

<b>Jurisdiction:</b> Kossuth County	<b>Title of Plan:</b> Kossuth County Multi-Jurisdictional Hazard Mitigation Plan	<b>Date of Plan:</b> March 2013
<b>Local Point of Contact:</b> Dan Schroeder <b>Title:</b> Regional Planner <b>Agency:</b> NIACOG	<b>Address:</b> NIACOG 525 6 <sup>th</sup> Street SW Mason City, IA 50401	
<b>Phone Number:</b> 641-423-0491	<b>E-Mail:</b> dschroeder@niacog.org	
<b>Funding Source:</b> DR-1763-0166-01		
<b>State Reviewer:</b>	<b>Title:</b>	<b>Date:</b>
<b>FEMA Reviewer:</b> Carol Kanter Steve Greene	<b>Title:</b> Community Planner Community Planner	<b>Date:</b> July 25, 2013 July 24, 2013
<b>Date Received in FEMA Region VII</b>	June 12, 2013	
<b>Plan Not Approved</b>		
<b>Plan Approvable Pending Adoption</b>		
<b>Plan Approved</b>	July 25, 2013	

<b>Jurisdiction:</b>	<b>NFIP Status*</b>	
	<b>Y</b>	<b>NP</b>
Kossuth County	X	
Algona	X	
Bancroft	X	
Burt		X
Fenton	X	
Lakota		X
Ledyard		X
Lone Rock		X
LuVerne	X	
Swea City		X
Titonka	X	
Wesley		X
Whittemore		X
Algona Community Schools		X

\* Notes: Y = Participating NP = Not Participating in NFIP S- Sanctioned R-Rescinded

SECTION 1: REGULATION CHECKLIST

1. REGULATION CHECKLIST	Location in Plan (section and/or page number)	Met	Not Met
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>			
<b>ELEMENT A. PLANNING PROCESS</b>			
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	Page 3-8, 191	✓	
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	Page 3-8, 213 Appendix IV	✓	
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	Page 3-8 Appendix III-IV	✓	
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	Page 3-8, 139	✓	
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	Page 139-142	✓	
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	Page 139-142	✓	
<b>ELEMENT A: REQUIRED REVISIONS</b>			

1. REGULATION CHECKLIST	Location in Plan (section and/or page number)	Met	Not Met
Regulation (44 CFR 201.6 Local Mitigation Plans)			
<b>ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT</b>			
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	Page 30-89	✓	
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	Page 30-89, 90-117	✓	
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	Page 30-89, 90-117	✓	
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	Page 18 Table 1 and 2	✓	
<b>ELEMENT B: REQUIRED REVISIONS</b>			

**ELEMENT C. MITIGATION STRATEGY**

C1. Does the plan document each jurisdiction’s existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	Page 16, 17	✓	
C2. Does the Plan address each jurisdiction’s participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	Page 17-18, 127	✓	
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Page 123 Table 52	✓	
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	Page 124-134	✓	
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	Page 124-137 Tables 53-65	✓	
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	Page 142	✓	

**ELEMENT C: REQUIRED REVISIONS**

1. REGULATION CHECKLIST	Location in Plan (section and/or page number)	Met	Not Met
Regulation (44 CFR 201.6 Local Mitigation Plans)			
<b>ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION</b> (applicable to plan updates only)			
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	Pages 3-8	✓	
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	Pages 3-8	✓	
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	Pages 3-8	✓	
<b><u>ELEMENT D: REQUIRED REVISIONS</u></b>			
<b>ELEMENT E. PLAN ADOPTION</b>			
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	Addendum to the CD will be included in Appendix III upon adoption	✓	
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	Page 5	✓	
<b><u>ELEMENT E: REQUIRED REVISIONS</u></b>  Written proof that all jurisdictions' governing bodies have formally adopted the plan (usually a resolution) must be submitted to FEMA. <i>See Local Multi-Hazard mitigation Planning Guidance (July 2008) pages 17-18.</i>  <b>Note:</b> If the plan is not adopted by a participating jurisdiction, that jurisdiction would not be eligible for project grants under the following hazard mitigation assistance programs: HMGP, PDM, FMA, and SRL.			

## SECTION 2: PLAN ASSESSMENT

### A. Plan Strengths and Opportunities for Improvement

#### *Plan Strengths*

- The plan includes excellent documentation of the planning process.
- Page 5 provides a good summary of progress on the actions in the previously approved plan. The information is more inclusive than what is seen in the typical plan update, and will be very helpful to the plan developer of the plan update in five years. (See also the summary of the Kossuth County Plan on pages 7-8.)
- The section detailing the existing land development and planning tools in the county and the participating communities is inclusive, giving the reader an accurate picture of the situation in the planning area.
- Methodology for developing and prioritizing actions was clearly stated and easy to follow.

#### *Opportunities for Improvement*

- The plan development process should state “up front” that the current iteration of the plan represents an update of a previously approved plan (approved on June 1, 2006). The plan development process description should clearly differentiate between what happened in 2006 plan development, and what happened with the 2013 Update. A good way to avoid confusion is to consistently refer to the “2006 Plan” and the “2013 Plan Update.”
- It is stated in the plan that the “City of Algona currently has a Pre-Hazard Mitigation Plan that was completed in 2004.” It would be more correct to state that the plan expired December 22, 2009, and that the community has not had a plan in three years.
- In future plan updates, the plan should clearly state which school districts are participants when jurisdictions are referenced as being plan participants.
  - Page 2 states “The Kossuth County Multi-Jurisdictional hazard mitigation plan which includes the cities of Algona, Bancroft, Burt, Fenton, Lakota, Ledyard, Lone Rock, LuVerne, Swea City, Titonka, Wesley, and Whittemore plus the school districts and unincorporated areas of Kossuth County”. While page 3 indicates that Algona Community Schools was the only school district that participated in the plan, the language cited above could lead to the interpretation that all school districts in the participating jurisdictions are a participant which may not be accurate.
- On page 47 it is stated that “zero injuries and zero deaths resulted from these hailstorms in Kossuth County.” The lack of data on injuries and death in the NCDC does not mean that none occurred. It means only that none were reported to the NCDC. Throughout the plan, in all cases the narrative should be changed to indicate this point. In addition, data limitations language for NCDC information needs to be included in the plan. Following is an example, which is based on language on the NCDC Website.
  - There are some limitations to using NOAA’s National Climatic Data Center (NCDC) data. The NCDC data is from National Weather Service (NWS) Storm Data. The NWS receives their information from a variety of sources, which include but are not limited to: county, state and federal emergency management officials, local law enforcement officials, “skywarn” spotters, NWS damage surveys, newspaper clipping services, the insurance industry, and the general public. The data documents only those storms and other significant weather phenomena that are serious enough to cause loss of life, injuries, significant property damage, and/or disruption to commerce. Some information appearing in NWS Storm Data may be provided by or gathered from sources outside the NWS, such as the media, law enforcement and/or other government agencies, private companies, individuals, etc. The reliability of the data is highly dependent on the data sources. In addition, it represents only the information that was reported, as opposed to what actually happened. The decision whether or not to report is made subjectively, based on the opinion of the reporter rather than parameters defined by the NWS. Finally, the damages, deaths, and injuries are often reported on a multi-county basis and cannot be attributed to the planning area.

- On page 90 it is stated that the USACE reports that “there is no levee protecting any portion of Kossuth County or jurisdiction located within Kossuth County.” The statement that the USACE’s National Levee Database does not include any in Kossuth County means only that there may not be any *federal* levees. A better statement might be the following. The USACE’s National Levee Database does not show any federal levees located in the planning area. Review of state and local records did not reveal any information on levees that might be located in the planning area. Any levees in Kossuth County are likely to be small, privately owned levees, the breach of which would impact only the property owner.
- Beginning with Table 22, each of the participating jurisdictions scores each hazard separately. This activity should be done **only** for hazards that vary from jurisdiction to jurisdiction, such a flooding. This is because a jurisdiction by jurisdiction analysis for hazards such as thunderstorms results in inconsistent data for the risk analysis. For example, it would be expected that the scores for flooding would vary, depending whether a jurisdiction has Special Flood Hazard Areas (SFHAs). However, absent other factors (such as age of housing stock, for example), severe winter weather is just as likely to impact one jurisdiction as any other jurisdiction. It does not make sense that the scores would vary from one community to the next.

## B. Resources for Implementing Your Approved Plan

A variety of mitigation resources are available to communities. The Iowa Homeland Security & Emergency Management website: [http://www.iowahomelandsecurity.org/disasters/hazard\\_mitigation.html](http://www.iowahomelandsecurity.org/disasters/hazard_mitigation.html) provides planning and project related information as well as details on how major FEMA mitigation programs are implemented in the State.

HSEMD's training website provides information on upcoming training opportunities within the State: <http://homelandsecurity.iowa.gov/training/>.

Review of the FEMA HMA guidance (FY11 is the most current) is also encouraged as guidance provides information about application and eligibility requirements. This guidance is available from <http://www.iowahomelandsecurity.org/grants/HMA.html> or through FEMA's grant applicant resources page at [http://www.fema.gov/government/grant/hma/grant\\_resources.shtm](http://www.fema.gov/government/grant/hma/grant_resources.shtm).

The FEMA Hazard mitigation planning site <http://www.fema.gov/plan/mitplanning/index.shtm> contains the official guidance to meet the requirements of the Stafford Act, as well as other resources and procedures for the development of hazard mitigation plans.

Various funding programs are available from several state and federal agencies to assist local jurisdictions in accomplishing their mitigation activities and goals. A detailed listing of programs, information on each program, and contact information is also available from the 2010 State Hazard Mitigation Plan.

# Kossuth County Multi-Jurisdictional Hazard Mitigation Plan



# KOSSUTH COUNTY MULTI-JURISIDICIONAL MULTI-HAZARD MITIGATION PLAN

## **Board of Supervisors**

Don Besch  
Roger Tjarks  
Don McGregor  
Jack Plathe  
Pam Wymore

## **County Auditor**

Amber Garman

## **Emergency Management Coordinator**

Jim Kelley

## **Algona Mayor**

Lynn Kueck

## **Bancroft Mayor**

Thomas Johnson

## **Burt Mayor**

Jim Struecker

## **Fenton Mayor**

Roger Ulses

## **Lakota Mayor**

Doug Price

## **Ledyard Mayor**

Sharon Hackenmiller-Cowin

## **Lone Rock Mayor**

Gerald Thompson

## **Lu Verne Mayor**

Dennis Holmes

## **Swea City Mayor**

Mitchell Hauskins

## **Titonka Mayor**

Michael Etherington

## **Wesley Mayor**

Duane Larson

## **Whittemore Mayor**

Daniel Elbert

**Kossuth County Courthouse**

121 West State Street

Algona, IA 50511

# TABLE OF CONTENTS

<b>I. INTRODUCTION AND BACKGROUND</b>	
Basis for Planning Authority	2
Plan Purpose	3
Plan Organization	3
<b>II. COMMUNITY PROFILE</b>	
History	9
Public Water Supplies	14
Climate	14
Soils	14
Waterways	14
Water Shed Information	14
Land Use	16
Future Development	16
<b>III. COMMUNITY DEVELOPMENT INFORMATION</b>	
Community Zoning and Regulations	17
National Flood Insurance Program	17
<b>IV. POPULATION AND DEMOGRAPHICS</b>	
Population Profile	19
Age Distribution	20
Income Characteristics	20
<b>V. HOUSING INFORMATION</b>	
General Housing Information	23
Value of Housing	23
Community Valuations	24
<b>VI. TRANSPORTATION SERVICES</b>	
Streets and Highways	27
Railways	29
Waterways	29
Air Service	29
Transit Services	29
<b>VII. MULTI-JURISDICTIONAL RISK ASSESSMENT</b>	<b>30</b>
<b>VIII. HAZARD ANALYSIS</b>	
Animal/Plant/Crop Disease	35
Drought	36
Earthquake	39
Extreme Heat	41

Flash Flood	43
Grass or Wild-land Fire	45
Hailstorm	47
Hazardous Materials	49
Human Disease	52
Infrastructure Failure	55
Radiological	60
River Flooding	63
Severe Winter Storm	65
Terrorism	68
Thunderstorms and Lightning	73
Tornado	76
Transportation Incident	81
Windstorm	86
<b>IX. HAZARDS NOT CONSIDERED</b>	<b>89</b>
<b>X. HAZARD SCORING SUMMARY</b>	<b>90</b>
<b>XI. HAZARD PRIORITIZATION/RISK ASSESMENT &amp; VULNERABILITY</b>	<b>103</b>
<b>XII. INVENTORY OF ASSETS</b>	<b>118</b>
<b>XIII. CURRENT MITIGATION ACTIVITIES</b>	
Hazardous Materials	120
Tornado/Windstorm Activities	120
Winter Storm	121
Sheriff’s Department	121
Emergency Medical Services and Health and Human Services	122
<b>XIV. HAZARD MITIGATION PLAN GOALS</b>	<b>123</b>
<b>XV. MITIGATION MEASURES FEASIBILITY</b>	<b>124</b>
Analysis of Mitigation Measures	126
<b>XVI. MITIGATION MEASURES AND GOALS</b>	<b>135</b>
<b>XVII. FUNDING OF FUTURE MTIGATION MEASURES</b>	<b>137</b>
<b>XVIII. PLAN MAINTENANCE, REVIEW, AND UPDATE</b>	
Mitigation Prioritization	139
Plan Adoption and Amendment	139
Phasing	139
Continued Public Participation	139
Evaluation and Review Process	140

Schedule for Updating	141
Existing Document Incorporation	142

### **List of Figures**

1. Location of Kossuth County	10
2. Kossuth County Cities	11
3. Northern Kossuth County Cities and Roadways	12
4. Southern Kossuth County Cities and Roadways	13
5. Kossuth County Rivers and Waterways	15
6. Street and Highways of Kossuth County	28
7. Heat Index	42
8. Wind Chill Index	67
9. Tornado Activity in US showing Kossuth County	78

### **List of Tables**

1. NFIP Status of Jurisdictions	18
2. Repetitive Loss Properties by Jurisdiction	18
3. General Characteristics of Kossuth County	19
4. Population of Unincorporated Kossuth County	19
5. Population Statistics of Kossuth County	20
6. Population Age Distribution	20
7. Income Distribution	21
8. Housing Occupancy	23
9. Valuation of Kossuth County, Iowa	24
10. Residential Valuation	24
11. Commercial Valuation	25
12. Industrial Valuation	25
13. Agricultural Valuation	26
14. Droughts in Kossuth County	36
15. Hail Scale	48
16. Winter Storm Notifications	66
17. Enhanced Fujita Scale	79
18. Fujita Scale Used Prior to Feb. 2007	80
19. Beaufort Wind Scale	88
20. Excluded Hazards	89
21. Kossuth County Hazard Score	90
22. Algona/Algona CSD Hazard Score	91
23. Bancroft Hazard Score	92
24. Burt Hazard Score	93
25. Fenton Hazard Score	94
26. Lakota Hazard Score	95
27. Ledyard Hazard Score	96
28. Lone Rock Hazard Score	97
29. LuVerne Hazard Score	98

30. Swea City Hazard Score	99
31. Titonka Hazard Score	100
32. Wesley Hazard Score	101
33. Whittemore Hazard Score	102
34. Annual Loss Estimation by Natural Hazard	104
35. Hazard Priority for Kossuth County	105
36. Hazard Priority for Algona/Algona CSD	106
37. Hazard Priority for Bancroft	107
38. Hazard Priority for Burt	108
39. Hazard Priority for Fenton	109
40. Hazard Priority for Lakota	110
41. Hazard Priority for Ledyard	111
42. Hazard Priority for Lone Rock	112
43. Hazard Priority for LuVerne	113
44. Hazard Priority for Swea City	114
45. Hazard Priority for Titonka	115
46. Hazard Priority for Wesley	116
47. Hazard Priority for Whittemore	117
48. County Values	118
49. Unincorporated Values	118
50. Critical Facility Values	119
51. Tornado Safety Rules	121
52. Goals	123
53. Algona Mitigation Measure Score	128
54. Bancroft Mitigation Measure Score	128
55. Burt Mitigation Measure Score	129
56. Fenton Mitigation Measure Score	129
57. Lakota Mitigation Measure Score	130
58. Ledyard Mitigation Measure Score	130
59. Lone Rock Mitigation Measure Score	131
60. LuVerne Mitigation Measure Score	131
61. Swea City Mitigation Measure Score	132
62. Titonka Mitigation Measure Score	132
63. Wesley Mitigation Measure Score	133
64. Wesley Mitigation Measure Score	133
65. Kossuth County Mitigation Measure Score	134
66. Mitigation Measures and Goals	135
67. Funding of Future Measures	137

## **APPENDICES**

<b>I.</b> Maps	143
<b>II.</b> Agendas, Minutes, Resolutions	164
<b>III.</b> Planning Committee and Sign-in Sheets	191
<b>IV.</b> Letters to Communities	213
<b>V.</b> References	215
<b>VI.</b> Acronym List	217
<b>VII.</b> Update Sheets	219

## INTRODUCTION AND BACKGROUND

Through the Hazard Mitigation Grant Program funded through the Federal Emergency Management Agency (FEMA). Fortunately, this program was able to help some of the communities in North Iowa with federal mitigation grant funding provided through the FEMA. After Nov. 1, 2004, communities like these will still be eligible for federal disaster public assistance and individual assistance, but will not be eligible for mitigation assistance unless they have an approved hazard mitigation plan on file.

Under the initiative set forth by the Iowa Homeland Security and Emergency Management Division (IHSEMD) and the Iowa Association of Regional Councils (IARC) agreed to meet the challenge of developing plans for cities and counties throughout the state. An IHSEMD initiative further state that, the plans developed by Iowa's regional planning commissions and councils of governments should cover natural hazards and manmade hazards.

The 17 councils of governments of IARC provide an effective way for local governments to work together to share technical staff and address common problems in need of an area-wide approach. They also can effectively deliver programs that might be beyond the resources of an individual county or municipal government. The intent of the councils of governments in Iowa is to be of service to their member counties and municipalities and to bring an organized approach to addressing a broad cross-section of area-wide issues. They also are available to assist their member entities in coordinating the needs of the region with state and federal agencies or with private companies or other public bodies.

“Created more than thirty years ago by visionary public leaders, Iowa's Councils of Governments (COGs) provide professional planning, programming, and technical assistance to Iowa's cities, counties, businesses, community organizations and Iowans of all ages.

COGs are indigenous organizations formed by counties, cities and towns to serve local governments and their regional citizenry. Their governing boards are made up of local elected officials, business and education leaders, economic development professionals, and individual citizens.

COGs provide regional planning and technical assistance to local governments and the communities in their regions by:

- Providing individualized assistance to cities, counties, businesses, community organizations and community members (such as a local comprehensive plan, loans to local businesses, grant-writing assistance, and housing and workforce programs)
- Providing planning services across multiple jurisdictions (such as a regional comprehensive solid waste management plan or long-range transportation plan); and

- Providing a forum that combines the elements of transportation planning, housing development, solid waste planning, and use planning, workforce development, and economic development into a comprehensive approach to regional growth and development.

To ensure the vitality and growth of their regions, COGs actively pursue funding opportunities from a variety of local, state, and federal resources. They provide expertise to cities and counties in securing competitive state and federal grants. As Regional Planning Affiliations, COGs plan for and program the distribution of federal transportation funds within their regions, including highways, transit, trails, and other enhancement programs. Most COGs also have established and administer regional revolving loan funds targeting housing and economic development.” From the IARC website.

The role of a regional planning commission varies across the state, depending upon the desires of the member counties and municipalities and their representatives. Nonetheless, the primary role of the regional planning commission is to provide a technical staff capable of providing sound advice to its membership and working for coordination of various planning and infrastructure needs among the various counties and municipalities, as appropriate.

The Kossuth County Multi-Jurisdictional hazard mitigation plan which includes the cities of Algona, Bancroft, Burt, Fenton, Lakota, Ledyard, Lone Rock, LuVerne, Swea City, Titonka, Wesley, and Whittemore plus the school districts and unincorporated areas of Kossuth County was prepared by the staff of the North Iowa Area Council of Governments (NIACOG), a member of IARC. The COG serves the eight-county area of Cerro Gordo, Floyd, Franklin, Hancock, Kossuth, Mitchell, Winnebago and Worth counties as well as 67 incorporated municipalities.

Citizens and public organizations have participated in the process. This effort will be sustainable over the long term because it enjoys grassroots support that stems from a sense of local and individual ownership. Through IHSEMD’s Scope of Work, the Cities and County of Kossuth contracted with NIACOG and participated fully in the preparation of the plan. Once this plan is approved, the Cities and County of Kossuth will be eligible for future mitigation assistance from FEMA and will be able to more effectively carry out mitigation activities to lessen the adverse impact of future hazards within the county.

#### **Basis for planning authority**

The basis for authority to create a natural hazard mitigation plan lies in Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U.S.C. 5165. This act was enacted under Section 104 of the Disaster Mitigation Act of 2000 (DMA 2000), P.L. 106-390. Section 104 is the legal basis for FEMA’s Interim Final Rule for 44 CFR Parts 201 and 206, published in the Federal Register on February 26, 2002.

### **Plan Purpose**

The purpose of the Kossuth County Multi-Jurisdictional Hazard Mitigation Plan is to substantially and permanently reduce the county's vulnerability to natural hazards. The plan is intended to promote sound public policy designed to protect citizens, critical facilities, infrastructure, private property and the natural environment. This can be achieved by increasing public awareness, documenting resources for risk reduction and loss-prevention, and identifying activities to guide the community towards the development of a safer, more sustainable community.

### **Plan Organization**

The Kossuth Multi-Jurisdictional Hazard Mitigation plan is developed and organized within the rules and regulations established under the 44 CFR 201.6. The plan contains a mitigation action listing, a discussion on the purpose and methodology used to develop the plan, a profile on the cities and county of Kossuth, as well as, the hazard identification and vulnerability assessment of natural and manmade hazards. In addition, the plan offers a discussion of the community's current capability to implement the goals, objectives and strategies identified herein. To assist in the explanation of the above-identified contents there are several appendices included which provide more detail on specific subjects. This plan is intended to improve the ability of the County and Cities to handle hazards and will document valuable local knowledge on the most efficient and effective ways to reduce loss.

The Kossuth plan was developed by members of the Kossuth Hazard Mitigation planning committee and a representative, Dan Schroeder, from the North Iowa Area Council of Governments (NIACOG), contracted service. Plan development on the local level was spearheaded by Jim Kelly Kossuth County Emergency Management Coordinator. A complete list of the planning committee can be found in Appendix IV of this plan. Mr. Schroeder was tasked with leading the planning meetings and wrote the plan. Members of the planning committee were tasked with giving information that was critical to the plan development, e.g. hazards, mitigation actions, scores, historical information, etc. The jurisdictions that fall under this plan are unincorporated Kossuth County, City of Algona, City of Bancroft, City of Burt, City of Fenton, City of Lakota, City of Ledyard, City of Lone Rock, City of LuVerne, City of Swea City, City of Titonka, City of Whittemore and the associated school districts. The school districts/systems are in transition, were asked, and had ample opportunity to have a representative at all community meetings. Algona community school district participated in the Algona meeting and we have not received any further correspondence from the Algona school district. The following resources were used to compile data and complete this plan include: State of Iowa Hazard Mitigation Plan (2010), National Climatic Data Center (NCDC), SHELDUS, US Census data, Kossuth County Assessor's Office, FEMA floodplain maps, zoning ordinances and comprehensive plan, and critical facilities in participating jurisdictions. These resources were used to compile information on community background information, vulnerability analysis, development of mitigation goals, critical facilities, hazard identification and profiles and historical weather events.

