Pages 37-62			
D. Does the plan include the probability of future events (<i>i.e.</i> , chance of occurrence) for each hazard addressed in the new or updated plan?	Section 3, Pages 37-62			
SUMMARY SCORE				

7. Assessing Vulnerability: Overview

Requirement §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.

Element	Location in the Plan (section or annex and page #)	Reviewer’s Comments	SCORE	
			N	S
A. Does the new or updated plan include an overall summary description of the jurisdiction’s vulnerability to each hazard?	Section 3 45-82			
B. Does the new or updated plan address the impact of each hazard on the jurisdiction?	Section 3 45-82			
SUMMARY SCORE				

8. Assessing Vulnerability: Addressing Repetitive Loss Properties

Requirement §201.6(c)(2)(ii): [The risk assessment] **must** also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged floods.

Element	Location in the Plan (section or annex and page #)	Reviewer’s Comments	SCORE	
			N	S
A. Does the new or updated plan describe vulnerability in terms of the types and numbers of repetitive loss properties located in the identified hazard areas?	Section 3 Pages 20-22			
SUMMARY SCORE				

9. Assessing Vulnerability: Identifying Structures

Requirement §201.6(c)(2)(ii)(A): *The plan **should** describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan describe vulnerability in terms of the types and numbers of existing buildings, infrastructure, and critical facilities located in the identified hazard areas?	Section 3.3, Pages 75-82			
B. Does the new or updated plan describe vulnerability in terms of the types and numbers of future buildings, infrastructure, and critical facilities located in the identified hazard areas?	Section 3.3, Pages 75-82			
SUMMARY SCORE				

10. Assessing Vulnerability: Estimating Potential Losses

Requirement §201.6(c)(2)(ii)(B): *[The plan **should** describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan estimate potential dollar losses to vulnerable structures?	Section 3.3, Pages 75-82			
B. Does the new or updated plan describe the methodology used to prepare the estimate?	Section 3.3, Pages 75-82			
SUMMARY SCORE				

11. Assessing Vulnerability: Analyzing Development Trends

Requirement §201.6(c)(2)(ii)(C): [The plan **should** describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan describe land uses and development trends?	Section 3.3, Pages 75-82			
SUMMARY SCORE				

12. Multi-Jurisdictional Risk Assessment

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

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan include a risk assessment for each participating jurisdiction as needed to reflect unique or varied risks?	Section 3, Pages 46-82			
SUMMARY SCORE				

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

13. Local Hazard Mitigation Goals

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

Element	Location in the Plan (section or annex and page #)	Reviewer’s Comments	SCORE	
			N	S
A Does the new or updated plan include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards?	Chapter 4, Pages 83-85			
SUMMARY SCORE				

14. Identification and Analysis of Mitigation Actions

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

Element	Location in the Plan (section or annex and page #)	Reviewer’s Comments	SCORE	
			N	S
A. Does the new or updated plan identify and analyze a comprehensive range of specific mitigation actions and projects for each hazard?	Section 4 Pages 85-94			
B Do the identified actions and projects address reducing the effects of hazards on new buildings and infrastructure?	Section 4 Pages 85-94			
C. Do the identified actions and projects address reducing the effects of hazards on existing buildings and infrastructure?	Section 4 Pages 85-94			
SUMMARY SCORE				

15. Identification and Analysis of Mitigation Actions: National Flood Insurance Program (NFIP) Compliance

Requirement: §201.6(c)(3)(ii): [The mitigation strategy] must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan describe the jurisdiction (s) participation in the NFIP?	Table 3.2A, Page 56			
B. Does the mitigation strategy identify, analyze and prioritize actions related to continued compliance with the NFIP?	Chapter 4 Pages 87-88			
SUMMARY SCORE				

16. Implementation of Mitigation Actions

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

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated mitigation strategy include how the actions are prioritized? (For example, is there a discussion of the process and criteria used?)	Chapter 4, Pages 86-94 Appendix C			
B. Does the new or updated mitigation strategy address how the actions will be implemented and administered, including the responsible department, existing and potential resources and the timeframe to complete each action?	Chapter 4, Pages 86-94			
C. Does the new or updated prioritization process include an emphasis on the use of a cost-benefit review to maximize benefits?	Chapter 4, Pages 86-94			
D. Does the updated plan identify the completed, deleted or deferred mitigation actions as a benchmark for progress, and if activities are unchanged (i.e., deferred), does the updated plan describe why no changes occurred?	Appendix J			
SUMMARY SCORE				