The unincorporated areas of the county were represented by the county supervisors since they are elected from those areas to represent the people living in the unincorporated areas of Kossuth County. The Kossuth County EMA also represented the people living in the unincorporated areas of the county. There were two meetings held in each city to assess each city's information. Each community was required to select at least one mitigation action. The Board of Supervisors required each community to participate by being at the meetings conducted by NIACOG and the Kossuth County EMA. Meetings were held on the following dates, times and places.

- 8 August 2011 Kossuth County Courthouse 7:00pm-9:00pm kickoff meeting
- 24 October 2011 Bancroft Golf Course 7:00pm-9:00pm community meeting
- 25 October 2011 Burt City Hall 7:00pm-9:00pm community meeting
- 27 October 2011 Algona City Hall 7:00pm-9:00pm community meeting
- 30 January 2012 Fenton Library 7:00pm-9:30pm community meeting
- 12 July 2012 Ledyard American Legion Hall 7:00pm-9:00pm community meeting
- 16 July 2012 Titonka City Hall 6:30pm-9:00pm community meeting
- 24 July 2012 LuVerne City Hall 7:00pm-9:00pm community meeting
- 7 August 2012 Swea City City Hall 7:00pm-9:00pm community meeting
- 8 August 2012 Whittemore American Legion Hall 5:30pm-7:30pm community meeting
- 14 August 2012 Lakota Community Center 6:00pm – 8:00pm community meeting
- 16 August 2012 Lone Rock City Hall 7:00pm-9:00pm community meeting
- 27 August 2012 Wesley Community Center 6:30pm -8:30pm community meeting

Appendix III contains the meeting agenda's and meeting minutes. The discussion during meeting one was Hazard Mitigation Explanation, the planning process, community evaluation, and explanation of the Hazard Analysis Risk Assessment or HARA, identification of hazards and scoring of hazards. Meeting two, which happened in each city consisted of a reexamination of the hazard list to determine if a particular hazard that was identified on the county level pertained to each community, each hazard's score was also reevaluated and changed accordingly to each community's situation, prioritization of hazards identified during the first meeting and identification of critical facilities. A discussion on the current mitigation measures, selection of new mitigation measures, and the process in choosing the prioritization of the mitigation measures and the prioritization of the mitigation measures were conducted by a vote of the people present at each meeting. After mitigation measures were decided on, each person had three votes that they used to determine which mitigation measure their respective community should focus on. The top vote getter was the number one mitigation measure and the next vote getter would be the second mitigation measure and so on down the list. The third meeting was held in each participating jurisdiction as a review of the plan and to note any changes or make clarifications to the plan.

Public was involved in the planning process by being invited to the planning meetings with postings at the city halls. Meetings were held in each community that participated in the planning process. This garnered a lot more involvement and provided an opportunity for public comment. There was a 30 day public comment period and letters were sent out

to neighboring communities for comment on the plan. A copy of said letter is located in Appendix V of this plan. Schools were invited to review plan no comments were received by school districts, plan will be given to local school districts to adopt the plan. The school districts participated indirectly with the EMA acting on their behalf; the school districts will adopt the plan as their own in order to participate in any future funding activities. The school districts provided background information and information on their properties they currently own. There were no comments received by the county, or during the Supervisors meeting where the plan was approved. The plan was approved by one jurisdiction (Kossuth County) and the other jurisdictions will adopt the plan following FEMA approval according to 44 CFR§ 201.6(c)(5). The jurisdictions resolutions will be accompanied in Appendix II.

The City of Algona currently has a Pre-Hazard Mitigation Plan that was completed in 2004, the committee from Algona determined since it had been so long since the last plan and the items the hazards that have changed and scoring that has changed they determined to start anew. Their mitigation activities are as follows:

- Ongoing-the Algona Municipal Utilities is still continuing to bury new and existing utility lines in the city when it is feasible;
- Ongoing-the city and municipal utilities continues to inspect trees and trims them accordingly;
- Ongoing-the municipal utility continues to install surge protectors on major electrical lines accordingly;
- Complete- NOAA weather radios are widespread throughout the community and they are advertised each spring;
- Ongoing-Tornado safe-rooms are an ongoing goal and is reflected in the new plan;
- Ongoing-Classes in the spring for storm spotters are held;
- Ongoing- Public awareness of steps to take in the event of a Tornado are ongoing;
- Ongoing-Maintain, enforce, and update building codes as needed is a continuing venture for the city;
- Ongoing-Review and update incident command process as needed is conducted periodically;
- Ongoing-Training of fire, police and emergency medical personnel continues and is done yearly or as necessary;
- Complete-Cellular phones to select emergency personnel to backup communication system;
- Ongoing-Maintain and improve outdoor warning sirens as needed;
- Ongoing-Continue the working relationship with Kossuth County Emergency Management Agency;
- Ongoing-Continue to provide first responder training about responding to HAZMAT events;
- Ongoing-Provide hazardous materials education for industry and the community, including household chemical education;
- Ongoing-Educate the residents of Algona about potentially dangerous human and animal diseases and how to avoid contracting them;

- Ongoing-Continue to monitor and test the water quality of city wells;
- Ongoing-Continue enforcement of the city snow ordinance;
- Ongoing-Continue to provide support to the public works department, which ensures safer streets during winter storm events;
- Ongoing-Continue to provide necessary training to Fire Department personnel, Police Department personnel, and ambulance crews;
- Ongoing-Maintain existing 28E agreements with surrounding communities for mutual aid emergency assistance;
- Ongoing-provide and evaluate traffic signage to alleviate traffic accidents;
- Ongoing-Educating the public on safe driving techniques occurs within the driver's education classes held each year;
- Ongoing-Enforce city burning guidelines;
- Ongoing-Attempts to identify and remedy sewer system inflow and infiltration problems, as money has been available some of these problems have been completed;
- Ongoing-Removal of debris in the riverbed of the east fork of the Des Moines River continues as necessary;
- Ongoing-Maintain, enforce, and update of the Floodplain Ordinance occurs as necessary;
- Ongoing-Public awareness of the proper steps to take in the event of an earthquake is a long-term commitment;
- Ongoing-Establish local cooling sites for at risk populations such as the elderly and/or disabled, areas are available for this mitigation activity but is an ongoing activity;
- Ongoing-During drought conditions, restrict water usage in order to maintain the water supply;
- Ongoing-Enforce city guidelines for burning during drought conditions, this is handled by the County Emergency Management Coordinator;
- Ongoing-Ensure local schools and industry have terrorism response plans in place;
- Ongoing- Continue to monitor and test the water quality of city wells, this occurs monthly;
- Complete-Disaster/first aid kits are available at the local schools and many local industries in the city.

The mitigation measures that were identified in the 2004 plan have either been completed, are ongoing or not completed due to reasons mentioned above. The measures that are identified in the Kossuth County Multi-Jurisdictional Plan have replaced the previous measures.

The Algona City Council has adopted the Kossuth County Multi-Jurisdictional Hazard Mitigation Plan and plans to incorporate this plan and recommendations in their comprehensive plan, zoning ordinance, and other pertinent plans and ordinances of the city.

The Algona Pre-Hazard Mitigation Plan from 2004 was not included due to agency only having a hard copy of these documents, no reliable digital copy was available to include into the multi-jurisdictional plan.

The Kossuth County Pre-Disaster Mitigation Plan of 2006 was reviewed, the committee determined since it had been so long since the last plan and the items the hazards that have changed and scoring that has changed they determined to start anew. Their mitigation activities are as follows:

- Ongoing as funds become available-Provide tornado shelters at outdoor recreation sites utilized by at risk populations such as elderly housing, multi-family housing, and schools.
- Completed-Increase NOAA Weather Radio use as early warning systems in homes and businesses. Done each spring by local television and radio personalities along with County EMA at community meetings; many homes and businesses in Kossuth County own a NOAA Weather Radio.
- Ongoing-Consider recruiting and training individuals in the county as weather spotters to increase potential warning time.
- Ongoing-Improve public awareness of the steps to be taken in the event of a tornado and shelter locations.
- Complete-Install warning sirens at outdoor recreational facilities.
- Ongoing-Continue the removal of debris in the riverbed of the east fork of the Des Moines River.
- Ongoing- Maintain, enforce, and update floodplain zoning code as needed
- Ongoing-Provide retention ponds to elevate flood of property in the county.
- Ongoing-Continue to support the Kossuth County Emergency Management Agency.
- Ongoing-Continue to provide all emergency responders with training about responding to HAZMAT events.
- Ongoing-Provide hazardous materials education for industry and county residents including household chemical education.
- Ongoing- Continue to support hazardous material disposal facilities.
- Ongoing-Continue to provide support (equipment, personnel, and funding) to the secondary roads program which ensures safer roadways during winter storm events.
- Ongoing-Provide fire, law enforcement, and emergency personnel with appropriate training as needed.
- Ongoing-Maintain 28E agreements with Iowa Mutual Aid Commission.
- Ongoing-Provide and evaluate traffic signage to alleviate traffic accidents.
- Ongoing-Enforce temporary burning ordinance during dry periods.
- Ongoing-Review and update Incident Command Process as needed.
- Ongoing-Provide cellular phones to select emergency personnel to backup the current communication system
- Ongoing-Continue to monitor and test the water quality of private wells

- Cancelled-Continue to support and expand the Water Well Grant Program through the Iowa Department of Natural Resources-current research of the Iowa Department of Natural Resources website show no such grant program that is available.
- Ongoing-Educate the residents of Kossuth County about potentially dangerous human and animal diseases and how to avoid contracting them.
- Ongoing-Continue to monitor and test the water quality of private wells.
- Complete-Ensure local schools and industry have terrorism response plans in place.
- Complete-Provide disaster/first aid kits to schools and industry in the county.
- Ongoing as needed-Establish local cooling sites for at risk population such as the elderly and/or disabled.
- Ongoing as needed-Enforce burning restrictions during drought conditions.
- Ongoing-Maintain, enforce, and update zoning codes as needed.
- Ongoing-Improve public awareness of proper steps to be taken in the event of an earthquake.
- Ongoing-Review and update Incident Command Process as needed.

The mitigation measures that were identified in the 2006 plan have either been completed, are ongoing or not completed due to reasons mentioned above. The measures that are identified in the Kossuth County Multi-Jurisdictional Plan have replaced the previous measures.

The Kossuth County Board of Supervisors has adopted the Kossuth County Multi-Jurisdictional Hazard Mitigation Plan and plans to incorporate this plan and recommendations in their comprehensive plan, zoning ordinance, and other pertinent plans and ordinances of the county.

The Kossuth County Pre-Hazard Mitigation Plan from 2006 was not included due to agency only having a non-reliable digital copy and was therefore unavailable in include into the multi-jurisdictional plan.

## COMMUNITY PROFILE

### History

Kossuth County, named after the Hungarian Patriot, Lajos (Louis) Kossuth is the largest county in Iowa, covering 979 square miles. Between 1820 and 1844 the first white men entered the area with military expeditions. In 1852, the land was surveyed and the state boundary between Iowa and Minnesota was established.

The townships and sections making up the county were surveyed in 1854 and 1855. It was during the surveying of Kossuth County that characteristics such as swamps and sloughs and grasshopper invasions were first noticed by surveying engineers. One of these early engineers stated, "I would not give a jack knife for the whole county".

The Third General Assembly of 1851 created or established 50 counties in Iowa. When this session closed, every part of Iowa was included in some designated county for the first time. Kossuth County was one of those created by this wholesale legislation. At that time, Kossuth County was about the same size (24 square miles) as the other adjoining counties.

Early on, Kossuth County was attached to Boone County and later to Webster County for election, judicial and revenue purposes, because few settlers were in the area. The present boundaries of Kossuth County are the same as fixed by the Legislature in January of 1857 creating a county 41 miles long and 24 miles wide. The original size came about by removing Bancroft County to the north and adding it to Kossuth County.

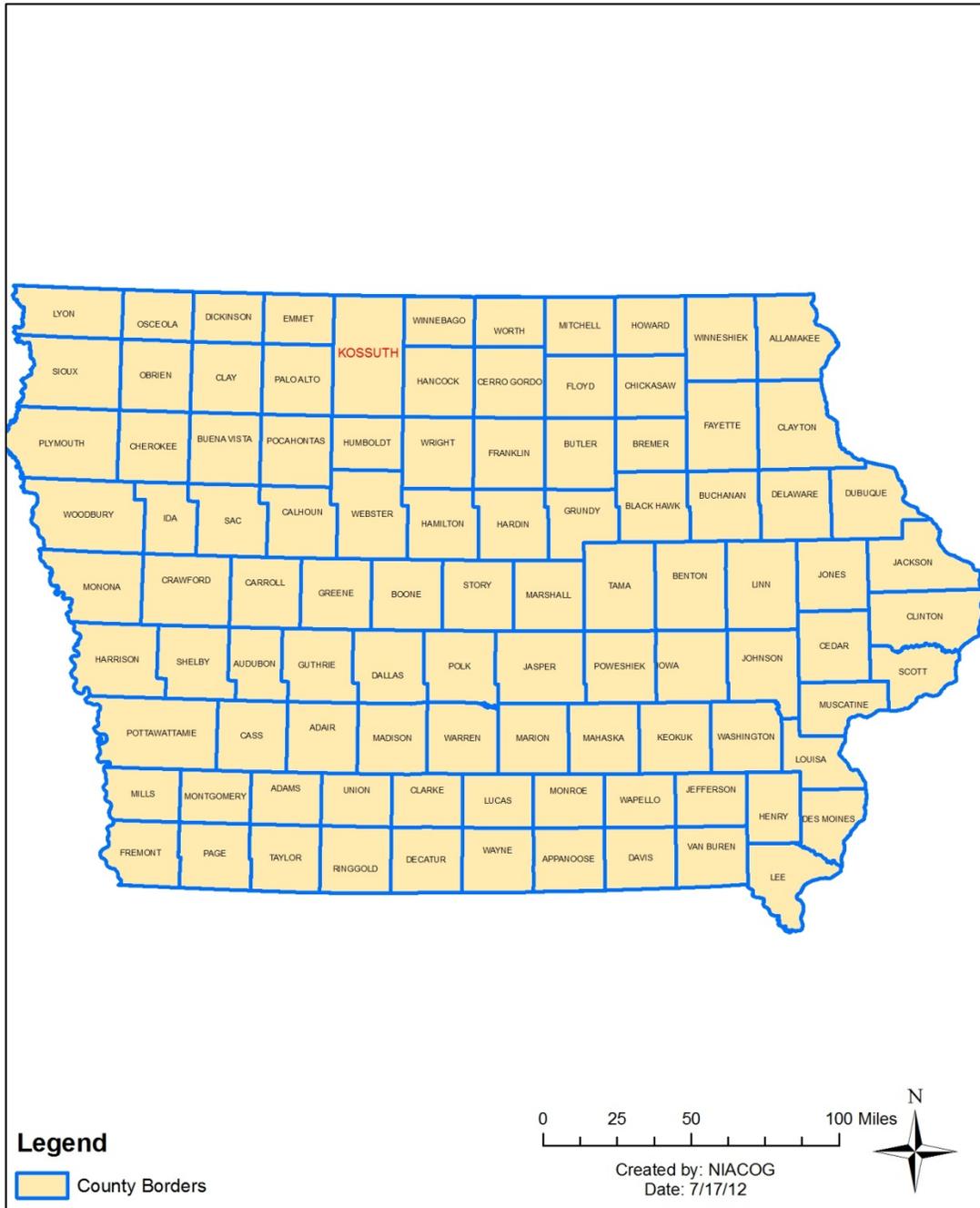
One interesting point in history occurred when in 1870, Crocker County was created on the ruins of old Bancroft County, with Greenwood Center to be the new county seat. However, the act creating Crocker County was declared by the court to be unconstitutional because Crocker County did not contain at least 432 square miles of territory as required by the existing constitution.

Early in 1866, supervisors asked for bids for a courthouse at Algona (originally known as Call's Grove). A small building was constructed at a cost of \$775. Lumber for the structure was hauled in from the town of Boonesboro, 90 miles away. This first courthouse was completed and occupied in January of 1867. The building was later sold and moved to another location where it was utilized as a meeting hall and Sunday school.

At an election held September 9, 1947, a proposal to issue \$500,000 in bonds to build a new courthouse was carried by a vote of 1693 to 856. The cornerstone of the present courthouse was laid on August 16, 1953, and occupied in February and March of 1955. Total construction costs of \$520,605.32 were needed to complete construction of the reinforced concrete structure.

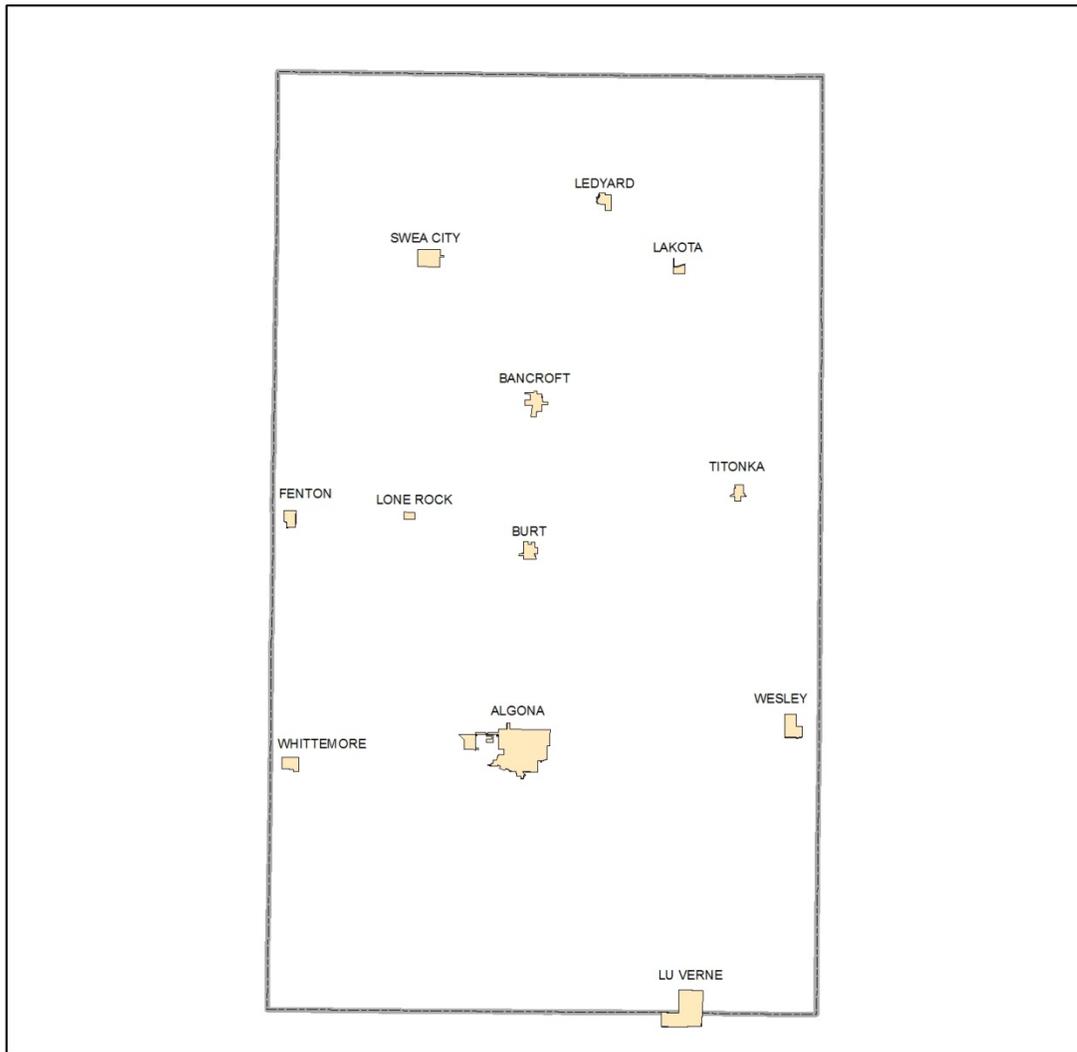
**FIGURE 1 – Location of Kossuth County**