17. Multi-Jurisdictional Mitigation Actions

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

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan include identifiable action items for each jurisdiction requesting FEMA approval of the plan?	Chapter 4, Pages 86-94			
B. Does the updated plan identify the completed, deleted or deferred mitigation actions as a benchmark for progress, and if activities are unchanged (<i>i.e.</i> , deferred), does the updated plan describe why no changes occurred?	Appendix J			
SUMMARY SCORE				

PLAN MAINTENANCE PROCESS

18. Monitoring, Evaluating, and Updating the Plan

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

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan describe the method and schedule for monitoring the plan, including the responsible department?	Chapter 5, Pages 94-95			
B. Does the new or updated plan describe the method and schedule for evaluating the plan, including how, when and by whom (<i>i.e.</i> the responsible department)?	Chapter 5, Pages 94-95			
C. Does the new or updated plan describe the method and schedule for updating the plan within the five-year cycle?	Chapter 5, Pages 94-95			
SUMMARY SCORE				

19. Incorporation into Existing Planning Mechanisms

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

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan identify other local planning mechanisms available for incorporating the mitigation requirements of the mitigation plan?	Chapter 5, Page 96			
B. Does the new or updated plan include a process by which the local government will incorporate the mitigation strategy and other information contained in the plan (e.g., risk assessment) into other planning mechanisms, when appropriate?	Chapter 5, Page 96			
C. Does the updated plan explain how the local government incorporated the mitigation strategy and other information contained in the plan (e.g., risk assessment) into other planning mechanisms, when appropriate?	Chapter 5, Page 96, Appendix J			
SUMMARY SCORE				

20. Continued Public Involvement

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

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the new or updated plan explain how continued public participation will be obtained? (For example, will there be public notices, an on-going mitigation plan committee, or annual review meetings with stakeholders?)	Chapter 5, Page 97			
SUMMARY SCORE				

Appendix J:

Mitigation Measures from Previous Community
Mitigation Plans

APPENDIX J

Mitigation Measures from Previous Community Mitigation Plans

All of the jurisdictions, other than DeWitt, Wheatland and the school districts, included in the Clinton County Multi-Jurisdictional Hazard Mitigation Plan had existing stand-alone plans. The dates of approval for the existing plans are as follows:

Clinton County	4/22/2005	Goose Lake	7/21/2009
Andover	12/19/2005	Grand Mound	8/31/2009
Calamus	12/19/2005	Lost Nation	5/15/2008
Camanche	5/10/2005	Low Moor	2/09/2007
Charlotte	6/9/2008	Toronto	12/13/2005
Clinton City	7/11/2005	Welton	5/31/2006
Delmar	12/8/2010		

The State of Iowa determined that county-wide multi-jurisdictional plans would be more effective tools than the single jurisdiction plans. To move to a multi-jurisdictional plan for Clinton County, each section of each existing plan, along with information found in old plans for DeWitt and Wheatland, were reviewed. The Clinton County Hazard Mitigation Planning Team combined the common information from the individual plans and reached a consensus on information that was rolled into the multi-jurisdictional plan.

Several factors, including The Great Flood of 2008 and several state disaster declarations influenced the creation of the parameters for multi-jurisdictional plans that included focusing on 16 natural hazards rather than trying to cover too much information (such as man-made hazards that were sometimes assessed in previous plans).

The HMPT reviewed all existing plans and determined which hazards were considered county-wide concerns and ranked them on a county-wide basis. Other hazards deemed more site specific, were ranked by the HMPT members from the specified jurisdiction. Furthermore, if a individual jurisdiction's plan was written less than one year earlier, the HMPT determined that they would use the rankings from that plan and not repeat the assessment process.

The HMPT also updated the status of each mitigation action noted in individual plans. When appropriate, the HMPT included the mitigation actions in the new multi-jurisdictional plan.

The tables below reflect the status of mitigation measures (or action items) from individual community Hazard Mitigation Plans that were in place and FEMA approved at the time the Clinton County Multi-Jurisdictional Hazard Mitigation Plan was developed.

C = Complete
 I = Incomplete
 O = Ongoing
 IP = In Process
 N/A = No longer applicable

Andover – 2009

Number	Mitigation Action	Status
1	Improve public awareness through publication of a newsletter.	O
2	Acquire a permanent back up generator for the fire department building.	I
3	Promote use of NOAA weather radios.	O
4	Construction of a community safe room.	I
5	Establish neighborhood watch.	O

Calamus – 2005

Number	Mitigation Action	Status
1	Improve storm sewer drainage system.	I
2	Improve public awareness.	O
3	Continue to provide NOAA indoor weather radios to citizens in the community.	O
4	Continue to utilize City's Public Works Department and Fire Department for debris cleanup as a result of the damage from high winds.	O
5	Purchase generator for Community Hall.	C
6	Clinton County Emergency Management Services will broadcast watches in conjunction with the National Weather Service on radio stations in addition to notifying the fire department.	O
7	Continue to maintain existing snow removal equipment.	O
8	Upgrade snow removal equipment.	O
9	Continue to train fire department personnel for Fire Fighting 1 certification.	O
10	Upgrade fire department equipment.	O
11	Encourage participation for all elected officials, fire department personnel and First Responders to be NIMS compliant.	O
12	Continue Fire Prevention programs through schools and fire departments	O
13	Continue to participate in the Hazardous Materials 28E Agreement with the Davenport Fire Department's Hazardous Materials Team in conjunction with Clinton County.	O
14	Continue to maintain records of facilities containing hazardous materials.	O
15	Acquire a generator for emergency purposes.	I

Camanche

Number	Mitigation Action	Status
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1	Continue to enforce floodplain management ordinances.	O
2	Discourage housing and business development in the floodplain.	O
3	Pursue application for future state and FEMA-funded programs for acquisition and/or demolition of flood damaged properties.	O
4	Promote purchase of NOAA indoor weather radios.	O
5	Improve public awareness of potential risks of hazards through education programs.	O
6	Continue to maintain and improve current outdoor weather siren.	O
7	Pursue purchase of backup generator for fire station/police department.	I
8	Continue to support power company's tree trimming programs.	O

Charlotte

Number	Mitigation Action	Status
1	Discourage housing and building development in flood prone areas.	O
2	Continue to enforce floodplain ordinances in compliance with the NFIP.	O
3	Coordinate with local fire department for prevention, evacuation and cleanup of activities from flood occurrence.	O
4	Acquire a stationary backup generator to be located at CAAC (Charlotte Area Activity Center).	I
5	Promote the use of NOAA indoor weather radios through local newspaper and websites.	O
6	Improve public awareness of the potential threat of natural hazards by educating the public with warning procedures utilized by the community through local newspaper.	O
7	Establish a reception center at CAAC as an emergency shelter through a grant application to the IHLSEMD for Federal and State funds.	O
8	Continue with maintaining clean, safe passable streets in the community.	O
9	Continue to provide EMS services to persons with personal injuries as a result of fire incidents.	O
10	Continue with Firefighter I and EMS Certification training to all fire department personnel.	O
11	Continue to maintain water distribution equipment.	O
12	Continue to participate in the Hazardous Materials 28E Agreement through Clinton County with the Davenport Fire Department's Hazardous Materials Team.	O

Clinton

1	Continue to enforce floodplain management ordinances in the community.	O
2	Continue to pursue acquisition and demolition of flood prone properties.	O
3	Continue to improve storm sewer and collection system as funds become available.	O
4	Pursue a system that would eliminate discharge of contaminated materials into public water during flooding events.	O

5	Develop an all hazards Emergency Operations Plan.	O
6	Continue to operate and maintain levee system in accordance with Army Corp of Engineers operations manual in addition to local maintenance procedures.	O
7	Provide NOAA indoor weather radios to citizens in City of Clinton as funding becomes available.	O
8	Continue to improve public awareness of potential risks of hazards.	O
9	Encourage Exelon to maintain present outdoor weather warning sirens as early warning signals.	O
10	Continue to maintain emergency contact list of tree trimmers.	O

Delmar

1	Increase the quantity and quality of storm drains in the community.	I
2	Continue to maintain weather siren.	O
3	Upgrade and update NOAA weather band radios.	O
4	Improve public awareness of the potential risk of hazards.	O
5	Continue to train fire personnel for weather spotters.	O
6	Implement an Emergency Call list to be available to all residents.	O
7	Continue to utilize Alliant Energy's emergency line for responses power outages.	O
8	Purchase a generator to be located at the school for power backup.	I
9	Continue with open houses and educational programs through local grade school during Fire Prevention Week.	O
10	Continue to upgrade fire equipment through grant applications to FEMA and the State of Iowa.	O
11	Continue to participate in the Hazardous Materials 28E Agreement with the Davenport Fire Department's Hazardous Materials Team through Clinton County.	O
12	Continue to maintain the SARA Title II list of chemical and hazardous materials stored in the community.	O
13	Continue to utilize the services of the Black Hawk Narcotics Task Force.	O
14	Continue training of fire personnel and city personnel for NIMS compliance.	O
15	Use council chambers at the Delmar Fire Station to accommodate citizens suffering from extreme heat or wind-chill conditions.	O