**Kossuth County Location**



**FIGURE 2 – Kossuth County Cities**

**Kossuth County Cities and Towns**



**Legend**

-  CORP\_LINES
-  County\_Borders

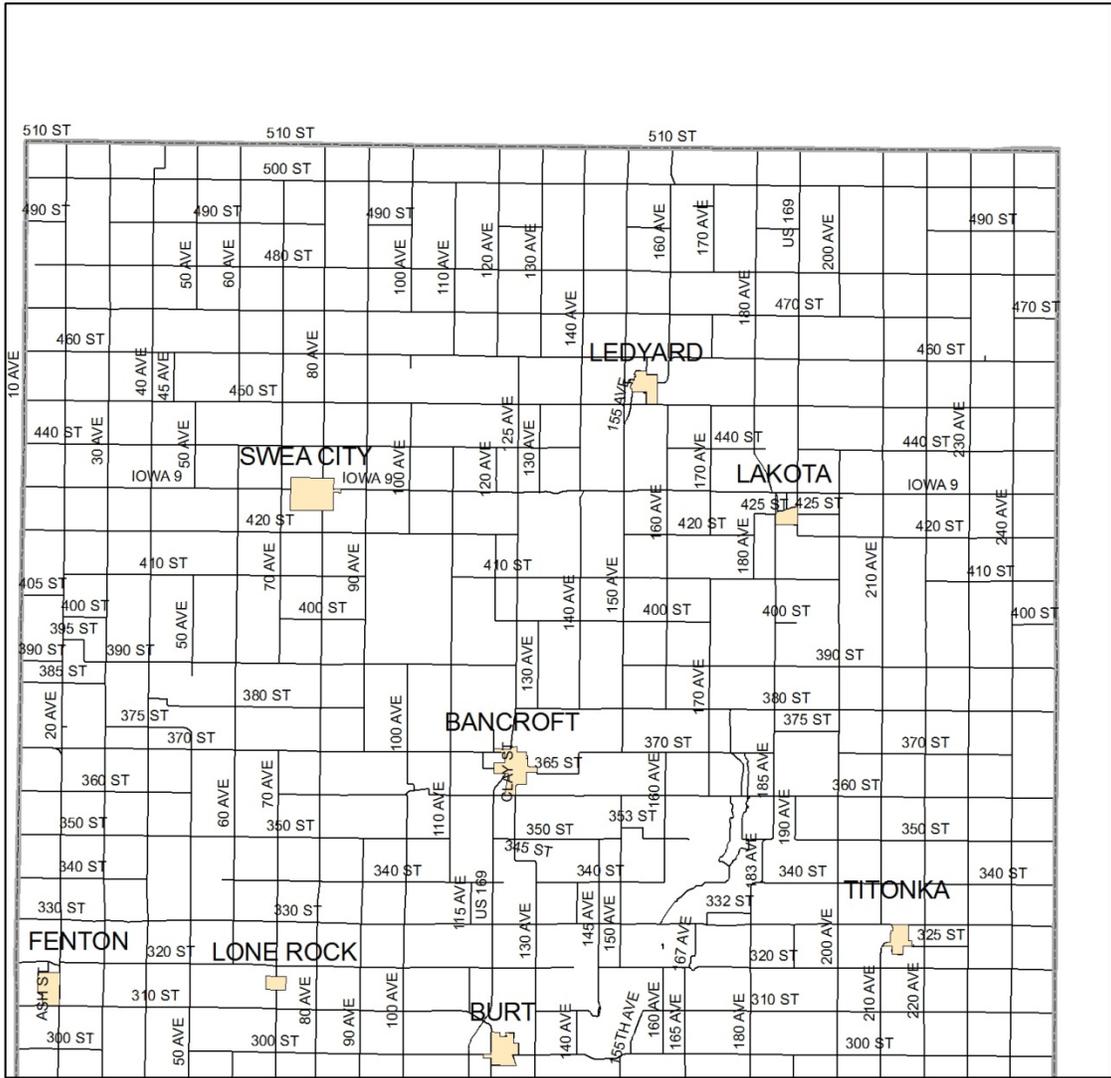
0 2.5 5 10 Miles

Created by: NIACOG  
Date: 7/18/12



**FIGURE 3 – Northern Kossuth County Cities and Roadways**

Northern Kossuth County  
Cities and Roads



- Legend**
-  CORP\_LINES
  -  County\_Borders

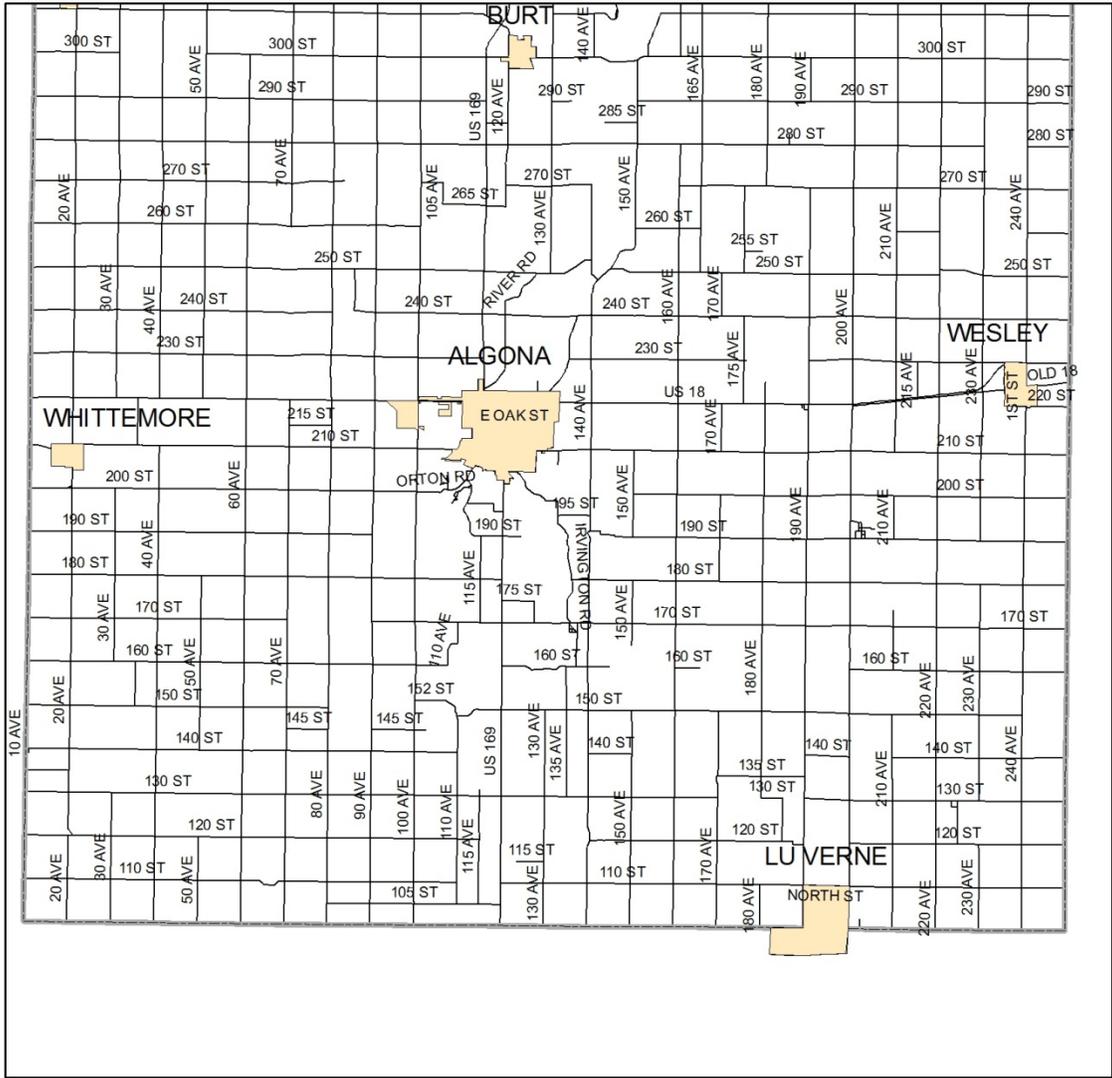
0 1.25 2.5 5 Miles

Created by: NIACOG  
Date: 7/18/12



**FIGURE 4 – Southern Kossuth County Cities and Roadways**

Southern Kossuth County  
Cities and Roads



**Legend**  
 CORP\_LINES  
 County\_Borders



Created by: NIACOG  
Date: 7/18/12



### **Public Water Supplies**

The water that is used by the public water suppliers (PWS) in Kossuth County comes from wells. Treatment of this water also occurs using the following methods:

- Softening
- Iron Removal
- Disinfection
- Stabilization
- Fluoride addition
- Chlorination

PWS in Kossuth County utilize elevated and surface storage for treated water. The cities located in Kossuth County provide waste water systems that are either treatment plants or open air lagoons that drain into the rivers in the county as allowed through rules and regulations by the Iowa Department of Natural Resources (IDNR).

Storm water systems are varied throughout the county from surface ditches to storm drains.

### **Climate**

The climate in Kossuth County is described as sub-humid and continental with cold winters and hot and humid summers. The average winter temperature is seventeen degrees Fahrenheit, with an average snowfall of thirty-seven inches. The average summer temperature is seventy-four degrees Fahrenheit, with an average annual rainfall of thirty inches.

### **Soils**

The soils that are found within the Kossuth County area are well suited to the production of corn and soybeans. These soils are found in upland areas and are nearly level to moderately sloping. Drainage for these soils is moderate to poor; this should be taken into consideration when developing land areas for recreational, residential and commercial purposes.

### **Waterways**

The primary waterway features in Kossuth County are the North Buffalo Creek and Kossuth River. These waterways and resultant floodplain areas are included as a map in Appendix I of this plan.

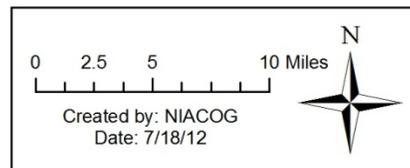
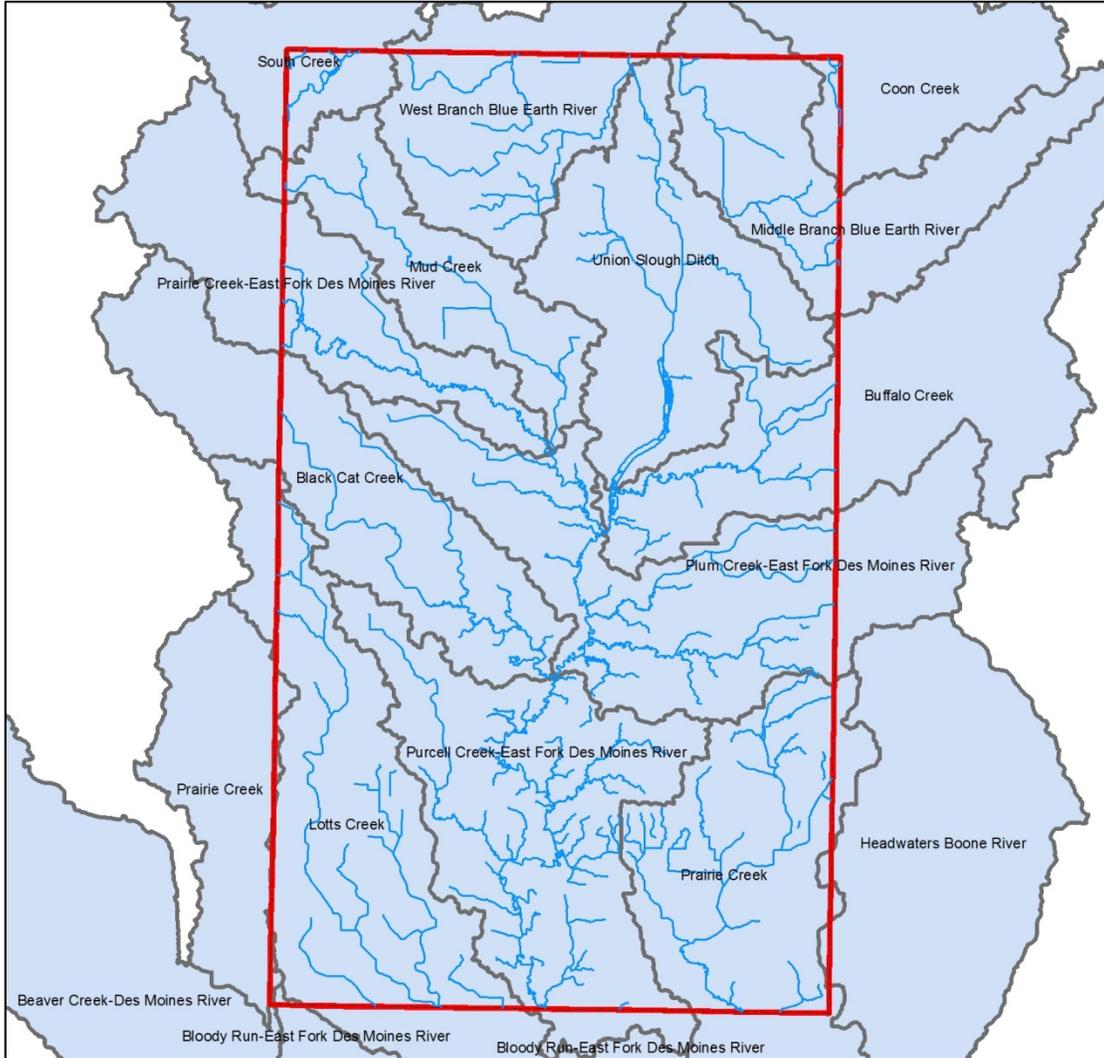
### **Water Shed Information**

The land area that drains water to a river, lake or ocean is called a watershed. Lakes, rivers and wells often affect the flow, water level and level of pollutants in the watershed. The Environmental Protection Agency's Office of Water, along with state agencies and local groups have been stressing the importance of water quality and improving watershed health. Addressing the whole health of the watershed instead of focusing on

point source pollution tends to be more successful at maintaining good health of the watershed. Pollution from a sewage treatment plant might be reduced significantly after a new technology is installed, yet the local river and watershed still suffer from runoff pollution. Watershed management offers a stronger organization that is able to uncover the many problems that plague a watershed. Watershed management is able to determine what actions and resources are needed to protect and restore the watershed.

**FIGURE 5 – Rivers and Watersheds Map of Kossuth County**

# Kossuth County Rivers and Watersheds



## Land Use

Kossuth County has several highways and county roads the major highways include US Highway 169 which runs north and south through the cities of Algona and Bancroft. US Highway 18 runs east to west through the towns of Wesley and Algona. Iowa Highway 9 runs east to west through the cities of Lakota and Swea City. County highways that run

north and south include P16, P20, P30, P40, P44, P50, P54, P56, P60, P64, P66, R14. County highways that run east and west include A16, A21, A38, A40, A42, B14, B16, B19, B20, B30, B40, B44, B46, B55, B58, B63, C10.

The county does have current zoning ordinances for industrial, commercial, agricultural and residential development. Citizens wishing to have their property rezoned can do so by following procedures set by the county. Once P&Z Board approval is obtained, the rezoning issue must be approved by the Board of Supervisors. Persons wishing to build new structures in the County must obtain a building permit from the Planning and Zoning office. This permit must also be approved by the Zoning Administrator.

There are few constraints to development and growth for Kossuth County. Most of the land in the County is farm land and, if acquired from the owner, can be used for development. Any additional development will proceed according to the zoning ordinance, comprehensive development plan and building permit restrictions and will proceed in an orderly and rational manner.

#### **Future Development**

Kossuth County will incorporate the recommendations of this plan before the development of future buildings. Future development will be placed outside any known flood plain. Future development will also be governed by the comprehensive plan and the zoning ordinance and the comprehensive plan will include the recommendations of this plan in order to prevent any development in hazardous areas. Development in SFHA will not occur in the county or in the cities without serious discussion and deliberation.

## COMMUNITY DEVELOPMENT INFORMATION

### **Community Zoning and Regulations**

One tool the county uses to manage development and growth is the Kossuth Comprehensive Land Use Plan and the county's zoning ordinance. These two working

documents function in conjunction with one another. Kossuth County has developed the Comprehensive Plan to continually adjust it over the years to meet the changing needs of the community and support county ordinances. The zoning ordinance provides the citizens of Kossuth County with a set of rules and regulations that promote a safe and healthy environment through land use controls. This document and accompanying maps also designate and allow different types of development to occur throughout various sections of the community. These designations are based on several factors such as past development, placement of infrastructure, anticipated future needs, barriers to development such as flood plains, rivers, creeks, and other topographical conditions, and areas that are more suitable for development. There are roughly six different types of zoning classifications which most Iowa counties are comprised of, including:

1. Agriculture
2. Single Family Residential
3. Multi Family Residential
4. Commercial (retail)
5. Industrial
6. Flood Plain Ordinance

The zoning ordinance is administered and interpreted by the zoning administrator and planning and zoning board and provides the Board of Supervisors with recommendations related to zoning changes and development issues raised by citizens of the community. The Board of Supervisors must review all recommendations and then make a decision either for or against the recommendation. There is also a zoning board of adjustment that authorizes variances to the strict interpretation of the zoning ordinance, hears appeals of decisions of the zoning administrator, and approves conditional use permits. There have been several amendments to the code by the county representatives since it was developed.

Each jurisdiction in the county has the potential to have zoning capabilities and ordinances where applicable.

#### **National Flood Insurance Program**

Kossuth County has identified special flood hazard areas by the Federal Emergency Management Agency (FEMA). Kossuth County does have a FEMA issued Flood Insurance Rate Maps (FIRM) with an effective date of 5/01/92. Kossuth County's community ID number issued by FEMA is #190884. Copies of selected FIRMS are located in Appendix I of this plan. Regularly updating the zoning codes, Kossuth County plans to continue to prevent development within the floodplains. The recommendation of the plan is to continue participation in the NFIP.

**TABLE 1 – NFIP Status of Jurisdictions**

***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.***

Jurisdictions	CID #	Effective Map Date	NFIP Participating
Kossuth County (Unincorporated)	190884	5/01/1992	Yes
Algona	190180	6/01/83	Yes
Bancroft	190550	9/01/87	Yes
Burt	190560	-	-
Fenton	190437	7/1/97	Yes
Lakota	190753	-	-
Ledyard	190758	-	-
Lone Rock	-	-	-
LuVerne	190768	5/1/11	Yes
Swea City	190664	-	-
Titonka	190840	9/1/87	Yes
Wesley	190681	-	-
Whittemore	190685	-	-

**TABLE 2 – Repetitive Loss Properties by Jurisdiction**

<b>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.</b>						
Jurisdiction	RL Total	RL Insured	RL Losses Total	RL Losses Insured	RL Payments Total	RL Payments Insured
Algona						
Bancroft						
Burt						
Fenton						
Lakota						
Ledyard						
Lone Rock						
LuVerne						
Swea City						
Titonka						
Wesley						
Whittemore						
Kossuth County (Unincorporated)						

**POPULATION AND DEMOGRAPHICS**

**Population Profile**

The population in Kossuth County in 1990 was 18,591; by the 2000 Census the population had declined to 17,163 and then by the 2010 Census the population in Kossuth

County is 15,543. Rural areas of the state are losing population even though the State of Iowa in general is gaining population. The trend is reflective of a migration from rural agricultural areas to larger urban areas, with smaller communities near large urban areas experiencing growth. Kossuth County has an aging population with a median age of 46.6 years.

**TABLE 3 – General Characteristics of Kossuth County**

	<b>Number</b>	<b>Percent</b>	<b>U.S.</b>
<b>Total Population</b>	15,543	100%	-
Male	7,708	49.6%	49.2%
Female	7,835	50.4%	50.8%
<b>Median Age (years)</b>	46.6	-	37.2
<b>Under 5 years</b>	902	5.8%	-
<b>18 years and over</b>	11,988	77.1%	-
<b>65 years and over</b>	3,399	21.9%	-
<b>One Race</b>	15,423	99.2%	-
White	15,223	97.9%	-
Black	44	0.3%	-
American Indian and Alaska Native	20	0.1%	-
Asian	59	0.4%	-
Native Hawaiian and Pacific Islanders	4	0.0%	-
Some other race	73	0.5%	-
Two or more races	120	0.8%	-
Hispanic or Latino	215	1.4%	-

Source: 2010 U.S. Census Unincorporated and Incorporated data

**TABLE 4 – Population of Unincorporated Kossuth County**

	<b>Number</b>	<b>Percent</b>
<b>Total Population</b>	5,753	37%

Source: 2010 US Census Unincorporated Data

**TABLE 5 - Population Statistics of Kossuth County**

<b>Jurisdiction</b>	<b>Population</b>
Kossuth County	15,543
Algona	5,560

Bancroft	732
Burt	533
Fenton	279
Lakota	255
Ledyard	130
Lone Rock	146
LuVerne	225
Swea City	536
Titonka	476
Wesley	390
Whittemore	504

Source: US Census 2010

### **Age Distribution**

Age distribution is an important factor to future projects because county officials must know the diversity of the population that they are trying to protect from future hazards. The table below shows the age distribution of Kossuth County in the year 2010.

**TABLE 6 - Population Age Distribution**

<b>Age Group</b>	<b># Of Persons</b>	<b>Percent</b>	<b>Age Group</b>	<b># Of Persons</b>	<b>Percent</b>
Under 5	902	5.8%	45-54 years	2,536	16.3%
5-14 years	1,937	12.4%	55-64 years	2,157	13.9%
15-24 years	1,599	10.2%	65-74 years	1,554	10%
25-34 years	1,476	9.5%	75-84 years	1,246	8%
35-44 years	1,537	9.9%	Over 85 years	599	3.9%

Source: 2010 U.S. Census Unincorporated and Incorporated Data

### **Income Characteristics**

Residents sometimes travel outside the county to earn an income. There are many income opportunities within Kossuth County as well. The median income of all households in Kossuth County was \$48,277, according to the American Community Survey 2007-2009 estimates. This means one-half of all households earned more than \$48,277 and one-half earned less. Table 7 below summarizes the income distribution for households in the County, Cities and State.

**TABLE 7 – Income Distribution**

	<b>County</b>	<b>State</b>	<b>Algona</b>	<b>Bancroft</b>	<b>Burt</b>	<b>Fenton</b>	<b>Lakota</b>	<b>Ledyard</b>
Less than \$10,000	305	74,631	88	29	6	1	8	0
\$10,000 to \$14,999	391	69,138	182	24	26	6	3	12
\$15,000 to \$24,999	898	136,518	426	53	58	19	43	14
\$25,000 to \$34,999	703	136,812	337	61	25	16	13	3
\$35,000 to \$49,999	1,130	186,904	382	34	35	35	16	8
\$50,000 to \$74,999	1,465	250,547	542	82	19	30	29	12
\$75,000 to \$99,999	810	161,980	253	12	15	23	17	3
\$100,00 to \$149,999	488	135,778	163	15	9	12	7	6
\$150,000 to \$199,999	250	36,837	55	0	0	1	0	5
\$200,000 or more	221	29,992	72	0	0	0	0	0
<b>Total</b>	<b>6,661</b>	<b>1,219,137</b>	<b>2,500</b>	<b>310</b>	<b>193</b>	<b>143</b>	<b>136</b>	<b>63</b>
<b>Median Income</b>	<b>48,277</b>	<b>50,451</b>	<b>41,488</b>	<b>33,500</b>	<b>27,321</b>	<b>46,964</b>	<b>35,833</b>	<b>40,250</b>

Source: US Census Bureau-American Community Survey(ACS) 5yr estimates-2007-2011

	<b>County</b>	<b>Lone Rock</b>	<b>LuVerne</b>	<b>Swea City</b>	<b>Titonka</b>	<b>Wesley</b>	<b>Whittemore</b>

Less than \$10,000	305	4	9	32	7	12	10
\$10,000 to \$14,999	391	2	14	26	19	3	10
\$15,000 to \$24,999	898	14	18	10	37	19	32
\$25,000 to \$34,999	703	10	15	48	22	25	24
\$35,000 to \$49,999	1,130	26	9	68	57	27	45
\$50,000 to \$74,999	1,465	6	37	53	46	50	55
\$75,000 to \$99,999	810	9	3	18	20	25	43
\$100,00 to \$149,999	488	0	5	11	0	8	17
\$150,000 to \$199,999	250	0	2	5	0	12	3
\$200,000 or more	221	2	0	2	0	0	8
Total	6,661	73	112	273	208	181	247
Median Income	48,277	38,523	35,000	38,661	39,022	50,865	52,708

Source: US Census Bureau-American Community Survey(ACS) 5yr estimates-2007-2011

## HOUSING INFORMATION

### General Housing Information

Housing is a basic, fundamental and critical infrastructure needs to a community. Housing is vital to the strength, survival and prosperity to the community. The largest investment residents of a community undertake is in their housing and is an important component when establishing a style which the community uses to display to the outside world. Housing ought to be affordable, located in non-hazardous areas, needs to be maintained and support those on fixed incomes, e.g. elderly. Renter and owner occupied housing must be maintained to properly protect the residents within during inclement weather.

The 2010 U.S. Census reported 5,194 total housing units in Kossuth County. The average household size is 2.26 persons within the county; the State of Iowa 2.40 persons per household; and the United States, 2.58 persons per household.

According to the 2010 U.S. Census there were a total of 2,909 family households and 1,688 non-family households. A family household consists of a householder and one or more other persons living in the same household who are related to the householder by birth, marriage or adoption. A non-family household is a single person household or one in which the householder is living with non-relatives only. The 1,688 non-family households in Kossuth County, 1,456 of them are single person households and 679 of those households, the householder is 65 years and over. The following table shows housing occupancy in Kossuth County, according to the 2010 U.S. Census.

**TABLE 8 - Housing Occupancy**

<b>Subject</b>	<b>Kossuth County</b>	<b>Iowa</b>	<b>United States</b>
<b>Total Units</b>	5,194	1,336,417	131,704,730
<b>Occupied Units</b>	4,597	1,221,576	116,716,292
<b>Vacancy Rate</b>	15.6%	10.5%	11.6%
<b>Owner Occupied</b>	3,471	880,635	75,986,074
<b>Renter Occupied</b>	1,126	340,941	40,730,218

Source: 2010 U.S. Census Unincorporated and Incorporated Data

**Value of Housing**

The reported, 2005-2009 ACS, median value of owner-occupied housing units in Kossuth County, was \$86,900. One-half of the homes in Kossuth were valued above \$86,900 and the other one-half were valued under \$86,900. The median value for the State of Iowa was \$115,800. The increase over the past ten year time period can be attributed to declining interest rates and the large number of low down payment mortgage options that began appearing during the first part of the decade. These financial factors had a positive effect on demand for real estate which resulted in climbing house values.

**Community Valuations**

Forming a dollar estimate to the potential losses during a disaster the county uses county valuations. The Kossuth County planning committee recognized that some hazards

would cause more damage than others. An average valuation is calculated for each structure identified by the Kossuth County Assessor's Office. Large and small area potential hazard damages can be determined by this method. Tables 9-13 below summarize the valuation of Kossuth County. Religious and Non-Profit Valuation does not have a separate table due to no breakdown by cities and unincorporated areas in the Kossuth County Tax Abstract Assessment.