DeWitt

1	Continue to enforce floodplain ordinance.	O
2	Continue to enforce the storm water management ordinance.	O
3	Continue to make improvements to storm water system.	O
4	Continue to maintain outdoor weather siren system.	O
5	Continue to provide NOAA indoor weather radios to citizens in the community.	O
6	Continue to provide education programs on radio and in newspapers on promoting tornado safety.	O
7	Continue to utilize the City's Public Works Department for debris cleanup as a	O

	result of the damage from high winds.	
8	Continue to enforce the City's Building Code.	O
9	Clinton County Emergency Management Services will broadcast watches and warnings in conjunctions with NWS on radio stations in addition to notifying the Fire Department.	O
10	Conduct weather spotter training for fire and police department personnel coordinated through Clinton County EMA.	O
11	Continue to utilize the City's snow removal plan.	O
12	Continue to train fire department personnel for Fire Fighting 1 certification.	O
13	Continue to upgrade fire department equipment.	O
14	Maintain awareness level training for fire department for handling hazardous materials.	O
15	Continue to participate in Clinton County's Hazardous Materials 28E Agreement with the Davenport Fire Department.	O
16	Continue to coordinate NIMS incident command training to police and all law enforcement personnel.	O
17	Continue to support the offering of public facilities to counter the temperature extremes and improve public awareness of the potential risks associated with extreme temperatures.	O

Goose Lake

1	Continue to maintain and enforce snow removal policy.	O
2	Maintain backup generators to provide electricity in event of power outage.	O
3	Install new weather siren on pole behind fire station, which can be remotely activated and has batter backup.	C
4	Use fire trucks to visit individuals who need assistance during severe weather events.	O
5	Make fire station temporarily available to individuals suffering from the effects of severe winter weather.	O
6	Continue to utilize the State Building Code and follow building ordinances in governing its construction practices.	O
7	Acquire permanent generators for fire house, community center and city hall.	IP
8	Consider building a safe room in conjunction with any new city building projects.	O
9	Upgrade fire equipment as needed.	O
10	Continue to enforce floodplain ordinances	O
11	In the event of serious damage from flash flooding, update storm sewer and culverts, acquire structures, or add lift stations.	O

Grand Mound

1	Installation of new, larger outdoor warning siren that can be activated remotely.	C
2	Build school safe room to provide protection from severe thunderstorms, windstorms and tornadoes for students, administration & visitors to campus.	IP
3	Consider building a community safe room.	O
4	Notify residents through a newsletter about the hazards.	O

5	Purchase a backup generator for City Hall and Fire Department.	IP
6	Continue to contract out snow removal and maintain snow removal policy.	O
7	Make City Hall available to victims suffering from extreme heat conditions.	O
8	Replace fire trucks that are on loan from the DNR or outdated.	O
9	In the event of serious damage from flash flooding, elevate or acquire structures, reinforce culverts, and/or add lift stations.	O

Lost Nation

1	Maintain communications with the use of NOAA indoor weather radios.	NA
2	Train fire personnel as weather spotters.	O
3	Continue to maintain existing outdoor weather siren.	O
4	Improve public awareness of hazards through City's utility notice billings.	O
5	Maintain City's tree-trimming program.	O
6	Continue to support Alliant Energy for tree trimming.	O
7	Maintain existing drainage system for City's streets.	O
8	Acquire a portable generator for city shed.	IP
9	Maintain existing snow and ice removal program.	O
10	Support Fire Prevention Week through educational activities.	O
11	Continue to maintain present ISO rating.	O
12	Continue to enforce burning bans coordinated through Clinton County.	O
13	Continue to upgrade fire equipment with funding to be secured through grants.	O
14	Continue to participate in the Hazardous Materials 28E Agreement with the Davenport Fire Department's Hazardous Materials Team through Clinton County.	O
15	Complete training for NIMS compliance.	O
16	Develop an emergency shelter to accommodate the citizens in the community for their protection and safety during extreme heat or cold temperatures.	O
17	Develop an emergency plan to assist in coping with long-term power outages and other hazards.	C

Low Moor

1	Continue to work with Clinton County Emergency Management Services to conduct drills in the spring for public awareness and community preparedness.	O
2	Promote the use of NOAA indoor weather radios by citizens in the community.	O
3	Improve awareness of the potential threat of hazards by providing public service announcements through local cable access channels.	O
4	Continue working with Low More Fire, Inc. in observance of Fire Prevention Week.	O
5	Low Moor, Inc. to continue training in operations level and Firefighter 1 certification.	O
6	Construct a new fire station through application for grant funds.	I
7	Continue to maintain records of facility inventories of stored hazardous materials.	O
8	Provide prevention training to Low Moor Fire, Inc. members at facilities that contain anhydrous ammonia.	O