**TABLE 9 – Valuation of Kossuth County, Iowa**

	<b>Current Valuation (2012)</b>	<b>Average Valuation</b>
<b>Residential Valuation (Land and Buildings)</b>	\$416,719,442	\$81,950
<b>Commercial Valuation (Land and Buildings)</b>	\$121,373,616	\$141,461
<b>Industrial Valuation (Land and Buildings)</b>	\$95,867,988	\$1,597,799
<b>Agricultural Valuation (land, dwellings and buildings)</b>	\$1,176,216,553	-
<b>Religious and Non-Profit Valuation</b>	\$38,874,763	-
<b>Total Valuation</b>	\$1,849,052,362	-

Source: Kossuth County Assessor's Office, 2012 Incorporated and Unincorporated Data

**TABLE 10 – Residential Valuation (dwellings only)**

<b>Jurisdiction</b>	<b>Residential Valuation</b>	<b>Number of Dwellings</b>	<b>Average Valuation</b>
<b>Algona</b>	\$184,037,456	2,138	\$86,079
<b>Bancroft</b>	\$17,213,234	298	\$57,762
<b>Burt</b>	\$7,143,187	213	\$33,536
<b>Fenton</b>	\$3,490,307	163	\$21,412
<b>Lakota</b>	\$3,565,111	142	\$25,106
<b>Ledyard</b>	\$1,430,431	76	\$18,821
<b>Lone Rock</b>	\$2,337,330	81	\$28,855
<b>LuVerne</b>	\$2,798,434	121	\$23,127
<b>Swea City</b>	\$6,988,073	288	\$24,264
<b>Titonka</b>	\$8,678,889	247	\$35,137
<b>Wesley</b>	\$8,990,276	176	\$51,081
<b>Whittemore</b>	\$9,970,821	221	\$45,116
<b>Unincorporated Kossuth County</b>	\$95,449,769	907	\$105,236

Source: Kossuth County Assessor's Office, 2012

**TABLE 11 – Commercial Valuation**

<b>Jurisdiction</b>	<b>Commercial Valuation</b>	<b>Number of Commercial Units</b>	<b>Average Valuation</b>
<b>Algona</b>	\$77,063,790	359	\$214,662
<b>Bancroft</b>	\$8,002,728	62	\$129,076
<b>Burt</b>	\$1,626,865	25	\$65,074
<b>Fenton</b>	\$542,874	33	\$16,450
<b>Lakota</b>	\$749,911	27	\$27,774
<b>Ledyard</b>	\$354,082	17	\$20,828
<b>Lone Rock</b>	\$392,944	17	\$23,114
<b>LuVerne</b>	\$587,866	18	\$32,659
<b>Swea City</b>	\$3,256,828	53	\$61,449
<b>Titonka</b>	\$1,463,048	34	\$43,030
<b>Wesley</b>	\$2,635,498	44	\$59,897
<b>Whittemore</b>	\$1,706,270	41	\$41,616
<b>Unincorporated Kossuth County</b>	\$15,485,686	99	\$156,421

Source: Kossuth County Assessors Office, 2012

**TABLE 12 – Industrial Valuation**

<b>Jurisdiction</b>	<b>Industrial Valuation</b>	<b>Number of Industrial Units</b>	<b>Average Valuation</b>
<b>Algona</b>	\$27,717,719	18	\$1,539,873
<b>Bancroft</b>	\$1,563,704	5	\$312,740
<b>Burt</b>	\$419,038	1	\$419,038
<b>Fenton</b>	\$474,759	2	\$237,379
<b>Lakota</b>	\$33,930	1	\$33,930
<b>Ledyard</b>	\$1,897,430	1	\$1,897,430
<b>Lone Rock</b>	\$1,135,812	2	\$567,906
<b>LuVerne</b>	\$237,567	2	\$118,783
<b>Swea City</b>	\$829,948	2	\$414,974
<b>Titonka</b>	\$1,989,345	1	\$1,989,345
<b>Wesley</b>	\$3,022,732	2	\$1,511,366
<b>Whittemore</b>	\$1,636,017	4	\$409,004
<b>Unincorporated Kossuth County</b>	\$51,153,232	18	\$2,841,846

Source: Kossuth County Assessors Office, 2012

**TABLE 13 – Agricultural Valuation**

<b>Jurisdiction</b>	<b>Agricultural</b>	<b>Acres</b>	<b>Dwellings</b>	<b>Agricultural</b>
---------------------	---------------------	--------------	------------------	---------------------

	<b>Valuation (land and structures, not dwellings)</b>			<b>Dwelling Valuation</b>
<b>Algona</b>	\$1,146,468	650	0	0
<b>Bancroft</b>	\$70,321	39	0	0
<b>Burt</b>	\$164,430	90	0	0
<b>Fenton</b>	\$157,214	89	0	0
<b>Lakota</b>	\$510,825	285	0	0
<b>Ledyard</b>	\$401,504	236	0	0
<b>Lone Rock</b>	\$5,516	1	0	0
<b>LuVerne</b>	\$858,014	490	0	0
<b>Swea City</b>	\$443,185	244	0	0
<b>Titonka</b>	\$23,388	11930	0	0
<b>Wesley</b>	\$388,735	160	0	0
<b>Whitemore</b>	\$210,326	114	0	0
<b>Unincorporated Kossuth County</b>	\$1,066,961,791	582,853	1,633	\$104,758,481

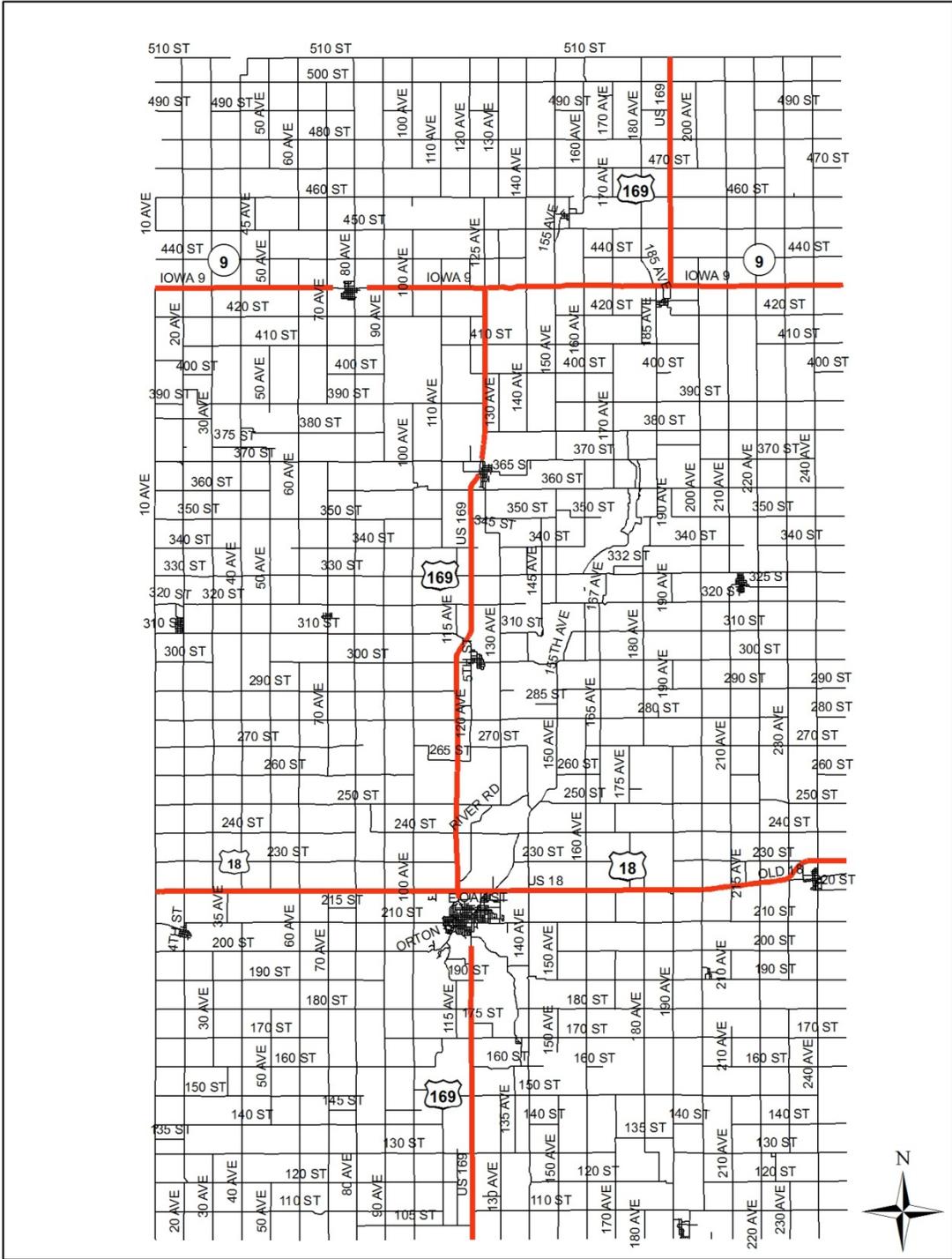
Source: Kossuth County Assessors Office, 2012

TRANSPORTATION SERVICES

**Streets and Highways**

Kossuth County has several highways and county roads the major highways include US 169 travels north and south through the central portion of the county and through the cities of Algona and Bancroft. US 18 travels east and west through the southern portion of the county and through the cities of Wesley and Algona. Iowa Highway 9 travels east to west through the northern portion of the county and through the cities of Lakota and Swea City. The rest of roads in the county are county highways that include the north south routes of P16, P20, P30, P40, P44, P46, P50, P54, P56, P60, P64, P66, and R14. The county highways that travel east to west include A16, A21, A20, A38, A40, A42, B14, B16, B19, B20, B30, B40, B44, B46, B55, B58, B60, B63, and C10.

**Figure 6 – Streets and Highways of Kossuth County**



**Railways**

The railways that traverse Kossuth County include the UP (Union Pacific). These railways provide services to haul grain, chemicals, farm equipment and ethanol from the producers of these materials in Kossuth County. The railways go through the towns of Algona, Burt, Lakota, Lu Verne, Swea City, Wesley, and Whittemore.

#### **Waterways**

There are currently no commercial or private services offered along the East Fork of the Des Moines River, which runs thru the county.

#### **Air Service**

The Mason City Municipal Airport is located between Clear Lake and Mason City on Hwy. 122, which offers passenger service. The Mason City Municipal Airport is located approximately 47 miles from Algona. The 6,500 feet of hard surfaced runways allows commercial and freight service to land. National and International air travel can be obtained by going south to Des Moines or north to Minneapolis. Algona has a municipal airport that is a general aviation airport. There are no commercial offered services at this airport. The airport does have two runways one is 3,960 feet long and is concrete; the other is 2,558 feet long and is grass.

#### **Transit Services**

Public transit is available to Kossuth County through Kossuth County Public Transit which runs on a door to door basis five days a week from 8:00 am to 5:00 pm, no holidays. The system can deliver riders to any one of the other seven counties in the region, which includes Kossuth, Cerro Gordo, Worth, Floyd, Franklin, Mitchell and Hancock Counties. In order to ride, reservations must be scheduled 24 hours in advance by calling the dispatch center at 641-423-2262. Algona transit; call 515-295-2878.

The risk assessment identifies how people properties and structures will be damaged due to a hazardous event. If the hazard can harm structures and people they are considered vulnerable. Finding weak points in the system include identifying building types that are vulnerable to damage and anticipating the loss in high risk areas. This will help the community to decide what mitigation efforts are required or should be undertaken and how to implement the selected activities.

Because of similar characteristics in the topography and geography of the participating communities of Kossuth County Unincorporated and the communities of Algona, Bancroft, Burt, Fenton, Lakota, Ledyard, Lone Rock, LuVerne, Swea City, Titonka, Wesley, and Whittemore the Planning Committee decided to assess some risk on a county-wide basis. Weather related hazards, such as thunderstorm, lightning, hailstorms, tornado, extreme heat, windstorms and severe winter storm, generally impact the entire planning area. Hazards such as flooding (river and flash) impact various jurisdictions differently. Those differences are covered in the hazard profile and vulnerability assessment and analysis sections. On page 57, Table 22 is a Hazard Identification by Jurisdiction which indicates with a checkmark the hazards identified for each participating jurisdiction.

In making their hazard analysis and risk assessment, the Kossuth Planning Committee considered the following factors:

- Probability
- Magnitude/Severity
- Warning Time
- Duration

The tables that follow define each factor and the rating scale the planning committee used to assess the risk to the community. The planning committee scored each of the four factors on a scale of 1-4 using the definition of each factor. The score is calculated by using the following formula:  $(\text{Probability} \times .45) + (\text{Magnitude/Severity} \times .30) + (\text{Warning Time} \times .15) + (\text{Duration} \times .10) = \text{Final Hazard Assessment Score}$ .

This score can be used to help the planning committee to prioritize future mitigation activities.

**Probability:** reflects the likelihood of the hazard’s occurring again in the future, considering both the hazard’s historical occurrence and the projected likelihood of the hazard occurring in any given year.

Score		Description
1	Unlikely	Less than 10% probability in any given year (up to 1 in 10 chance of occurring), history of events is less than 10% likely or the event is unlikely but there is possibility of its occurrence.
2	Occasional	Between 11% and 20% probability in any given year (up to 1 in 5 chance of occurring, history of events is greater than 10% but less than 20%, or the event that could possibly occur.
3	Likely	Between 21% and 33% probability in any given year (up to 1 in 3 chance of occurring), history of events if greater than 20% but less than 33%, or the event is likely to occur
4	Highly Likely	More than 33% probability in any given year (event has up to a 1 in 1 chance of occurring), history of events is greater than 33% likely, or the event is highly likely to occur.

**Magnitude/ Severity:** Assessment of severity in terms of injuries and fatalities, personal property, and infrastructure and the degree and extent with which the hazard affects the jurisdiction.

Score		Description
1	Negligible	Less than 10% of property severely damaged, shutdown of facilities and services for less than 24 hours, and/or injuries/illnesses treatable with first aid.
2	Limited	11% to 25% of property severely damaged, shutdown of facilities and services for more than a week, and/or injuries/illnesses that do not result in permanent disability.
3	Critical	26% to 50% of property severely damaged, shutdown of facilities and services for at least 2 weeks, and/or injuries/illnesses that result in permanent disability.
4	Catastrophic	More than 50% of property severely damaged, shutdown of facilities and services for more than 30 days, and/or multiple deaths.

**Warning Time:** Rating of the potential amount of warning time that is available before the hazard occurs.

<b>Score</b>	<b>Description</b>
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 (Up to 6 hours warning)

**Duration:** A measure of the duration of time that the hazard will affect the jurisdiction.

<b>Score</b>	<b>Description</b>
1	Less than 6 hours
2	Less than 1 day
3	Less than 1 week
4	More than 1 week

## HAZARD ANALYSIS

In order to properly identify mitigation strategies and projects, hazards that affect the county must be identified. The following lists the potential hazards to the county that were identified by the planning committee. This section also discusses previous occurrences of the hazards, the populations most at risk and the areas of the county most at risk. By identifying the hazards and quantifying the risks, the county can better assess current mitigation strategies, develop future mitigation strategies and identify needed mitigation projects.

The planning committee identified and discussed twenty-three hazards that have either impacted Kossuth County or have a potential to impact the county. The committee's guidance was directed by FEMA requirements and regulations, the Iowa State Emergency Management Division guidelines and the contracted planning agency. The hazards that were not identified by the committee are at the end of this section along with their reason as to not include it.

The hazard analysis identifies potential hazards that could affect the County for the purposes of mitigation planning. The importance of mitigation is to reduce long-term risks of damage or threats to the safety and wellbeing of the citizens of Kossuth County. In some cases, the hazards that are identified for mitigation will not include all of the same hazards identified for preparedness, response or recovery.

The potential hazards that were presented and discussed by the Kossuth planning committee are:

- Animal/Plant/Crop Disease
- Dam Failure
- Drought
- Earthquake
- Expansive Soils
- Extreme Heat
- Flash Flood
- Grass or Wild land Fire
- Hailstorm
- Hazardous Materials
- Human Disease
- Infrastructure Failure
- Landslide
- Levee Failure
- Radiological
- River Flooding
- Severe Winter storm
- Sinkholes
- Terrorism
- Thunderstorms & Lightning

- Tornado
- Transportation Incident
- Windstorm

These hazards have been defined and discussed at length on the following pages. The discussion includes probability, magnitude/severity, warning time, and duration. The results of the scoring are also included below in the planning committee's assessment.

The following hazards were picked by the Kossuth County Hazard Mitigation Planning Committee to be analyzed and profiled, they are as follows:

- Animal, Plant, Crop Disease
- Drought
- Earthquake
- Extreme Heat
- Flash Flood
- Grass or Wild land Fire
- Hailstorm
- Hazardous Materials
- Human Disease
- Infrastructure Failure
- Radiological
- River Flooding
- Severe Winter Storm
- Terrorism
- Thunderstorms and Lightning
- Tornado
- Transportation Incident
- Windstorm

These hazards have been defined and discussed at length on the following pages. The hazards are listed for the entire county unless indicated in that hazards profile the jurisdiction the hazard affects more. The results of the scoring are also included below in the planning committee's assessment. The source of the historical occurrence came from the National Climatic Data Center (NCDC) website that is hosted by the National Oceanic and Atmosphere Administration (NOAA). The scoring activity by the committee was based on each member's subject matter expertise, knowledge of the community, studies of previous events, historic information on damages, and other written resource materials. These are all the hazards that were discussed by the committee.

**Animal/Plant/Crop Disease**

An outbreak of disease that can be transmitted from animal to animal or plant to plant represents an animal/crop/plant disease.

The disease outbreak will likely have a significant economic implication or public health impact. The crop/plant pest infestation will likely have severe economic implications, cause significant crop production losses, or significant environmental damage.

No historical data is readily available for Kossuth County. The planning committees will work to gather information from appropriate agencies for the next plan update.

Hazard	Animal/Plant/Crop Disease	Score
Probability	Each year the Iowa Department of Agriculture and Land Stewardship (IDALS) conducts numerous animal disease investigations. IDALS, along with Iowa’s universities and industries to conduct regular crop/plant pest surveillance. The Kossuth HM Committee determined that an animal/plant/crop disease event has an occasional probability of occurring.	2
Magnitude/ Severity	With the increase in the movement of animals, animal products, plants, crops, and crop products have the potential to spread or introduce disease and pests to previous non-infested areas. Diseases/pests can also be introduced naturally by weather patterns. New strains of viruses and diseases that are not currently present in the county have the potential to devastate the current population of animals, crops and plants due to low immunity.  The impact will vary by disease/pest and the type of animal/crop/plant infected/infested. Should the disease/pest have public health implications, the economic and social impact would be even greater. The severity will vary by disease/pest. The types of animals, crops, or plants affected will also significantly influence the severity.	3
Warning Time	If the diseases/pests are highly infectious (many animals that are infected with disease can be transmitting disease before they show clinical signs), by the time they are discovered, they will likely have spread across the state or nation. This will put us at a severe disadvantage during response and recovery.	2
Duration	Response and recovery from serious infestation or disease are lengthy, with many producers likely to never be able to return to business, in addition, crop infestations/animal diseases can reoccur, causing repeated losses in subsequent years.	4
Final Weighted Score		2.5

Sources for Animal/Plant/Crop Disease	
USDA	<a href="http://www.aphis.usda.gov">http://www.aphis.usda.gov</a>
Department of Ag and Land Stewardship	<a href="http://www.iowaagriculture.gov/default.asp">http://www.iowaagriculture.gov/default.asp</a>
USDA Crop and Plants	<a href="http://www.nass.usda.gov/QuickStats/indexby">http://www.nass.usda.gov/QuickStats/indexby</a>

**Drought**

Drought is defined as a period of prolonged lack of precipitation for weeks at a time producing severe dry conditions. There are four types of drought conditions relevant to Iowa:

1. Meteorological drought, which refers to precipitation deficiency;
2. Hydrological drought, which refers to declining surface and groundwater supplies;
3. Agricultural drought, which refers to soil moisture deficiencies; and
4. Socioeconomic drought, which refers to when physical water shortages begin to affect people.

The highest occurrence of drought conditions with recorded events in Iowa is associated with agricultural and meteorological drought as a result of either low soil moisture or a decline in recorded precipitation.

Droughts can be localized or widespread and last from a few weeks to years. A prolonged drought can have a serious impact on a community's water supply and economy. Increased demand for water and electricity may result in shortages of resources. Moreover, food shortages may occur if agricultural production is damaged by loss of crops and/or livestock. While droughts are generally thought to occur during extreme heat events, they can and do occur during the winter months.

According to the National Climatic Data Center (NCDC), Kossuth County has had two reported drought periods from 1980-2011.

**TABLE 14 – Droughts in Kossuth County**

<b>Drought Period</b>	<b>Geographic Impact</b>	<b>Monetary Impact</b>
8/1/2001	Adair, Adams, Appanoose, Audubon, Black Hawk, Boone, Bremer, Butler, Calhoun, Carroll, Cass, Cerro Gordo, Clarke, Crawford, Dallas, Davis, Decatur, Emmet, Franklin, Greene, Grundy, Guthrie, Hamilton, Hancock, Hardin, Humboldt, Jasper, Kossuth, Lucas, Madison, Mahaska, Marion, Marshall, Monroe, Palo Alto, Pocahontas, Polk, Poweshiek, Ringgold, Sac, Story, Tama, Taylor, Union, Wapello, Warren,	\$578.9 million

	Wayne, Webster, <b>Kossuth</b> , Worth, Wright	
8/1/2003	Adair, Adams, Appanoose, Audubon, Black Hawk, Boone, Bremer, Butler, Calhoun, Carroll, Cass, Cerro Gordo, Clarke, Crawford, Dallas, Davis, Decatur, Emmet, Franklin, Greene, Grundy, Guthrie, Hamilton, Hancock, Hardin, Humboldt, Jasper, Kossuth, Lucas, Madison, Mahaska, Marion, Marshall, Monroe, Palo Alto, Pocahontas, Polk, Poweshiek, Ringgold, Sac, Story, Tama, Taylor, Union, Wapello, Warren, Wayne, Webster, <b>Kossuth</b> , Worth, Wright	\$645.2 million

Drought is a normal part of climate fluctuations. Climatic variability can bring dry conditions to the region up to years at a time. Research and observations of the El Nino/La Nina climatic events are resulting in more predictable climatic forecasts. A drought would likely affect most of Kossuth County if not the whole State of Iowa and the Upper Midwest as a whole. Because of their dependence on precipitation and water, the agricultural community would be the most adversely effected, but the entire state would likely feel some impact. The Kossuth planning committee evaluated the probability of future droughts in Kossuth County in the order of magnitude of between - 3.0 to -3.9 Palmer drought severity index (severe drought event) at between 11% and 20% in any given year.

Hazard	Drought	Score
Probability	According to the National Climatic Data Center, Kossuth County has had 2 periods of drought from 1980-2011. These drought periods occurred both in August. While some may have been more severe than others, agricultural areas were impacted much more than the metropolitan areas where impacts were indirect.  Drought is part of normal climate fluctuations. Climatic variability can bring dry conditions to the area for up to years at a time. Observations from the El Nino/La Nina climatic events are resulting in more accurate and predictable climatic forecasts.	2
Magnitude/ Severity	Those dependent on rain would be the most vulnerable to a drought. This means that agriculture, agribusiness, and consumers (if the drought lasted long enough or impacted a large area) would be impacted. A drought limits the ability to produce goods and provide services.	2

	<p>Because citizens draw their drinking water from surface water and groundwater sources, a prolonged severe drought may impact all citizens if there were to be a dramatic drop in the stream flow coupled with the drop in the water table. Fire suppression can also become a problem due to the dryness of the vegetation and possible lack of water.</p> <p>A drought would likely affect most of Kossuth County if not the whole state of Iowa as a whole. Due to the dependence on precipitation and water the agricultural community would be impacted the most. The agricultural areas would be most adversely impacted, but the entire state would likely feel at least some impact.</p> <p>Few if any health impacts to people in the affected area because of secondary sources of water. Drought in the US seldom results directly in the loss of life. Health impacts would be more significant on livestock without auxiliary water supplies.</p> <p>Property losses would be limited to livestock and crops to the agricultural community. Facilities would not be impacted. Infrastructure could be affected in areas of expansive soils due to drying soils, lower water levels around dams, etc. Delivery of services would be limited to source water delivery and those services that consume large amounts of water. Drought can lead to large and damaging impacts to the agricultural economy. Because of Iowa's reliance on the agricultural economy, the economic and financial impacts would certainly ripple out into other sectors. Rural areas can be especially affected by long-term drought. If restrictions are put on manufacturers that use large amounts of water, the local economy can be impacted that way as well.</p>	
Warning Time	Drought warning is based on a complex interaction of many different variables, water uses, and consumer needs. Drought warning is directly related to the ability to predict the occurrence of atmospheric conditions that produce the physical aspects of drought, primarily precipitation and temperature. There are so many variables that can affect the outcome of climatic interactions, and it is difficult to predict a drought in advance. In fact, an area may already be in a drought before it is even recognized. While the warning of the drought may not come until the drought is already occurring the secondary effects of a drought may be predicted and warned against weeks in advance.	1
Duration	According to Kossuth County's and Iowa's drought history, most droughts that affect the areas occur for at least a month at a time.	4
	Final Weighted Score	2.05

Sources for Drought	
Iowa Climatology Bureau	<a href="http://www.agriculture.state.ia.us/climatology.asp">http://www.agriculture.state.ia.us/climatology.asp</a>
IDNR	<a href="http://www.iowadnr.gov/water/index.html">http://www.iowadnr.gov/water/index.html</a>
NOAA	<a href="http://www.drought.noaa.gov/">http://www.drought.noaa.gov/</a>
NCDC	<a href="http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms">http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms</a>

## Earthquake

An earthquake is any shaking or vibration of the earth caused by the sudden release of energy that may impose a direct threat on life and property. It is a sudden, rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface. This shaking can cause buildings and bridges to collapse; disrupt gas, electric and phone service; it sometimes triggers landslides, flash floods, and fires. The three general classes of earthquakes are, tectonic, volcanic, and artificially produced.

Kossuth County is located in Seismic Risk Zone 0. This does not mean that the county is not vulnerable to earthquake effects. Most structures in Kossuth County are not built to earthquake standards, but because of the low magnitude of a possible quake, property damage would likely be minimal. The most vulnerable structures would be those built on poorly consolidated substrate, especially floodplain materials.

Hazard	Earthquakes	Score
Probability	13 earthquakes have had epicenters in Iowa in historic times. No known historic earthquakes have had epicenters in Kossuth County. The closest to Kossuth County was located in Black Hawk County (located approximately 137 miles southeast) in 1925. Seismologists attempt to forecast earthquake size and frequency based on data from previous events. In the New Madrid Fault Zone, this analysis is difficult because there are few historic, moderate to large earthquakes, and the active faults are too deeply buried to monitor effectively. Based on recurrence intervals for small earthquakes, scientists estimate a 90% chance of a Richter magnitude 6.0 earthquake in the New Madrid Fault Zone by 2040. A magnitude 6.5 in New Madrid would create magnitude 4 effects in Iowa resulting in little or no damage or fear.	1
Magnitude/ Severity	<p>Kossuth County is located in Seismic Zone 0, the lowest risk zone in the United States. Most structures in Iowa are not built to earthquake standards, but because of the relatively low magnitude of the possible quake, property damage would likely be minor foundational damage. The most vulnerable structures are those built on poorly consolidated substrate, especially floodplain materials.</p> <p>The strongest earthquake in Iowa occurred in Davenport (located approximately 270 miles southeast) in 1934 and resulted in only slight damage. Estimated effects of a 6.5 Richter magnitude earthquake along the New Madrid Fault Zone suggest Iowans in four southeast counties could experience trembling buildings, some broken dishes and cracked windows. Other areas of the state could experience vibrations similar to the passing of a heavy truck, rattling of dishes, creaking of walls, and swinging of suspended objects.</p> <p>Due to the relatively low magnitude of earthquakes that would occur in</p>	2

	the state, and the distance from the epicenter of an earthquake that would occur in the New Madrid Fault Zone, Iowans would likely see only minor impacts. Fatalities would be very rare, injuries limited to falls and injury from small unsecured objects, property loss would likely be minimal, and economic loss could occur due to short disruptions in commercial and industrial activities.	
Warning Time	Earthquake prediction is an inexact science. Even in areas that are well monitored with instruments, such as California's San Andreas Fault Zone, scientists only very rarely predict earthquakes.	4
Duration	Due to the limited effects to Kossuth County, response to the occurrence of an earthquake would likely be in support from Southern Iowa, Missouri and Illinois emergency units, utilizing mutual aid agreements.	1
Final Weighted Score		1.75

Sources for Earthquake	
Iowa Geological Survey Bureau	<a href="http://www.igsb.uiowa.edu/service/hazards.htm">http://www.igsb.uiowa.edu/service/hazards.htm</a>
USGS	<a href="http://earthquake.usgs.gov/earthquakes/">http://earthquake.usgs.gov/earthquakes/</a>
FEMA	<a href="http://www.fema.gov/hazard/earthquake/index.shtm">http://www.fema.gov/hazard/earthquake/index.shtm</a>

**Extreme Heat**

Conditions for extreme heat are defined by summertime weather that is substantially hotter and/or more humid than average for a location at that time of year. Extreme heat includes temperatures in excess of 100 degrees Fahrenheit (including the heat index) for at least three successive days of 90+ degrees Fahrenheit. A heat advisory is issued when temperatures reach 105 degrees and a warning is issued at 115 degrees. The heat index is a number in degrees Fahrenheit that tells how hot it really feels when relative humidity is added to the actual air temperature. Exposure to full sunshine can increase the heat index by at least 15 degrees. Heatstroke, sunstroke, cramps, exhaustion, and fatigue are possible with prolonged exposure and/or physical activity due to the body’s inability to dissipate heat. Urban areas are particularly at risk because of air stagnation and large quantities of heat absorbing materials such as streets and buildings. Extreme heat can also result in distortion and failure of structures and surfaces such as roadways and railroad tracks.

According to the National Climatic Data Center (NCDC), Kossuth County has experienced 2 extreme heat events once in 1995 and once in 2001. These events also occurred over much of the state of Iowa and caused 4 deaths and \$3.8 million in property damages. These deaths were in other areas of the state and did not occur in Kossuth County. However even though there were only two reported events members recalled that every summer there seems to be at least 3 consecutive days of 90+ degree weather.

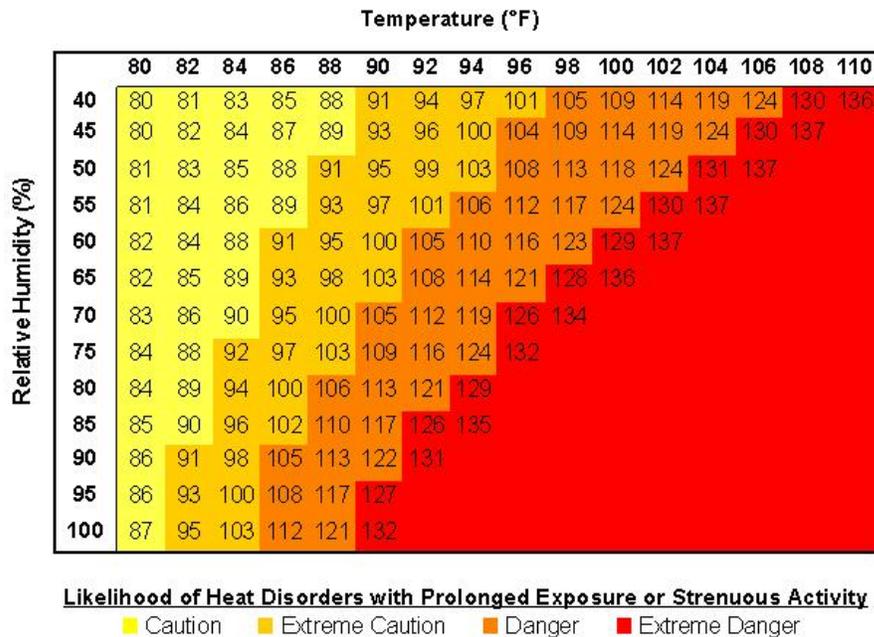
The Hazard Mitigation Committee evaluated that the probability of extreme heat in Kossuth County. The discussion focused on historical information and personal experiences by the committee and with dealing with extremely high temperatures.

Hazard	Extreme Heat	Score
Probability	Based on historical information, Kossuth County can experience at least a period of 3 consecutive 90+ degree days in any given year. The committee determined that there is a greater than 33% chance of this occurring in any given year.	4
Magnitude/ Severity	Elderly persons, small children, chronic invalids, those on certain medications or drugs (especially tranquilizers and anticholinergic), and persons with weight and alcohol problems are particularly susceptible to heat reactions. Healthy individuals working outdoors in the sun and heat are vulnerable as well. Individuals and families with low budgets as well as inner city dwellers can also be susceptible due to poor access to air-conditioned rooms.  All of Kossuth County will likely be impacted by extreme heat, but urban areas of the county pose special risks. The stagnant atmospheric conditions of the heat wave trap pollutants in urban areas and add to the stresses of hot weather. Livestock and other animals are adversely impacted by extreme heat. High temperatures at the wrong time inhibit	2

	crop yields as well.  Economic costs in transportation, agriculture, production, energy, and infrastructure. These direct costs could impact many other economic sectors indirectly.	
Warning Time	As with other weather phenomena, periods of extreme heat are predictable within a few degrees within 3 days or so. Variations in local conditions can affect the actual temperature within a matter of hours or even minutes. The National Weather Service will initiate alert procedures when the heat index is expected to exceed 105 degrees Fahrenheit for at least two consecutive days.	1
Duration	The definition of an extreme heat event is an occurrence of 90+ degree weather for a minimum of 3 days. The planning committee evaluated this hazard as likely to occur and last at less than 1 week.	3
Final Weighted Score		2.85

Sources for Extreme Heat	
National Climatic Data Center	<a href="http://www.ncdc.noaa.gov">www.ncdc.noaa.gov</a>
Extreme Heat Guide Book	<a href="http://www.aclink.org/PublicHealth/health_to_pics/pdf_files/ExtremeHeat2.pdf">http://www.aclink.org/PublicHealth/health_to_pics/pdf_files/ExtremeHeat2.pdf</a>
FEMA	<a href="http://www.fema.gov/hazard/heat/index.shtm">http://www.fema.gov/hazard/heat/index.shtm</a>

**FIGURE 7 - Heat Index**



## Flash Flood

A flash flood is an event that occurs with little or no warning. Water levels rise at an extremely fast rate. Flash flooding occurs due to intense rainfall over a short period of time; flash flood can also be the result of rapid snowmelt, ice jam release, frozen ground, saturated soil, or impermeable surfaces. Most flash flooding events occur due to slow moving thunderstorms, or multiple thunderstorms over the same area in short time duration. 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 implemented. Flash flood waters move at very fast speeds and can move boulders, tear out trees, scour channels, destroy buildings, and obliterate bridges. Flash flooding often results in higher loss of life, both human and animal, than slower developing river and stream flooding.

Floods are the most common and widespread of all-natural disasters except fire. The latest significant event to affect Kossuth County occurred in July of 2000. This event resulted in a Presidential Disaster Declaration due to widespread personal and physical property losses. The NCDC lists 13 flash flooding/urban or small stream flooding event from 1961-2011.

As farmland is converted to roads and parking lots, it loses its ability to absorb rainfall. Urbanization increases runoff two to six times over what would occur on natural terrain. Portions of the county are developed with significant amounts of impervious surfaces, as more development occurs in the watersheds; the amount of runoff produced also increases. If measures are not taken to reduce the amount of runoff, flash floods will continue to occur and may possibly increase.

In certain areas, aging storm sewer systems were not designed to carry the capacity currently needs to handle the increased storm runoff. This combined with rainfall trends and rainfall extremes which occur in weather cycles, flash floods will continue to occur and may possibly increase.

The planning committee concluded it is highly likely that a flash flood will affect Kossuth County in any given year.

Hazard	Flash Flood	Score
Probability	The probability of flash floods and floods in Floyd are nearly a yearly occurrence. These floods occur on open land affecting croplands and grasslands. Some county roads will get covered and the county will have to direct traffic around the washout. Floods are the most common and widespread of all-natural disasters except fire. Kossuth County has had 13 flash flood events from 1961-2011.	3
Magnitude/ Severity	Flash floods occur in all 50 states in the US. Particularly at risk are those in low-lying areas; close to dry creek beds or drainage ditches; new water; or downstream from a dam, levee, or storage basin. People and property	2

	<p>in areas with insufficient storm sewers and other drainage infrastructure can also be put at risk because the drains cannot rid the area of the runoff quickly enough. Nearly half of all flash flood fatalities are auto-related. Motorists often try to traverse water-covered roads and bridges and are swept away by the current. Six inches of swiftly moving water can knock persons off their feet and only two feet of water can float a full-sized automobile. Recreational vehicles and mobile homes located in low-lying areas can also be swept away by the water.</p> <p>Areas in a floodplain, downstream from a dam or levee, or in low-lying areas can certainly be impacted. People and property located in areas with narrow stream channels, saturated soil, or on land with large amounts of impermeable surfaces are likely to be impacted in the event of a significant rainfall. Unlike areas impacted by a river/stream flood, flash floods can impact areas a good distance from the stream itself. Flash flood prone areas are not particularly those areas adjacent to rivers and streams. Streets can become swift moving rivers, and basements can become deathtraps because flash floods can fill them with water in a manner of minutes.</p> <p>Flash floods can quickly inundate areas thought to be out of flood-prone areas. Loss of life; property damage and destruction; damage and disruption of communications, transportation, electric service, and community services; crop and livestock damage and loss and interruption of business are common impacts from flash flooding.</p>	
Warning Time	Flash floods are somewhat unpredictable, but there are factors that can point to the likelihood of flood's occurring in the area. Flash floods occur within a few minutes or hours of excessive rainfall, a dam or levee failure, or a sudden release of water held by an ice jam. Weather surveillance radar is being used to improve monitoring capabilities of intense rainfall. Knowledge of the watershed characteristics, modeling, monitoring, and warning systems increase the predictability of flash floods. Depending on the location in the watershed, warning times can be increased. The NWS forecasts the height of flood crests, the data, and time the flow is expected to occur at a particular location.	3
Duration	The response to the effects of flash flooding is short in duration due to the nature of the hazard.	2
Final Weighted Score		2.6

Sources for Flash Flood	
FEMA Map Service Center	<a href="http://www.msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&amp;catalogId=10001&amp;langId=-1">http://www.msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&amp;catalogId=10001&amp;langId=-1</a>
NCDC	<a href="http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms">http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms</a>
NFIP Data	<a href="http://www.floodsmart.gov/floodsmart/">http://www.floodsmart.gov/floodsmart/</a>
FEMA	<a href="http://www.fema.gov/hazard/flood/index.shtm">http://www.fema.gov/hazard/flood/index.shtm</a>
Iowa Flood Center	<a href="http://ifis.iowafloodcenter.org/ifis/en/">http://ifis.iowafloodcenter.org/ifis/en/</a>

**Grass or Wild-land Fire**

A grass or wild-land fire is an uncontrolled fire that threatens life and property in either a rural or a wooded area. Grass and wild-land fires can occur when conditions are favorable, such as during periods of drought when natural vegetation would be drier and subject to combustibility.

No event that has been reported has been a historically significant wildfire; due to the nature of this hazard the planning committee determined that the probability in any given year is occasional (10-20%) due to the amount of fires reported and the low amount of historically significant wild-land fires as determined and maintained by the National Interagency Fire Center (none are on record since the first recorded event in 1804).

Hazard	Grass or Wild-land Fire	Score
Probability	The committee determined that the probability in any given year is occasional. The committee was working with undocumented sources of information from the volunteer fire departments and their own memories. The reports that were received from the committee members were that the fire departments respond to at least 2-3 grass fires a year and they are extinguished fairly rapidly.	
Magnitude/ Severity	While wildfires have proven to be most destructive in the Western US, they have become an increasingly frequent and damaging phenomenon nationwide. People choosing to live in wild-land settings are more vulnerable to wildfires, and the value of exposed property is increasing at a faster rate than population. Kossuth County is less vulnerable to wild-land fire because of the extremely large percentage of land that is developed. Grass fires are often easily contained and usually occur during the harvest months. Most fires are contained in the highway and rail right-of-way ditches and are less than a few acres in size.	
Warning Time	As mentioned above, most grassfires occur without warning and travel at a moderate rate. This situation depends upon conditions at the time such as moisture, wind, and land cover. However, methods for forecasting the probability of occurrence of conditions most suitable for wild-fires to occur has increased with the use of the national wild-land significant fire potential outlook issued by the National Interagency Fire Center and the NOAA Storm Prediction Center.	
Duration	The majority of Kossuth County wildfires occur in short duration in areas of brush and forest lands with approximately half of the fires being prescribed as controlled burns supervised by trained experts.	
	Final Weighted Score	

The county did not profile this hazard due to low occurrences and that local jurisdiction and fire departments handle this hazard, therefore there is no score reflected above. However individual jurisdictions chose to profile this hazard and those scores are reflected accordingly in each communities table in the hazard scoring summary section of this plan.

Sources for Grass or Wild-land Fire	
IDNR	<a href="http://www.iowadnr.gov/forestry/fire.html">http://www.iowadnr.gov/forestry/fire.html</a>
Iowa Division of State Fire Marshal	<a href="http://www.dps.state.ia.us/fm/">http://www.dps.state.ia.us/fm/</a>
National Interagency Fire Center Statistics	<a href="http://www.nifc.gov/fire%20info/fire%20stats.htm">http://www.nifc.gov/fire info/fire stats.htm</a>

## Hailstorm

Hailstorms are an outgrowth of a severe thunderstorm in which pellets or irregularly shaped lumps of ice greater than 1 inch in diameter fall with rain. Hail is produced in many strong thunderstorms by strong rising currents of air carrying water droplets to a height where freezing occurs, the ice particles grow in size until they are too heavy to be supported by the updraft and fall back to earth. 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.

According to the NCDC, Kossuth County experienced 138 hailstorms from 1961-2011. Zero injuries and zero deaths resulted from these hailstorms in Kossuth County. The storms caused \$620,000 in property damage and \$791,000 in crop damage. NCDC website data lists events by place in the county and one event may be counted several times if the event affected a large area of the County. Based on historical information Kossuth County can expect to have 2.76 hailstorms a year. The planning committee determined that it is likely to experience a hailstorm in any given year.

Hazard	Hailstorm	Score
Probability	Data on probability and frequency of occurrence of hailstorms is limited, but research indicated that any given point in Kossuth County can expect on average 2.76 hailstorms in a year.	3
Magnitude/ Severity	<p>Agricultural crops such as corn and beans are particularly vulnerable to hailstorms stripping the plant of its leaves. Hail can also do considerable damage to vehicles and buildings. Hail only rarely results in loss of life directly although injuries can occur.</p> <p>The land area affected by individual hail events is not much smaller than that of parent thunderstorm, an average of 15 miles in diameter around the center of the storm. Damage to property, facilities, and infrastructure is usually limited to broken windows and damaged roofs.</p> <p>Hailstorms cause nearly \$1 billion dollars annually in property and crop damage in the United States. The peak hail activity coincides with the Midwest's peak agricultural season. Financial impacts resulting from damage to property is in the millions of dollars every year, most of which is covered by crop and hazard insurance.</p>	2
Warning Time	Forecasting hailstorms as with their parent thunderstorms, and forecasting the conditions suitable for developing storms with the potential to create hail is becoming quite accurate due to the advancement in Doppler Radar and other technologies operated by the National Weather Service and the local TV stations weather departments.	4
Duration	The occurrence of hailstorms is a short term weather phenomena and usually is limited to less than 6 hours per event.	1
	Final Weighted Score	2.65

Sources for Hailstorm	
FEMA	<a href="http://www.fema.gov/hazard/thunderstorm/index.shtm">http://www.fema.gov/hazard/thunderstorm/index.shtm</a>
NCDC	<a href="http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms">http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms</a>

Diameter Size	Description
1/4"	Pea Size
3/4"	Penny Size
7/8"	Nickel Size
1"	Quarter Size
1 1/4"	Half Dollar
1 1/2"	Walnut or Ping Pong Ball Size
1 3/4"	Golf Ball Size
2"	Hen Egg Size
2 1/2"	Tennis Ball Size
2 3/4"	Baseball Size
3"	Teacup Size
4"	Grapefruit Size
4 1/2"	Softball Size

**TABLE 15 – Hail Scale**

## **Hazardous Materials**

Hazardous Materials covers a fixed hazardous material release, transportation hazardous material release, pipeline transportation release, and the accidental release of flammable or combustible, explosive, toxic, noxious, corrosive, oxidizable, an irritant or radioactive substances or mixtures that can pose a risk to life, health or property possibly requiring evacuation.

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

During the period of October 1, 2002 – October 1, 2012 there have been 138 hazardous material incidents in Kossuth County according to the Iowa Department of Natural Resources (IDNR). Despite increasing safeguards, more and more potentially hazardous materials are being used in commercial, agricultural, and domestic activities. This situation is made worse by the density of people and hazardous materials in Iowa.

The planning committee determined the probability that an occurrence of a hazardous material incident is occasional or between 11% and 20% probability of a high impact incident in any given year. A high impact occurrence is one defined as an environmental emergency by the EPA. An environmental emergency is a sudden threat to the public health or the well-being of the environment, arising from the release or potential release of hazardous materials.

A pipeline that transports hazardous materials can pose as a hazardous material incident in the occurrence of a rupture of the pipeline. The pipeline rupture can possibly require evacuation of the surrounding area. An underground pipeline incident can be caused by the following: environmental disruption, accidental damage, or sabotage. Incidents can range from a small slow leak to a large rupture where an explosion is possible. Inspection and maintenance of the pipeline system along with marked gas line locations and an early warning and response procedure can lessen the risk to those near to the pipelines.

According to the United States Department of Transportation Pipeline and Hazardous Materials Safety Administration, there have been 0 significant incidents in Kossuth County from 2002-2011.