9	Continue to participate in the Hazardous Materials 28E Agreement with Davenport Fire Department's Hazardous Materials Team.	O
10	Coordinate with Low Moor Fire, Inc. & Low Moor Community Center in utilizing their buildings for shelter.	O

Toronto

1	Acquire a generator for the lift station.	I
2	Provide improvements for the storm sewer at Mill Street.	O
3	Provide NOAA indoor weather radios to the citizens of the community.	C
4	Improve public awareness of the potential risks of hazards.	O
5	Assure that all elected officials, city staff, fire department & law enforcement personnel meet the requirements for NIMS certification.	O
6	Continue to train weather spotters.	O
7	Upgrade snow removal equipment or continue to maintain existing equipment.	O
8	Continue to train fire department personnel for Firefighter 1 certification.	O
9	Upgrade fire department equipment.	O
10	Continue to participate at schools during Fire Prevention Week.	O
11	Continue to participate in Davenport Fire Department's 28E Agreement with their Hazard Mitigation Materials Team.	O
12	Improve public awareness of the risks of extreme temperatures.	O

Welton

1	Continue to enforce floodplain ordinances in the community.	O
2	Coordinate with the local fire department to pump water out of residential basements following a flood event.	O
3	Maintain annual inspection of all lift stations and pumps.	O
4	Continue to maintain existing outdoor weather siren as an early warning signal.	O
5	Promote the use of NOAA indoor weather radios.	O
6	Improve public awareness of the potential risk of hazards through utility notices.	O
7	Continue to work with power companies with the assistance of fire department personnel and Clinton County Law Enforcement personnel in response to downed power lines caused by severe storms.	O
8	Continue to contract out services for snow removal.	O
9	Continue to train fire department personnel in fire & rescue and awareness level training.	O
10	Continue to upgrade fire equipment.	O
11	Continue to participate in the Hazardous Materials 28E Agreement with Davenport Fire Department's Hazardous Materials Team.	O
12	Continue to utilize the fire station to accommodate citizens in the event of a loss of power.	O

Wheatland

1	Utilize the Calamus-Wheatland School, Christian Free Lutheran Church, St. Paul's UCC, Wheatland Community Hall, and Wheatland Public Library as shelters for individuals suffering from extreme heat and winter wind chill	O
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	conditions.	
2	Coordinate and maintain evacuation plans with local fire department and Clinton County EMA.	O
3	Maintain the outdoor siren as an early warning signal.	O
4	Improve public awareness of hazards through local newsletters, Channel 20 and utility bill notices by advertising coupons for purchase of weather radios.	C
5	Coordinate any evacuations through Clinton County EMA.	O
6	Continue to maintain and enforce snow removal policy.	O
7	Install outdoor weather siren that is currently in storage.	C
8	Continue to support a Hazardous Materials 28E Agreement with the Davenport Fire Department's Hazardous Materials Team through Clinton County.	O
9	Identify critical facilities that contain hazardous materials.	O
10	Promote operations level training to all members of local fire department through Davenport Hazardous Materials Team.	O
11	Support in-house training on a regular basis through Clinton County Emergency Management Services.	O
12	Review existing policies and practices related to hazard regulation.	O

Unincorporated Clinton County

1	Continue to maintain Clinton County's Floodplain Ordinances.	O
2	Continue Flood Study of the Flood Basin of the Wapsipinicon River.	C
3	Continue to maintain and clean Drainage District ditches in Clinton County.	O
4	Update Clinton County's Floodplain Maps.	IP
5	Maintain and support purchase of NOAA weather radios for citizens.	O
6	Maintain and improve outdoor weather siren system in Clinton County.	O
7	Continue to coordinate with American Red Cross for distribution of emergency planning kits.	O
8	Utilize existing or developing incident diversion route map for Clinton County.	O
9	Continue to maintain debris removal in Clinton County from disaster-related emergencies.	O
10	Pursue acquisition of Iowa Homeland Security and Emergency Management Division funding for purchase of a back-up generator at Clinton County Courthouse.	C
11	Continue to re-grade problem snow trap areas in Clinton County.	O
12	Clinton County Management Services, in conjunction with NWS, will broadcast severe weather information with respect to the general public.	O
13	Continue to budget resources to implement Clinton County's Snow Ordinance.	O
14	Continue to develop and implement an open burning ordinance in Clinton County through Clinton County Board of Supervisors.	O
15	Continue to participate in Hazardous Materials 28E Agreement through Davenport Fire Department's Hazardous Materials Team.	O
16	Continue to maintain and support SARA Title III chemical inventory reporting and emergency plan for Clinton County.	O