Hazard	Hazardous Materials	Score
Probability	<p>The planning committee determined the probability that a high impact occurrence of a hazardous material incident is between 11% and 20% in any given year. A high impact occurrence is one defined as an environmental emergency by the EPA. An environmental emergency is a sudden threat to the public health or the well-being of the environment, arising from the release of hazardous materials.</p>	2
Magnitude/ Severity	<p>A hazardous materials accident can occur almost anywhere, so any area is considered vulnerable to an accident. People, pets, livestock, and vegetation in close proximity to facilities producing, storing, or transporting hazardous substances are at higher risk. Populations downstream, downwind, and downhill of a released substance are particularly vulnerable. Depending on the characteristics of the substance released, a larger area may be in danger from explosion, absorption, injection, ingestion, or inhalation. Occupants of areas previously contaminated by a persistent material may also be harmed either directly or through consumption of contaminated food and water. Facilities are required to have an off-site consequence plan that addresses the population of the surrounding area. Responding personnel are required to be trained to HAZMAT Operations Level to respond to the scene, and those personnel that come into contact with the substances released are required to have HAZMAT Technician level training.</p> <p>Most of the hazardous materials incidents are localized and are quickly contained or stabilized by the highly trained fire departments and hazardous materials teams. Depending on the characteristic of the hazardous material or the volume of product involved, the affected area can be as small as a room in a building or as large as 5 square miles or more. Many times, additional regions outside the immediately affected area are evacuated for precautionary reasons. More widespread effects occur when the product contaminates the municipal water supply or water system such as a river, lake, or aquifer.</p> <p>Specialized training is needed to respond to these types of incidents. If inadequately trained personnel attempt to respond, the impacts could be the same as those for the general public exposed to the toxic materials. Proper training and equipment greatly reduce the risk to response personnel.</p>	2
Warning Time	<p>When managed properly under regulations, hazardous materials pose little risk. However, when handled improperly or in the event of an accident, hazardous materials can pose a significant risk to the population. Hazardous materials incidents usually occur very rapidly with little or no warning. Even if reported immediately, people in the area of the release have very little time to be warned and evacuated. During some events, sheltering in-place is the best alternative to evacuation because the material has already affected the area and there is no time to evacuate safely. Public address systems, television, radio, and the NOAA Weather Alert Radios are used to disseminate emergency messages about hazardous materials incidents.</p>	4

Duration	Response to a hazardous materials release is generally limited to the immediate effects of a release of dangerous materials and their threat to life and property. However, due to the laws surrounding hazardous materials and the duty of the public to inform and protect citizens from the effects of hazardous materials in their vicinity, response is expanded for environmental emergencies.	3
	Final Weighted Score	2.4

Sources for Hazardous Materials	
US Environmental Protection Agency	<a href="http://www.epa.gov/epahome/commsearch.htm">http://www.epa.gov/epahome/commsearch.htm</a>
IDNR	<a href="https://programs.iowadnr.gov/hazardousspills/introductory.aspx">https://programs.iowadnr.gov/hazardousspills/introductory.aspx</a>
IDOT	<a href="http://www.iowadot.gov/mvd/omve/hazmat.htm">http://www.iowadot.gov/mvd/omve/hazmat.htm</a>
Iowa Pipeline Data	<a href="http://primis.phmsa.dot.gov/comm/StatePages/Iowa.htm?nocache=4138">http://primis.phmsa.dot.gov/comm/StatePages/Iowa.htm?nocache=4138</a>
US Office of Pipeline Safety	<a href="http://www.phmsa.dot.gov/pipeline">http://www.phmsa.dot.gov/pipeline</a>
National Transportation Safety Board	<a href="http://www.nts.gov/Surface/pipeline/pipeline.htm">http://www.nts.gov/Surface/pipeline/pipeline.htm</a>

## **Human Disease**

An incident related to human disease is defined as a medical, health, or sanitation threat to the general public (such as contamination, epidemics, plagues, and insect infestation). Public health action to control infectious diseases in the 21<sup>st</sup> century is based on the 19<sup>th</sup> century discovery of microorganisms as the cause of many serious diseases (e.g., cholera and TB). Disease control resulted from improvements in sanitation and hygiene, the discovery of antibiotics, and the implementation of universal childhood vaccination programs. Scientific and technologic advances played a major role in each of these areas and are the foundation for today's disease surveillance and control systems. Scientific findings have contributed to a new understanding of the evolving relationship between humans and microbes.

The Centers for Disease Control (CDC) has a list of notifiable infectious diseases at the national level, the latest data that was available was for the year 2009. A notifiable disease is one for which regular, frequent, and timely information regarding individual cases is considered necessary for the prevention and control of the disease. There are 86 notifiable diseases which include the variations of one disease, as an example Hepatitis (Hepatitis, viral, acute; Hepatitis A, acute; Hepatitis B, acute; Hepatitis B virus, perinatal infection; Hepatitis C, acute; and Hepatitis, viral chronic; Chronic Hepatitis B; and Hepatitis C virus infection).

The Iowa Department of Public Health tracks epidemiological statistics in Iowa. Kossuth Public Health works to protect the citizens of Kossuth County from infectious diseases and preserves the health and safety of the citizens through disease surveillance, investigation of suspect outbreaks, education and consultation to county, local, and health agencies. Kossuth Public Health also works to reduce the impact of communicable diseases and to reduce or eliminate the morbidity associated with these diseases. Programs that the agency runs guides community based prevention planning, monitoring current infectious disease trends, provide early detection and treatment for infected persons, and ensure access to health care for refugees in Iowa. While vaccines are available for many diseases, citizens remain vulnerable to other diseases known and unknown.

A pandemic human disease is defined as a disease that has spread around the world to many people. The word, "pandemic", means that a disease has caused illness in a person on nearly every continent. Many diseases throughout the history of the world have been pandemic. Examples are HIV/AIDS/Influenza. A pandemic will have wide spread economic and societal implications for our state. Response and recovery to a pandemic will likely be lengthy.

From 1900-2000, there were three influenza pandemics, all about 30 years apart. This seems to follow the same trend with the next occurrence to affect Iowa and Kossuth County beginning in 2009 with the H1N1 influenza virus causing 659 hospitalizations across the state and lab confirmed 41 H1N1 deaths across the state. Typically people

who become ill are the elderly, the very young and people with chronic medical conditions and high risk behaviors. Approximately 24% of Kossuth’s population is considered high risk.

Hazard	Human Disease	Score
Probability	<p>From 1900-2010, there were four influenza pandemics, all about 30 years apart. This seems to follow the same trend with the next occurrence to affect Iowa and Kossuth County; beginning in 2009 the H1N1 influenza virus caused 659 hospitalizations across the state and the state lab confirmed 41 H1N1 deaths across the state. Typically people who become ill are the elderly, the very young and people with chronic medical conditions and high risk behaviors. Approximately 25% of Kossuth’s population is considered high risk. The committee determined that there was between an 11% and 20% probability of a human disease incident in any given year.</p> <p>Kossuth Public health works to protect the citizens of the county from infectious diseases and preserve the health and safety of Iowans through disease surveillance, investigation of suspect outbreaks, education and consultation to county, local and public/private health agencies. Historically pandemics occur every 30 years, but has the potential to occur in any year.</p>	2
Magnitude/ Severity	<p>Public health agencies work to reduce the impact of communicable diseases within the county. Programs guide community-based prevention planning, monitor current infectious disease trends, prevent transmission of infectious diseases, provide early detection and treatment for infected persons, and ensure access to health care for refugees in Kossuth County. While vaccines are available for many diseases that occur, citizens remain vulnerable to known and unknown diseases.</p> <p>Due to the high mobility of our society, these diseases can move rapidly across the county, state and nation within a matter of days and weeks. Many of the diseases on the national notification list result in serious illness if not death. Some diseases are treatable, in others only the symptoms are treatable.</p> <p>Influenza (flu) happens every year in nearly all the countries in the world. It spreads through a population for a few months and then will disappear or move to another area of the world. Influenza usually occurs in the fall and winter months. Typically people who usually become ill are the elderly, the very young and people with chronic medical conditions and high risk behaviors. Approximately 25% of Kossuth’s citizens are at high risk.</p>	3
Warning Time	<p>The private practitioner is the first line of defense and will undoubtedly be the first to witness the symptoms of human disease incidents. The Kossuth Public Health Department along with Iowa Department of Public Health and the US Centers for Disease Control monitor reports submitted by doctors, hospitals, and labs to identify patterns. The public health departments and the CDC are proactive in providing information to the health care community on medical concerns. Conditions related to scope and magnitude can escalate quickly and area resources can be drained of</p>	2

	personnel, medications, and vaccinations rather quickly.	
Duration	Response to highly infectious diseases occurs continuously, although the direct effects of a pandemic influenza can occur for months at a time as evident with the H1N1 influenza in August of 2009.	4
	Final Weighted Score	2.5

Sources for Human Disease	
Iowa Department of Public Health	<a href="http://www.idph.state.ia.us/hpcdp/default.asp">http://www.idph.state.ia.us/hpcdp/default.asp</a>
Iowa DPH Influenza	<a href="http://www.idph.state.ia.us/pandemic">http://www.idph.state.ia.us/pandemic</a>
Centers for Disease Control	<a href="http://www.cdc.gov/DataStatistics/">http://www.cdc.gov/DataStatistics/</a>
National Center for Health Statistics	<a href="http://www.cdc.gov/nchs/">http://www.cdc.gov/nchs/</a>
CDC Prevention	<a href="http://www.cdc.gov/flu/pandemic/healthprofessional.htm">http://www.cdc.gov/flu/pandemic/healthprofessional.htm</a>
CDC Emergency Preparedness and Response	<a href="http://emegency.cdc.gov/">http://emegency.cdc.gov/</a>
Winnebago County Public Health	<a href="http://www.winncoph.org/">http://www.winncoph.org/</a>

### **Infrastructure Failure**

Communication failure is the widespread breakdown or disruption of normal communication capabilities. Communication failure includes major telephone outages, loss of local government radio facilities, long-term interruption of electronic broadcast services, emergency 911, law enforcement, fire, emergency medical services, public works, and emergency warning systems are just a few of the vital services which rely on communication media as well. Mechanical failure, traffic accidents, power failure, line severance, and weather can affect communication systems and disrupt service. Disruptions and failures can range from localized and temporary to widespread and long-term. If switching stations are affected, the outage could be more widespread. Thus, the planning committee supports developing interoperability throughout the county and state.

No widespread communication failures have occurred in Kossuth County. Local incidents; due to weather conditions, equipment failure, excavation incidents, or traffic accidents have been reported, the outages were usually resolved in a timely manner. Widespread communication losses are unlikely due to backup systems and redundant system designs. Local communication failures are likely to affect small areas of a county.

The planning committee evaluated the probability that a serious communication failure in Kossuth County would be occasionally or between 10% and 20% in any given year.

An extended interruption of service either electric, petroleum, or natural gas, which by an actual or impending acute shortage of usable energy could create a potential health problem for the population and possibly mass panic. International events could potentially affect supplies of energy producing products while local conditions could affect distribution of electricity, petroleum, or natural gas. The magnitude and frequency of energy shortages are associated with international markets. Local and state events such as ice storms can disrupt transportation and distribution systems; if disruptions are long lasting, public shelters may need to be activated to provide shelter from extreme cold or extreme heat. Stockpiles of energy products eliminate short disruptions but can increase the level of risk to the safety of people and property near the storage site.

The energy crisis of the 1970s had significant impact on many consumers in Kossuth County. High inflation and unemployment were associated with the excessive dependence on foreign oil during the early and mid-1970s. An energy shortage of that magnitude has not affected Iowa in recent years. Only when free market forces cease to provide for the health, welfare, and safety of the citizens can governments can take appropriate actions to limit the effects of an energy shortage.

The federal government has a strategic petroleum reserve to supplement the fuel supply during energy emergencies. Shortages, especially electrical shortages, can be unpredictable with immediate effects. Natural events, human destruction, price escalation, and national security energy emergencies can cause unavoidable energy shortages. The planning committee evaluation the probability of an energy transportation

failure likely to occur in Kossuth County to be between 21% and 33% probability in any given year.

The collapse (all or partial) of any public or private structure including roads, bridges, towers, buildings, and etc., is considered a structural failure. Infrastructure failures can be due to the failure of structural components or due to the overload of a structure. Natural events such as snow can cause a failure, heavy rains and flooding can undercut a bridge abutment or washout a road. Building codes and their enforcement can guarantee that a structure will hold-up under normal conditions. Annual or semi-annual inspections will alert stakeholders to weak points in the structure that need to be addressed. The level of damage depends on a number of factors including but not limited to the following: size, number of occupants, time of day, day of the week, amount of traffic, amount and type of products stored, etc.

There have been a few structural failures in Kossuth County; there is no collection of this type of incident, except from the personal experiences of the planning committee. Civil structures may fail in a variety of ways. The unprecedented growth in technology has resulted in a host of problems related to complex structures, special materials, and severe operational and environmental loads, such as fire, excessive vibrations, explosion, high-energy piping failures, missiles, and earthquakes. With the exceptions of misuse, accidental or environmental loads, the causes of failure may be found in deficiencies of design, detailing, material, workmanship, or inspection. With the aging structures in the country along with problems with new materials discussed above, structural failures will continue to occur. Efforts to inspect and maintain these structures will lessen the probability of a failure, but not guarantee that it will not happen in the future. Internal weaknesses can be hidden from inspectors and not be realized until it is too late.

The planning committee has evaluated the probability of structural failures will in occur in Kossuth County is between 11% and 20% in any given year.

A structural fire is an uncontrolled fire in populated areas that threatens life and property and is beyond normal day-to-day response capability. Structural fires present a far greater threat to life and property and the potential for much larger economic losses. Modern fire codes and fire suppression requirements in new construction and building renovations, coupled with improved fire-fighting equipment, training, and techniques lessen the chance and impact of a major urban fire. Most structural fires occur in residential structures, but the occurrence of a fire in a commercial or industrial facility could affect more people and pose a greater threat to those new the fire or fighting the fire because of the volume or type of the material involved. Structural fires are almost a daily occurrence in some communities. Nearly all are quickly extinguished by on-site personnel or local fire departments. There have been 1,535 deaths in Iowa from fires between the year 1974-1977 and 1980-2002. From 2006 through April of 2010, there have been 167 recorded fire fatalities in the state of Iowa.

Fire prevention efforts have gone to non-residential fires and the results have been highly effective. Even with an increase in the prevention efforts in residential fires, both residential and non-residential fires will continue to occur. During colder months, clogged chimneys and faulty furnaces and fireplaces can increase the probability of structural fires. The planning committee determined that structural fire would have between 20% and 33% probability of occurring in any given year.

Therefore the Kossuth County planning committee determined that Infrastructure Failure to be likely or between 21% and 33% probability in any given year.

Hazard	Infrastructure Failure	Score
Probability	<p>No widespread communications failures have occurred in Kossuth County. Local incidents due to weather conditions, equipment failure, excavation incidents, and traffic accidents have been reported, but outages have usually been resolved in a timely manner. Communication losses are unlikely due to backup systems and redundant system designs. Local communications failures are likely to affect cities of Kossuth County and small areas of the county.</p> <p>Energy failures happen in the county due to equipment failures, weather conditions, excavation incidents, etc. Local and regional electric and gas utilities maintain the transmission lines and are responsible for providing the energy. They have been proactive in the past 5-10 years in hardening their facilities to ensure proper transmission of energy.</p> <p>There has been no record of structural failures in Kossuth County.</p> <p>Structural fires are a yearly occurrence in some communities. Nearly all are quickly extinguished by on-site personnel or local fire departments.</p> <p>Fire prevention efforts have gone to non-residential fires and the results have been highly effective. Even with an increase in the prevention efforts in residential fires, both residential and non-residential fires will continue to occur. During colder months, clogged chimneys and faulty furnaces and fireplaces can increase the probability of structural fires.</p>	3
Magnitude/ Severity	<p>Most communication systems that are highly necessary have backup and redundant designs to provide continuity of service. Most communications failures would be limited to localized areas. In the event of a widespread communications failure, only portions of Iowa would be impacted, but this is highly unlikely due to the support of other jurisdictions and secondary communications devices.</p> <p>Because Iowa is almost entirely dependent on out-of-state resources for energy, Iowans must purchase oil, coal, and natural gas from outside sources. World and regional fuel disruptions are felt in Iowa. It is likely that increasing prices will occur as market mechanisms are used to manage supply disruptions. This will disproportionately affect the low-</p>	3

	<p>income population because of their lower purchasing power. Agricultural, industrial, and transportation sectors are also vulnerable to supply, consumption, and price fluctuations. In Iowa, petroleum represents 97% of transportation fuel. Individual consumers such as commuters are also vulnerable.</p> <p>The effects of an energy shortage would be felt throughout the state. Because the distribution systems are very developed, local shortages can quickly be covered.</p> <p>There are many buildings in Iowa that are very old or which may become hazardous in the event of an earthquake, fire, high winds, or other natural events. All bridges are vulnerable to the effects of the elements and the deterioration that results. Increases in the amount and weight of traffic they are expected to support increase their vulnerability to failure.</p> <p>The impacts of the failed structure would be contained to the immediate area and adjacent properties. This could be as small as the house and yard of a fallen chimney, or the area could be relatively extensive if the structure that failed was a multi-story building of a downtown high-rise or a tall communication tower. Dam and levee failures would affect a much larger area and are discussed as separate hazards.</p> <p>Older structures with outdated electrical systems not built to current fire codes are particularly vulnerable to fire. Combustible building materials obviously are more vulnerable than structures constructed of steel or concrete. Structures without early detection devices are more likely to be completely destroyed before containment by response agencies. Structures in areas served by older, smaller, or otherwise inadequate water distribution infrastructure such as water mains and hydrants are also at significant risk. Problems vary from region to region, often because of climate, poverty, education, and demographics. The fire death risk for the elderly and children under 5 years is more than two times that of the average population.</p> <p>With modern training, equipment, fire detection devices, and building regulations and inspections, most fires can be quickly contained and limited to the immediate structure involved. Certain circumstances, such as the involvement of highly combustible materials or high winds, can threaten a larger area. The age and density of a particular neighborhood can also make it more vulnerable to fire due to the spreading of fire from neighboring structures.</p>	
Warning Time	<p>A communications failure would likely occur with little or no warning. It is usually impossible to predict a communications failure. Some communications may be shut down for periodic maintenance and the users are typically given prior notice to the out of service shutdown.</p> <p>The IDNR Energy Bureau monitors domestic and international energy situations and has developed a plan to deal with an energy crisis. Signs of an energy shortage can be seen sometimes be recognized months in advance but energy disruptions happen suddenly and unexpectedly.</p>	4

	The actual failure of the structure would likely occur suddenly with little or no warning.  Fires typically start with little to no warning and alert devices can allow time for responders to contain the fire.	
Duration	With the exception of structural fires which are largely handled by local response personnel, the response to the hazards of communications failure, energy failure, and structural failure are widespread in nature and are likely to require outside resources to assist the county and local jurisdictions in emergency response.	4
	Final Weighted Score	3.25

Sources for Infrastructure Failure	
Federal Communications Commission	<a href="http://www.fcc.gov/">http://www.fcc.gov/</a>
Iowa Utility Board	<a href="http://www.iowa.gov/iub/">http://www.iowa.gov/iub/</a>
IDNR	<a href="http://www.iowadnr.gov/energy/index.html">http://www.iowadnr.gov/energy/index.html</a>
Iowa Division of State Fire Marshall	<a href="http://www.dps.state.ia.us/fm/">http://www.dps.state.ia.us/fm/</a>
National Fire Protection Association	<a href="http://www.nfpa.org/categoryList.asp?categoryID=951&amp;URL=Research/Fire%20statistics">http://www.nfpa.org/categoryList.asp?categoryID=951&amp;URL=Research/Fire%20statistics</a>

## **Radiological**

An incident resulting in a release of radiological material at a fixed facility to include power plants, hospitals, laboratories and the like is a fixed radiological incident. Although the term “nuclear accident” has no strict technical definition, it generally refers to events involving the release of significant levels of radiation. Most commercial nuclear facilities in the United State were developed in the mid-1960’s and are designed to withstand aircraft attack. Therefore, they should withstand most natural hazards even though they may not have been specifically designed for those forces.

Duane Arnold Energy Center is located in Palo, Iowa. Kossuth County is located far outside the 10 and 50 mile planning buffers.

The planning committee determined the probability of a fixed radiological incident occurring in Kossuth County to be unlikely in any given year.

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

When these materials are moved across Iowa highways, Iowa officials are notified and appropriate escorts are provided. As a rule there are two (2) categories of radioactive materials that are shipped over the interstate highways. Low level waste consists primarily of materials that have been contaminated by low level radioactive substances, but pose no serious threat except through long term exposure. These materials are shipped in sealed drums within placarded trailers. The danger to the public is no more than a wide array of other hazardous materials. High-level waste, usually in the form of spent fuel from nuclear plants, is transported in specially constructed casks that are built to withstand a direct hit from a locomotive.

Since 1990, hundreds of shipments have been made through Iowa. There have been no occurrences of a radiological incident in Iowa. Transportation accidents are the most common type of incident involving radioactive materials because of the sheer number of radioactive shipments.

Operators of facilities that use radioactive materials and transporters of radioactive waste are circumspect in the packaging, handling, and shipment of the radioactive waste and, since they are closely regulated by a variety of federal, state, and local organizations, the likelihood of an incident is remote.

There have been no events in Kossuth County, however; the planning committee determined that the probability of an occurrence does exist therefore they wanted radiological events to be scored and profiled.

Hazard	Radiological	Score
Probability	<p>Historically there have been zero significant releases of radiation from fixed facilities in the state of Iowa, or even the United States. Operators of facilities that use radioactive materials and transporters of radioactive waste are trained in the packaging, handling, and shipment of the radioactive waste; and, since they are closely regulated by the state, the likelihood of an incident is remote.</p> <p>Since 1990, hundreds of shipments have been made through Iowa. There have been no occurrences of radiological incidents in Iowa.</p> <p>Transportation accidents are the most common type of incident involving radioactive materials because of the sheer number of radioactive shipments. Operators of facilities that use radioactive materials and transporters of radioactive waste are trained in the packaging, handling, and shipment of the radioactive waste; and, since they are closely regulated by a variety of federal, state, and local organizations, the likelihood of an incident is remote.</p>	1
Magnitude/ Severity	<p>Sources of radioactive materials include medical products, industrial products, nuclear power plant fuel, nuclear weapons, and radioactive waste from hospitals, laboratories, nuclear reactors, and military facilities. Both the Duane Arnold and the Fort Calhoun Nuclear Power Plants have completed construction of on-site storage facilities of spent nuclear fuel.</p> <p>In over 50 years of nuclear power production in the US, no deaths or injuries from radiation have been recorded among the general public. Each of the nuclear facilities in the country identifies a 10 mile radius Emergency Planning Zone and a 50-mile radius Ingestion Pathway Zone.</p> <p>Depending on the level of exposure, radiation can cause loss of life and long and short term health effects. Time, distance, and shielding minimize radiation exposure to the body. Nuclear radiation above normal levels could be a health and safety consideration because of its ability to damage human cells biologically.</p> <p>Specialized training is needed to respond to these types of incidents. If inadequately trained personnel attempt to respond, the impacts could be the same as those for the general public exposed to the toxic materials. Proper training and equipment greatly reduce the risk to response personnel.</p> <p>If the land and facilities cannot be used for weeks, months, or even years, the loss of production would be devastating. Economic impacts would be multi-sector and long-lasting, especially in and around the affected region.</p> <p>The danger to the public is less than a wide array of other hazardous materials. Those working with or near sources of radiation are at a greater risk than the general citizens of the state. Those responding to a radiological incident should be trained in recognizing a radiological incident and minimizing exposure to radioactive materials.</p>	1

	<p>Other than a transportation incident involving large amounts of high-level radioactive materials, radiation exposure will be limited to localized areas.</p> <p>Time, distance, and shielding minimize radiation exposure to the body. Nuclear radiation above normal levels could be a health and safety consideration because of its ability to damage human cells biologically as well as its long-lasting effect on the environment.</p>	
Warning Time	<p>Ionizing radiation cannot be detected with human senses. Detection instruments are needed to indicate the existence of radiation. Distance from the incident would dictate the amount of time needed to avoid exposure from damaging radiation.</p> <p>A radiological incident in Kossuth County could result from an incident in handling or transporting radioactive materials. This accident could occur with little or no warning. Ionizing radiation cannot be detected with human senses. Detection instruments are needed to indicate the existence of radiation. Distance from the incident would dictate the amount of time needed to avoid exposure from damaging radiation.</p>	4
Duration	<p>Responding to the effects of a radiological release in Kossuth County is extensive and will require resources and assistance from several Federal agencies to determine and evaluate the threat to life and the environment in the affected sub-areas.</p>	3
	Final Weighted Score	2.1

Sources for Radiological	
US EPA	<a href="http://www.nrc.gov/about-nrc/emerg-preparedness.html">http://www.nrc.gov/about-nrc/emerg-preparedness.html</a>
Iowa Department of Health	<a href="http://www.idph.state.ia.us/eh/radiological_health.asp">http://www.idph.state.ia.us/eh/radiological_health.asp</a>
Nuclear Regulatory Commission	<a href="http://www.phmsa.dot.gov/hazmat">http://www.phmsa.dot.gov/hazmat</a>
Energy Information Assurance	<a href="http://www.eia.doe.gov/overview_hd.html">http://www.eia.doe.gov/overview_hd.html</a>

**River Flooding**

River flooding is a rising or overflowing of a tributary or body of water that covers adjacent land, not usually covered by water, when the volume of water in a stream exceeds the channels capacity. Floods are the most common and widespread of all natural disasters, except fire. Most communities may experience some kind of flooding after spring rains, heavy thunderstorms, winter snow thaws, waterway obstructions, or levee or dam failures.

Floodwaters can be extremely dangerous; the force of six inches of swiftly moving water can knock people off their feet and two feet of water can float a car. Floods can be slow or fast-rising but generally develop over a period of days. Flooding is a natural and expected phenomenon that occurs annually, usually restricted to specific streams, rivers or watershed areas.

The National Flood Insurance Program (NFIP) Repetitive Loss Properties report identifies properties vulnerable to multiple flood losses. There are no Repetitive Loss Properties located in Kossuth County as of December 2010.

The most recent statewide serious flooding event in June 2008 resulted in a Presidential declared disaster for Kossuth County. Given the history of river flooding in Iowa and Kossuth County, it is likely that there will be many minor events in any given year and a high likelihood that a major flooding event requiring federal assistance will occur in the next 5 years. Kossuth County also experienced a major flood in 2010, that flood was also designated a Presidential disaster.

The planning committee determined that the probability of a river flood in Kossuth County is highly likely in any given year.

Hazard	River Flooding	Score
Probability	<p>The floods of 2008 and 2010 are still fresh in the minds of Kossuth County citizens. Flooding has been a regular and frequent hazard in Kossuth County. Kossuth County has been involved in Presidential Disaster Declarations related to flooding since 1953.</p> <p>Given the history of this hazard, it is likely that there will be many minor events each year and a high likelihood that a major flood event will happen in the next 5 years.</p>	4
Magnitude/ Severity	<p>The vulnerability from river flooding is quite delineated. Much work in the area of flood hazard mapping has allowed many communities to restrict development in the hazardous areas.</p> <p>The Federal Emergency Management Agency has delineated the probable extent of the 1% chance flood hazard area in many areas of the county and those maps are located in Appendix I. These maps depict the areas that have at least a 1% chance of flooding occurring on these areas in any given year. Much of the areas are parkland, agricultural areas, or</p>	2

	<p>conservation land, but residential and commercial areas are impacted by river flooding as well.</p> <p>Flooding impacts include potential loss of life. River flooding does not have as high of risk as does flash flooding because of the slower onset of the river flood.</p> <p>Personal property can be extensively damaged and destroyed by swift moving water. Facilities and infrastructure can be scoured around and degrading its structural integrity. The severity of the floods in Kossuth county have been limited to the areas directly involved or approximately 10% to 25% of the property has been severely damaged.</p>	
Warning Time	There is a river gage on the Des Moines River in Algona that provides for an early flood warning system. River flooding usually develops over the course of several hours or even days depending on the basin characteristics and the position for the particular reach of the stream. The National Weather Service provides flood forecasts for Iowa. Flood warnings are issued over emergency radio and television messages as well as the NOAA Weather Radio. People in the paths of river floods may have time to take appropriate actions to limit harm to themselves and their property.	2
Duration	The response to the effects of river flooding in Kossuth County are extensive and require many days to adequately respond to the needs of the citizens of the County.	3
	Final Weighted Score	3

Sources for River Flooding	
FEMA Map Service Center	<a href="http://www.msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&amp;catalogId=10001&amp;langId=-1">http://www.msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&amp;catalogId=10001&amp;langId=-1</a>
IDNR	<a href="http://www.iowadnr.gov/water/floodplain/index.html">http://www.iowadnr.gov/water/floodplain/index.html</a>
NCDC	<a href="http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms">http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms</a>
Iowa Flood Center	<a href="http://ifis.iowafloodcenter.org/ifis/en/">http://ifis.iowafloodcenter.org/ifis/en/</a>

**Severe Winter Storm**

Severe winter weather conditions that affect day-to-day activities can include blizzard conditions, heavy snow, blowing snow, freezing rain, heavy sleet, and extreme cold. Winter storms are common during the months of October through April.

The various types of severe winter weather can cause considerable damage. Heavy snows can immobilize transportation systems, down trees and power lines, collapse buildings, and the loss of livestock and wildlife. Blizzard conditions are winter storms lasting at least three hours with sustained winds of 35 mph or more, reduced visibility of ¼ mile or less, and white out conditions. Heavy snows of more than six inches in a 12 hour period or freezing rain greater than ¼ inch accumulation causing hazardous conditions in the community can slow or stop the flow of vital supplies as well as disrupting emergency and medical services.

Loose snow begins to drift when wind speed reaches a critical speed of 9-10 mph under freezing conditions. The potential for drifting is substantially higher in open country than in urban areas where buildings, trees, and other features obstruct the wind.

Ice storms have resulted 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 outages over large areas of Iowa and rendered assistance unavailable to those in need due to impassable roads.

Kossuth County has had 173 severe winter storm events from 1960 to 2011. These events have caused 3 deaths, 6 injuries and \$2,659,832 in property damage and \$14,343,092 in crop damage. These impacts are not limited to just Kossuth County but other areas of the State of Iowa.

Kossuth County has been presidentially declared a Major Disaster for winter storms twice since 1990. Kossuth County can experience 2-3 severe winter storms in any given year.

Hazard	Severe Winter Storm	Score
Probability	Kossuth County has had 173 severe winter storm events from 1960 to 2011. These events have caused 3 deaths, 6 injuries and \$2,659,832 in property damage and \$14,343,092 in crop damage. These impacts are not limited to just Kossuth County but other areas of the State of Iowa.	4
Magnitude/ Severity	Hazardous driving conditions due to snow and ice on highways and bridges lead to many traffic accidents. The leading cause of death during winter storms is transportation accidents. The leading cause of death during winter storms is transportation accidents. Emergency services such as police, fire, and ambulance are unable to respond due to road conditions. Emergency needs of remote or isolated residents for food or fuel, as well as for feed, water and shelter for livestock are unable to be met. People, pets, and livestock are also susceptible to frostbite and hypothermia during winter storms.  Winter storms are quite vast and would likely impact not only Kossuth County but the Northern Iowa region as a whole. Certain areas may	3

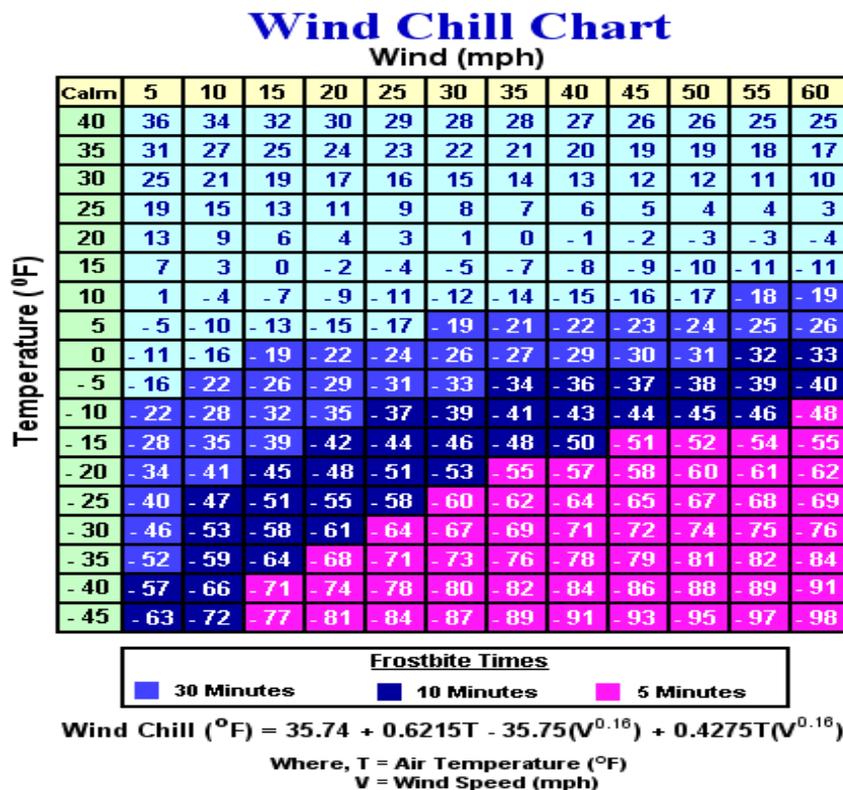
	experience local variations in storm intensity and quantity of snow or ice. IDOT, county road departments, and local public works agencies are responsible for the removal of snow and treatment of snow and ice with sand and salt on the streets and highways of Kossuth County.	
Warning Time	The National Weather Service (NWS) has developed effective weather advisories that are promptly and widely distributed. Radio, TV, and Weather Alert Radios provide the most immediate means to do this. Accurate information is made available to public officials and the public up to days in advance. Notifications made by the National Weather Service include winter storm watch, winter storm warning, blizzard warning, winter weather advisory, and frost/freeze advisory.	2
Duration	Severe winter storms in Iowa and the response to these declared events are tied to multiple storms necessitating large expenses to cities for snow removal and road service. The associated losses and dangers of electrical outages to rural areas further compounds the duration of responding to major storm events.	3
	Final Weighted Score	3.3

**TABLE 16 – Winter Storm Notifications**

Winter Weather Advisory	Used when snow...or a mixture of precipitation such as snow, sleet, freezing rain or drizzle is expected, but will not reach warning criteria. Issued for snowfall amounts of less than 4". Forecast amounts would be 1-2", 1-3", 2-4", or perhaps 3". If only freezing rain or freezing drizzle is expected, then the product would be issued as a Freezing Rain or Freezing Drizzle advisory.
Freezing Rain Advisory	Used when freezing rain is expected to coat surfaces with up to one quarter of an inch of ice.
Wind Chill Advisory	Issued when wind chill temperatures are expected to range from -10F to -24F, with a minimum wind speed of 10 mph.
Winter Storm Watch	Issued if there is a threat for heavy snow or sleet, significant accumulations of freezing rain or freezing drizzle, or any combination of these. Issued for the second and third periods of a forecast, i.e. 12 to 36 hours in advance of the event. Not issued for the fourth period of a forecast unless confidence is high. The definition of heavy snow in Iowa is 4" or more in 12 hours, or 6" or more in 24 hours.
Winter Storm Warning	Issued if there is a high probability that severe winter weather will occur, such as heavy snow or sleet, significant accumulations of freezing rain or freezing drizzle, or any combination of these. Issued normally for the first period forecast, i.e. less than or equal to 12 hours in

	advance of the event. A winter storm warning may be extended into the second period of the forecast if necessary.
Ice Storm Warning	Issued when ice accumulations are expected to exceed one quarter of an inch on exposed surfaces.
Blizzard Warning	Issued for winter storms with sustained winds or frequent gusts of 35 mph or greater and considerable falling and/or blowing snow reducing visibilities to 1/4 mile or less. These conditions should last for 3 hours or longer.
Wind Chill Warning	Issued when wind chill temperatures are expected to reach -25°F or colder, with a minimum wind speed of about 10 mph.

**FIGURE 8 – Wind Chill Index**



Sources for Severe Winter Storm	
NCDC	<a href="http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms">http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms</a>
FEMA	<a href="http://www.fema.gov/hazard/winter/index.shtm">http://www.fema.gov/hazard/winter/index.shtm</a>
IDOT	<a href="http://weatherview.iowadot.gov/">http://weatherview.iowadot.gov/</a>
Iowa Travel Information	<a href="http://www.511ia.org/">http://www.511ia.org/</a>

## **Terrorism**

Enemy attack is an incident that would cause massive destruction and extensive casualties. An all-out war would affect the entire population. Some areas would experience direct weapons' effects: blast, heat, and nuclear radiation; others would experience indirect weapons' effect, primarily radioactive fallout.

The federal government monitors the international political and military activities of other nations and would notify the State of Iowa of escalating military threats. Kossuth County authorities would be notified by the State of Iowa. There have been no enemy attacks on or in Kossuth County in modern times. The only history of enemy attack dates back to the days of settlement. An enemy attack is still a possibility due to international conflicts and the large number of conventional and nuclear weapons in existence throughout the world.

It is however unlikely that Kossuth County would be a primary target during an enemy attack on the United States. The US federal government monitors global situations and provides for the security from international attacks. Enemy attack/war has changed in recent years due to world events.

The planning committee determined enemy attack is unlikely in any given year.

Mass demonstrations, or direct conflict by large groups of citizens, as in marches, protest rallies, riots, and non-peaceful strikes are examples of public disorder. These are the assembling of people in a manner that substantially interferes with public peace and constitutes a threat and with the use of unlawful force against another person, or causing property damage or attempting to interfere with, disrupting, or destroying the government, political subdivision, or group of people. Vandalism is usually initiated by a small number of individuals and limited to small target group or institution. Most events are within the capacity of local law enforcement.

Large-scale civil disturbances rarely occur; when they do they are usually an offshoot or the result of one or more following events: 1. Labor disputes where there is a high degree of animosity between the participating parties; 2. High profile/controversial laws or other governmental actions; 3. Resource shortages caused by a catastrophic event; 4. Disagreements between special interest groups over a particular issue or cause; or 5. A perceived unjust death or injury to a person held in high esteem or regard by a particular segment of society.

The potential for large-scale civil disturbances are rare especially in a rural county the potential is always there for an incident to occur.

The planning committee determined that a serious public disorder in Kossuth County is unlikely in any given year.

Use of biological agents against persons or property in violation of the criminal laws of the US and State of Iowa for the purposes of intimidation, coercion, or ransom can be

described as biological terrorism. Liquid or solid contaminants can be dispersed using sprayers/aerosol generators or by point of line sources such as munitions, covert deposits and moving sprayers. These agents pose a viable threat from hours to years depending on the substance used and the conditions for which it exists. Depending on the agent used and the effectiveness of the deployment of the agent, contamination can be spread thru wind and water. Infections could also spread from human to human, animal to animal, or human to animal and vice versa.

Kossuth County does not have any history of attacks but the planning committee could not rule out a future incident. The planning committee determined that the probability of a biological terrorism event is unlikely in any given year.

Causing intentional harm to an agricultural product or vandalism of an agricultural/animal related facility is agro-terrorism. Activities could include the following examples: animal rights activists who release mink or lab animals; disgruntled employees who intentionally contaminate bulk milk tanks or poison animals; eco-terrorists who destroy crops/facilities; theft of agricultural products, machinery, or chemicals; or criminals who vandalize agricultural facilities.

Incidents such as this have occurred in the state of Iowa. Kossuth County has not experienced any of these incidents. There are however cases of theft of agricultural machinery, products, and chemicals on a yearly basis within the county.

The planning committee determined that a serious agro-terrorism event is unlikely in Kossuth County in any given year.

Chemical terrorism involves the use or threat of chemical agents against persons or property in violation of the criminal laws of the US and the State of Iowa for the purposes of intimidation, coercion, or ransom. Liquid/aerosol or dry contaminants can be dispersed using sprayers or other aerosol generators; liquids vaporizing from puddles/containers; or munitions. Chemical agents may pose viable threats for hours to weeks depending on the agent and the conditions in which it exists. Contamination can be carried out of the initial target area by persons, vehicles, water, water and wind. Chemicals may be corrosive or otherwise damaging over time if not mitigated.

Kossuth County has experienced releases of anhydrous ammonia by persons engaged in illegal drug manufacturing.

The planning committee determined that chemical terrorism event is unlikely in Kossuth County in any given year.

Use of conventional weapons and explosives against persons or property in violation of the criminal laws of the US and the State of Iowa for purposes of intimidations, coercion, or ransom is conventional terrorism. Hazard affects are instantaneous; additional secondary devices may be used, lengthening the time duration of the hazard until the attack site is determined to be clear. The extent of damage is determined by the type and

quantity of explosive. Effects are generally static other than cascading consequences, incremental structural failures, etc. Conventional terrorism can also include tactical assault or sniping from remote locations.

Kossuth County has had one incident involving a pipe bomb that was used in an attempted murder case in 2006. Unfortunately, there will never be a way to totally eliminate all types of these clandestine activities. If person or persons are inclined to cause death and destruction, they are usually capable of finding a way to carry out their plans.

The planning committee determined that the probability of a high impact conventional terrorism event occurring in Kossuth County in any given year to be unlikely.

Electronic attack using one computer system against another in order to intimidate people or disrupt other systems is a cyber attack. Cyber terrorism may last from minutes to days depending upon the type of intrusion, disruption, or infection. Generally, there are no direct effects on the built environment, but secondary effects may be felt depending upon the system being terrorized. Inadequate security can facilitate access to critical computer systems allowing them to be used to conduct attacks.

Cyber-security and critical infrastructure protection are among the most important national security issues facing our country today, and they will only become more challenging in the years to come. Recent attacks on our infrastructure components have taught us that security has been a relatively low priority in the development of computer software and internet systems. These attacks not only have disrupted electronic commerce, but have also had a debilitating effect on public confidence in the internet.

The planning committee determined the probability that a serious electronic attack in Kossuth County is unlikely in any given year.

Radiological terrorism involves the use or threat of radiological agents against persons or property in violation of the criminal laws of the US and the State of Iowa for the purposes of intimidation, coercion, or ransom. Radioactive contaminants can be dispersed using sprayers/aerosol generators, or by point of line sources such as munitions. Radiological terrorism will consist of detonation of a nuclear device underground, at the surface, in the air, or at high altitude.

There is no history of radiological terrorism in Kossuth County. The threat is relatively low, but it is technically feasible for a person or group of persons to construct a radiological weapon and use it for terrorist purposes.

Hazard	Terrorism	Score
Probability	<p>The State of Iowa has experienced acts of terrorism. Internationally, such acts have, unfortunately, become quite commonplace, as various religious, ethnic, and nationalistic groups have attempted to alter and dictate political and social agendas. Persons and groups who have threatened violence and are inclined to cause death and destruction, are usually capable of carrying out their plans. Due to the rural nature of Kossuth County and that the county is located in the breadbasket of the world; there is an increased risk to agro-terrorist activity.</p> <p>Law enforcement agencies respond to barricaded subject calls and deliver high risk warrants against armed persons. Protecting the computer systems of the county shall remain a high priority due to the increase of cyber-terrorism whether it is directed to the county or not.</p> <p>Destructive civil disturbances are rare; the potential is always there for an incident to occur. This is even more true today, where television, radio, and internet provides the ability to instantly broadcast information in real time to the entire community. This spread of information can easily devolve a situation from peaceful to violent.</p>	1
Magnitude/ Severity	<p>Since targets of attacks will include civilian and government facilities, the entire community is considered vulnerable to direct and indirect impacts. The entire county would likely to be impacted in some way, areas near government facilities, transportation, communications, and fuel facilities would experience the largest impacts. A full-scale attack is unlikely in the near future, however a limited attack could take place that could potentially threaten the target areas. Given the tremendous destructive capability of even one nuclear device or the detonation of said nuclear device at a high altitude over the middle of the country causing an EMP wave that destroys all electronics would be far worse than anything ever experienced in this country.</p> <p>Innocent people are often the victims of terrorist activity targeted at certain organizations and activities. Based on the method of delivery, the general public is vulnerable to bioterrorism.</p> <p>There are many factors in terrorism that geographic extent is hard to determine due to agent used, effectiveness of delivery, spread by air, water, or human and animal vectors.</p> <p>Our society highly networked and interconnected. An attack could be launched from anywhere on earth and could cause impacts as small as a computer lab to as large as the world wide web.</p> <p>Duration of exposure to the effects of radiological terrorism, distance from the source of radiation, and the amount of shielding between source and target determine exposure to radiation.</p> <p>Initial effects will be localized to site of attack; depending on meteorological conditions, subsequent behavior of radioactive contaminants may be dynamic. Radiological terrorism, the severity of an incident would primarily be isolated to the impact point and areas</p>	3

	<p>that are downwind from the impact.</p> <p>Civil disturbances are often difficult for local communities to handle. There is a fine line between the Constitutional right of individuals and groups to assemble and air their grievances and the overall needs of the community to provide essential services, ensure personal safety of citizens, prevent property damage, and facilitate normal commerce. Fortunately, most demonstrations and large public gatherings are held in peaceful, responsible manner. However, there never seems to be a shortage of groups whose primary objective is to disrupt normal activities and perhaps even cause injury and property damage.</p> <p>Civil unrest often results in injuries, deaths, and property damage. Perhaps even more tragic has been the lingering, negative impact and loss of investment in the communities ravaged by the uprisings. Many riot areas do not fully recover from the damage, destruction, and negative image brought on by such events. Looting, burning, and sniping can occur during severe civil disturbances. Fires can sometimes burn uncontrolled because firefighters and equipment are unable to respond due to resistance from rioters.</p>	
Warning Time	Acts of terrorism can be immediate and often come after little or no warning. There are occasions when terrorists have warned the targeted organization beforehand, but often the attack comes without previous threat. Terrorists threaten people and facilities through “bomb threats” and other scare tactics. Even if it is a shallow threat, precautions must be taken to ensure the safety of the people and property involved.	4
Duration	The response to all sources of terrorism are extensive and will result in the need for outside resources and response from Federal agencies in both the investigation of a crime scene and in the response to the direct threats to life and property.	3
	Final Weighted Score	2.25

Sources for Terrorism	
Department of Homeland Security	<a href="http://www.dhs.gov/index.shtm">http://www.dhs.gov/index.shtm</a>
Iowa Homeland Security	<a href="http://www.iowahomelandsecurity.org/">http://www.iowahomelandsecurity.org/</a>
US Department of Justice	<a href="http://www.justice.gov">http://www.justice.gov</a>
CDC	<a href="http://emergency.cdc.gov">http://emergency.cdc.gov</a>

## Thunderstorms and Lightning

Thunderstorms are common in Kossuth County and can occur singly, in clusters, or in lines. Thunderstorms result in heavy rains, winds reaching or exceeding 58 mph, producing a tornado, or dropping surface hail at least 1.00 inch in diameter. They are created from a combination of moisture, rapidly raising warm air, and a lifting mechanism such as clashing warm and cold air masses.

Between 1961 and September of 2011, at least 94 severe thunderstorm events have impacted Kossuth County, causing \$2,728,386 in property damage and \$15,042,126 in crop damage. Because thunderstorms occur singly, in clusters, or in lines, it is possible that several thunderstorms may affect the same area over the course of a few hours and only be listed as one occurrence. It is highly possible that more than 94 severe thunderstorm events have happened since 1961.

Most thunderstorms produce only thunder, lightning, and rain; severe storms, however, can produce tornadoes, straight-line winds and microburst's above 58 mph, lightning, hailstorms, and flooding. The National Weather Service (NWS) considers a thunderstorm severe if it produces hail at least 1-inch in diameter, wind meeting or exceeding 58mph, or tornadoes. Straight-line winds can often exceed 60 mph, are common occurrences, and are often mistaken for tornadoes. A number of thunderstorms have caused other hazards such as flash flooding, river flooding, and tornadoes.

Lightning is an electrical discharge that results from the buildup of positive and negative charges within a thunderstorm. When the buildup becomes strong enough, lightning appears as a "bolt", this flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning reaches temperatures approaching 50,000 degrees Fahrenheit in a split second, this rapid heating, expansion, and cooling of air near the lightning bolt creates thunder. Kossuth County has experienced 5 reported lightning events between 1994 and 2000, causing \$640,000 in property damage. However with an average of 25 million lightning strikes in the US in any given year, there are probably more than 5 events that happened in Kossuth County.

The planning committee determined that thunderstorms and lightning events affect Kossuth County more than 33% probability in any given year or as highly likely.

Hazard	Thunderstorms and Lightning	Score
Probability	Between 1961 and September of 2011, at least 94 severe thunderstorm events have impacted Kossuth County. Because thunderstorms occur singly, in clusters, or in lines, it is possible that several thunderstorms may affect the same area over the course of a few hours and only be listed as one occurrence. It is highly possible that more than 94 severe thunderstorm events have happened since 1961. Kossuth County has experienced 5 reported lightning events between 1994 and 2000, causing \$640,000 in property damage. However with an average of 25 million lightning strikes in the US in any given year, there are probably more than 5 events that happened in Kossuth County.  The State of Iowa experiences between 30 and 50 thunderstorm days per	4

	<p>year on average. With Iowa's and Kossuth County's location located in the interior of the US, there is a very high likelihood that a few of these thunderstorms will become severe and cause damage. Due to the humid continental climate that Iowa experiences, ingredients of a severe thunderstorm is usually available (moisture to form clouds and rain, relatively warm and unstable air that can rise rapidly, and weather fronts and convective systems that lift air masses).</p>	
Magnitude/ Severity	<p>Those in unprotected areas, mobile homes, or automobiles during a storm are at risk. Sudden strong winds often accompany a severe thunderstorm and may blow down trees across roads and power lines. Lightning presents the greatest immediate danger to people and livestock during a thunderstorm. It is the second most frequent weather-related killer in the US with nearly 100 deaths and 500 injuries each year. (Floods and flash floods are the number one cause of weather related deaths in the US. Livestock and people who are outdoors, especially under a tree or other natural lightning rods, in or on water, or on or near hilltops are at risk from lightning. Hail can be very dangerous to people, pets, and livestock if shelter is not available. Flash floods and tornadoes can develop during thunderstorms as well. People who are in automobiles or along low-lying areas when flash flooding occurs and people who are in mobile homes are vulnerable to the impacts of severe thunderstorms.</p> <p>Severe thunderstorms can be quite expansive with areas of localized severe conditions. Most severe thunderstorm cells are 5 to 25 miles wide with a larger area of heavy rain and strong winds around the main cell. Most non-severe thunderstorms have a lifespan of 20 to 30 minutes, while thunderstorms last longer than 30 minutes.</p> <p>Like tornadoes, thunderstorms and lightning can cause death, serious injury, and substantial property damage. The power of lightning's electrical charge and intense heat can electrocute people and livestock on contact, split trees, ignite fires, and cause electrical failures. Thunderstorms can also bring large hail that can damage homes and businesses, break glass, destroy vehicles, and cause bodily harm to people, pets, and livestock.</p> <p>High winds can damage trees, homes, mobile homes, and businesses and can knock vehicles off of the road. Straight-line winds are responsible for most thunderstorm damage. One or more severe thunderstorms occurring over a short period (especially saturated ground) can lead to flooding and cause extensive power and communication outages as well as agricultural damage.</p>	2
Warning Time	<p>Some thunderstorms can be seen approaching, while other hit without warning. The NWS issues severe thunderstorm watches and warnings as well as statements about severe weather and localized storms. These messages are broadcast over NOAA Weather Alert Radios and area TV and radio stations. Advances in weather prediction and surveillance have increased warning times. The resolutions of radar and Doppler radar have increased the accuracy of storm location and direction. Weather forecasting and severe weather warnings issued by the NWS usually provide residents and visitors alike adequate time to prepare.</p>	4

	Isolated problems arise when warnings are ignored.	
Duration	The immediate response related to severe thunderstorm and lightning events are more aptly associated with the cascading effects of multiple events occurring over a short amount of time in the case of flash and river flooding, and in particularly severe thunderstorm events in the case of tornadoes. Response to thunderstorm events is relatively minor in scope.	2
	Final Weighted Score	3.2

Sources for Thunderstorms and Lightning	
NCDC	<a href="http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms">http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms</a>
FEMA	<a href="http://www.fema.gov/hazard/thunderstorm/index.shtm">http://www.fema.gov/hazard/thunderstorm/index.shtm</a>

## Tornado

A tornado is a violently rotating column of air, in contact with the ground, either pendant from a cumuliform cloud or underneath a cumuliform cloud, or often (but not always) visible as a funnel cloud. A tornado is an extremely violent local storm. A tornado is most commonly associated with a cumulonimbus cloud and can occur with heavy rainfall, lightning and hail. The vortex of the tornado usually rotates cyclonically although on rare occasions they have been observed to rotate anti-cyclonically. Wind speeds have been observed to as low as 40 mph to as high as 300 mph. Wind speeds are estimated on the basis of wind damage using the Enhanced Fujita scale or EF scale. Tornadoes occur most commonly in the Midwest region of the United States but can occur anywhere.

In the US, Iowa is ranked third in the number of tornadoes per 10,000 square miles. Between 1964 and 2011 there have been 36 tornado events in Kossuth County causing 2 deaths and 42 injuries, \$1,751,300 in property damage, and \$93,500 in crop damage.

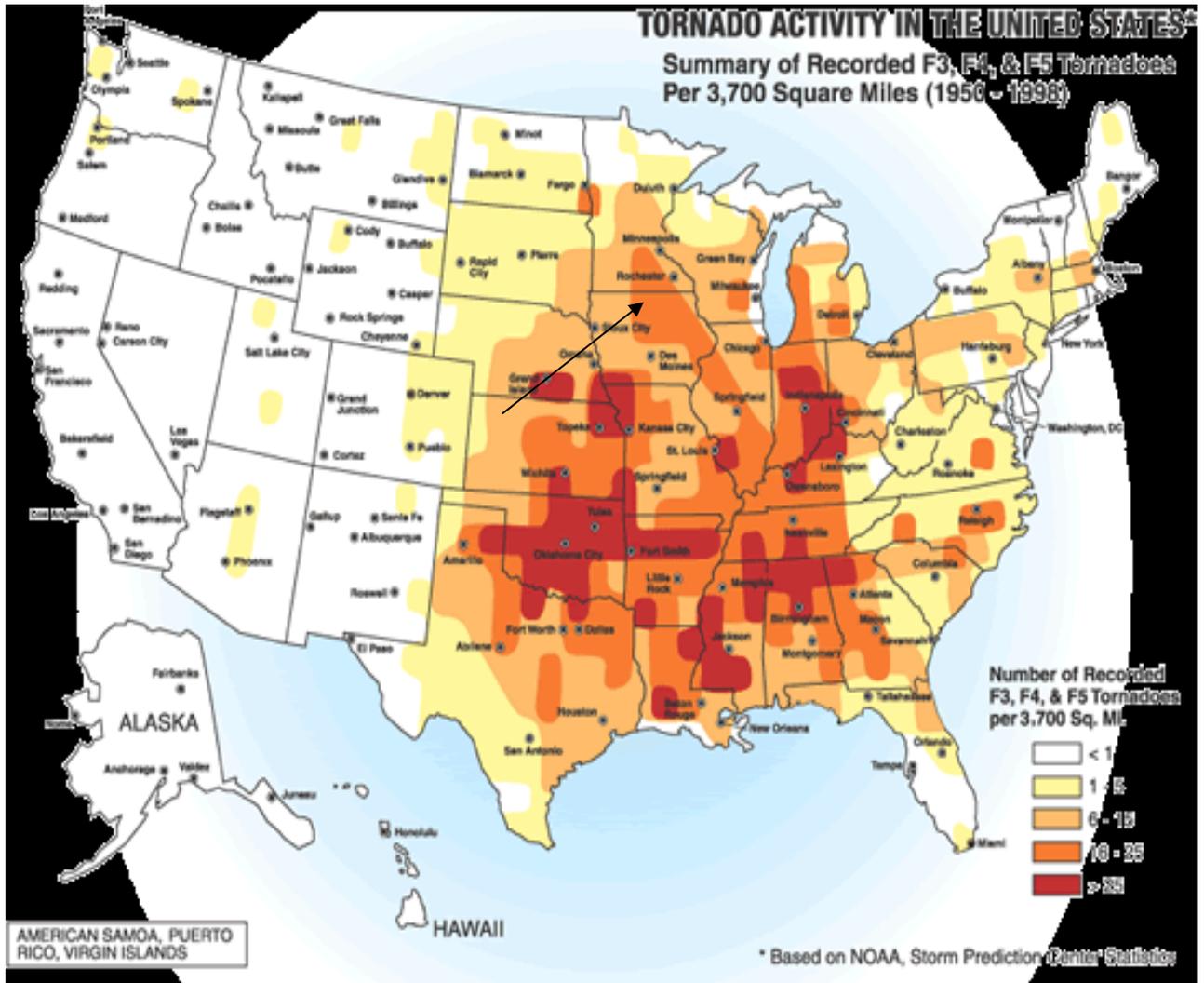
The planning committee determined that the probability that a damaging tornado will occur in Kossuth County is likely in any given year.

Hazard	Tornado	Score
Probability	In the US, Iowa is ranked third in the number of tornadoes per 10,000 square miles. Between 1964 and 2011 there have been 36 tornado events in Kossuth County causing 2 deaths 42 injuries, \$1,751,300 in property damage, and \$93,500 in crop damage. On average Kossuth County has a 35% chance in any given year to experience a tornado. However, the planning committee determined that a severe damaging tornado will likely occur in Kossuth County in any given year.	3
Magnitude/ Severity	<p>Those most at risk from tornadoes include people living in mobile homes, campgrounds, and other dwellings without secure foundations or basements. People in automobiles are also very vulnerable to twisters. The elderly, very young, and physically and mentally handicapped are most vulnerable because of the lack of mobility to escape the path of destruction. People who may not understand watches and warnings due to language barriers are also at risk.</p> <p>Generally the destructive path of a tornado is only a couple hundred feet in width, but stronger tornadoes can leave a path of devastation up to a mile wide. Normally a tornado will stay on the ground for no more than 20 minutes; however, one tornado can touch ground several times in different areas. Large hail, strong straight-line winds, heavy rains, flash flooding, and lightning are also associated with severe storms and may cause significant damage to a wider area.</p> <p>Impacts can range from broken tree branches, shingle damage to roofs, and some broken windows; all the way to complete destruction and disintegration of well-constructed structures, infrastructure, and trees. Tornadoes can impact many critical services, mainly electrical power. Buried services are not as vulnerable, but can be affected by their system components that are above ground.</p>	2

	<p>Whole towns have been known to be “wiped off the map.” Economic impacts can result from direct damages to facilities or business disruption from the lack of critical services such as power, gas, or water.</p> <p>Currently the severity of tornadoes is measured by intensity based upon the Enhanced Fujita Scale.</p> <p>The severity of a tornado is measured by using 5 different factors.</p> <ol style="list-style-type: none"> <li>1. The size of the tornado, with an EF-5 tornado being the most severe.</li> <li>2. The amount of time a tornado stays on the ground.</li> <li>3. The time of day will determine the number of people in vehicles.</li> <li>4. The location within the county the tornado hits.</li> <li>5. The density of the population at the point of impact.</li> </ol>	
Warning Time	Tornadoes strike with an incredible velocity. Wind speeds may exceed 300 mph and the storm can travel across the ground at more than 70 mph. These winds can uproot trees and structures and turn harmless objects	4
Duration	The response to a tornado event is tied to responding to the immediate threat to life and property immediately following the tornado event and in the shelter of affected families and individuals.	1
	Final Weighted Score	2.65

Sources for Tornadoes	
NCDC	<a href="http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms">http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms</a>
FEMA	<a href="http://www.fema.gov/hazard/tornado/index.shtml">http://www.fema.gov/hazard/tornado/index.shtml</a>
NOAA National Weather Service	<a href="http://www.crh.noaa.gov/images/dmx/IowaTorClimatology.pdf">http://www.crh.noaa.gov/images/dmx/IowaTorClimatology.pdf</a>
FEMA Declared Disasters	<a href="http://www.fema.gov/femaNews/disasterSearch.do">http://www.fema.gov/femaNews/disasterSearch.do</a>

**FIGURE 9 – Tornado Activity in the US showing Kossuth County**



**TABLE 17 – Enhanced Fujita Scale**

EF Number	3-Second Gust(mph)	Description of Damage
0	65-85	<b>Light damage.</b> Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.
1	86-110	<b>Moderate damage.</b> Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads
2	111-135	<b>Considerable damage.</b> Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
3	136-165	<b>Severe damage.</b> Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
4	166-200	<b>Devastating damage.</b> Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.
5	Over 200	<b>Incredible damage.</b> Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yds); trees debarked; incredible phenomena will occur.

**TABLE 18 – Fujita Scale used prior to February 2007**

Scale	Wind Speed (MPH)	Typical Damage
<b>F-0</b>	< 73	Light damage. Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.
<b>F-1</b>	73-112	Moderate damage. Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads.
<b>F-2</b>	113-157	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
<b>F-3</b>	158-206	Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
<b>F-4</b>	207-260	Devastating damage. Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.
<b>F-5</b>	261+	Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yds); trees debarked; incredible phenomena will occur.

## **Transportation Incident**

This hazard encompasses the following hazards: air transportation incident, highway transportation, railway transportation, and waterway incident. This includes a transportation accident involving any mode of transportation that directly threatens life and which results in property damage and/or death(s)/injury(s) and/or adversely impacts a community's capabilities to provide emergency services.

An air transportation incident may involve a military, commercial, or private aircraft. Air transportation is playing a more prominent role in transportation as a whole; airplanes, helicopters, and other modes of air transportation are used to transport passengers, goods, services for business and recreation. A variety of circumstances can result in an air transportation incident; mechanical failure, pilot error, enemy attack, terrorism, weather conditions, and on-board fire can all lead to an incident at or near the airport. Air transportation incidents can occur in remote unpopulated areas, residential areas, or downtown business districts, incidents involving military, commercial, or private aircraft can also occur while the aircraft is on the ground.

Kossuth County has one known airport, located outside of Algona. The Algona Municipal Airport has one paved runway (3,960ft) and one grass runway (2,880ft). The airport is a general aviation airport. No commercial services are offered at the airport. Anyplace in Kossuth County could experience a significant air transportation incident; the most likely scenarios exist near airports.

More and more people are utilizing air travel now than in the past; the trend of increasing numbers of people flying is likely to continue as will the crowdedness of airports and the skies above Iowa. Despite the increase in the number of people using air travel, incidents that require response personnel and involve casualties are likely to continue to decrease in number due to increases in the quality of training, equipment, and safety. Proper land-use near the airport will also decrease the chance that people and property on the ground will suffer significant impacts in the event of an air transportation accident.

The planning committee determined that a serious air transportation incident in Kossuth County as unlikely in any given year.

A highway transportation incident can be single or multi-vehicle requiring responses exceeding normal day-to-day capabilities. An extensive surface transportation network exists in Iowa; local residents, travelers, business, and industry rely on this network on a daily basis. Hundreds of thousands of trips a day are made on the streets, roads, and highways of Kossuth County. The design capacity of the roadway if exceeded has the potential for increasing the occurrences of a serious highway incident. Weather conditions play a major role in the ability of traffic to flow safely in and through the county as does the time of day and day of week and time of the year (planting and harvest). Incidents involving busses and other high-occupancy vehicles could trigger a response that exceeds the normal day-to-day capabilities of local response agencies.

Between 2004 and 2008 (latest data available) in Kossuth County there were 387 vehicle crashes, 4 were fatal, 20 were classified as major, 59 were classified as minor, 65 possible/unknown, and 239 property damage only. Out of these 387 crashes there were 199 injuries, 4 fatalities, 23 major injuries, 81 minor injuries, and 91 possible or unknown injuries.

Although traffic engineering, inspection of traffic facilities, land use management of adjacent areas to roads and highways, and the readiness of local response agencies has increased, highway incidents continue to occur. As the volume of traffic on Iowa streets, highways, and interstates increase, the number of traffic accidents will increase. The combination of large numbers of people on the road, unpredictable weather conditions, potential mechanical problems, and human error create the potential for a transportation accident.

The planning committee evaluated the probability of a serious highway transportation incident occurring in Kossuth County is likely to occur in any given year.

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

According to the Federal Railroad Administration Office of Safety Analysis there have been 2 incidents; one in 2004 not causing any injuries or deaths and one in 2006 causing one fatality, this incident happened at a public railroad crossing. With street and highway crossings the probability of an incident is more likely to happen. Derailments are also possible, while a major derailment would occur less frequently.

The planning committee determined the probability of a severe railroad accident (causing loss of life and/or release of hazardous materials) to be occasional to occur in any given year.

A waterway incident is an accident involving any water vessel that threatens life and/or adversely affects a community's capability to provide emergency services. Waterway incidents will primarily involve pleasure craft on rivers and lakes. In the event of an incident involving a water vessel, the greatest threat would be drowning, fuel spillage, and/or property damage. Water rescue events would largely be handled by first responding agencies. Waterway incidents may also include events in which a person, persons, or object falls through the ice on partially frozen bodies of water.

There have been no disasters causing waterway incidents in Iowa and Kossuth County. There have been search and rescue events involving a single person or small boats with

only a few people on board. There are no navigable waterways in Kossuth County that are used for commercial purposes.

The planning committee determined the probability of a serious waterway incident in Kossuth County is unlikely in any given year.

Hazard	Transportation Incident	Score
Probability	<p>Kossuth County has one known airport, located outside of Algona. The Algona Municipal Airport has one paved runway (3,960ft) and one grass runway (2,880ft). The airport is a general aviation airport. No commercial services are offered at the airport. Anyplace in Kossuth County could experience a significant air transportation incident; the most likely scenarios exist near airports.</p> <p>More and more people are utilizing air travel now than in the past; the trend of increasing numbers of people flying is likely to continue as will the crowdedness of airports and the skies above Iowa. Despite the increase in the number of people using air travel, incidents that require response personnel and involve casualties are likely to continue to decrease in number due to increases in the quality of training, equipment, and safety. Proper land-use near the airport will also decrease the chance that people and property on the ground will suffer significant impacts in the event of an air transportation accident.</p> <p>Between 2004 and 2008 (latest data available) in Kossuth County there were 387 vehicle crashes, 4 were fatal, 20 were classified as major, 59 were classified as minor, 65 possible/unknown, and 239 property damage only. Out of these 387 crashes there were 199 injuries, 4 fatalities, 23 major injuries, 81 minor injuries, and 91 possible or unknown injuries.</p> <p>Although traffic engineering, inspection of traffic facilities, land use management of adjacent areas to roads and highways, and the readiness of local response agencies has increased, highway incidents continue to occur. As the volume of traffic on Iowa streets, highways, and interstates increase, the number of traffic accidents will increase. The combination of large numbers of people on the road, unpredictable weather conditions, potential mechanical problems, and human error create the potential for a transportation accident.</p> <p>According to the Federal Railroad Administration Office of Safety Analysis there have been 2 incidents; one in 2009 causing an injury and one in 2011 not causing any injuries or deaths. With street and highway crossings the probability of an incident is more likely to happen. Derailments are also possible, while a major derailment would occur less frequently.</p> <p>There have been no disasters causing waterway incidents in Iowa and Kossuth County. There have been search and rescue events involving a single person or small boats with only a few people on board. There are no navigable waterways in Kossuth County that are used for commercial purposes.</p>	3

<p>Magnitude/ Severity</p>	<p>People aboard airplanes are the most vulnerable. Statistics from the National Transportation Safety Board and the airline industry show that the majority (over 75%) of airplane crashes and accidents occur during the takeoff or landing phases of a flight. As a result, developed areas adjacent to the airports and in airport flight paths are particularly vulnerable to this hazard. For areas away from the airport, a smaller percentage of the population would be directly in the area of impact. Because of the infrequency of aircraft in the skies above areas away from the airport, these areas would not be considered as vulnerable.</p> <p>A mentioned above, most accidents occur during takeoffs and landings. Accordingly, the spatial extent of the majority of incidents would occur on airport grounds or adjacent areas. Compared to many other hazards, an air transportation accident would occupy a relatively small area. The extent to which the impacts would be felt would depend on the materials involved. For example, if a cargo plan transporting volatile or hazardous materials were involved in an accident, the area of concern would be significantly larger than the area for an accident involving a small personal aircraft carrying stable materials.</p> <p>Users of surface transportation systems are the most vulnerable. Travelers, truckers, delivery personnel, and commuters are at risk at all times that they inhabit the roadway. Certain times of the day, week, and year the number of vehicles and people on the roadway are significantly higher. This is also true after major public events; sports, concerts, etc. Pedestrians are less vulnerable but not immune from the impacts of a highway incident.</p> <p>Highway incidents are usually contained to areas on the roadway or directly adjacent to the roadway. Very few highway incidents affect areas outside the traveled portion of the road and the right-of-way. Extensive segments of the transportation system can be impacted during significant weather events, such as a large snowstorm, when multiple separate accidents occur. The area of impact can extend beyond the localized areas if the vehicle(s) involved transporting hazardous materials.</p> <p>People and property near railway lines, crossings, sidings, switching yards, and loading/unloading points are more at risk. Those away from railways and facilities are vulnerable only to large-scale incidents including those in which hazardous material are involved.</p> <p>The railways that traverse Kossuth County include the UP (Union Pacific). These railways provide services to haul grain, chemicals, farm equipment and ethanol from the producers of these materials in Kossuth County. The railways go through the towns of Lake Mills and Scarville. There is a railway spur that ends in Forest City that is no longer active. Harmful products may contaminate streams, rivers, lakes, and entire watersheds. If this would happen a large portion of the community or county could be affected. The ability of response personnel to contain the product on-scene usually limits the area affected.</p> <p>Passengers of watercraft are vulnerable to a waterway incident. The</p>	<p>3</p>
--------------------------------	--	----------

	maximum extent of a waterway incident would be limited. Impacts would not extend beyond the initial incident scene. The only exception would be during a search and rescue event that could expand downstream. In the case of a hazardous material being released to the waterway the extent could expand rapidly.	
Warning Time	The amount of warning time for a transportation incident could vary from tens of minutes to a few seconds. Operators of aircraft, vehicles, trains, and watercraft are affected by the road conditions and weather. There is not enough ample warning time attributed to these hazards.	4
Duration	Instances of transportation incidents, particularly rail, air and waterway related hazards are likely to create more intensive response and resources to protect life and safety of those affected.	2
Final Weighted Score		3.05

Sources for Transportation Incident	
US DOT	<a href="http://hazmat.dot.gov/">http://hazmat.dot.gov/</a>
Federal Railroad Administration	<a href="http://fra.dot.gov/safety/hazmat.htm">http://fra.dot.gov/safety/hazmat.htm</a>
NTSB	<a href="http://www.nts.gov/">http://www.nts.gov/</a>
Federal Aviation Administration	<a href="http://www.faa.gov/">http://www.faa.gov/</a>
Iowa Crash Statistics	<a href="http://ai.fmcsa.dot.gov/CrashProfile/StateCrashProfileMain.asp?StCd=IA">http://ai.fmcsa.dot.gov/CrashProfile/StateCrashProfileMain.asp?StCd=IA</a>
IDNR	<a href="http://www.iowadnr.gov/law/boating/index.html">http://www.iowadnr.gov/law/boating/index.html</a>

## Windstorm

Windstorms can be described as extreme winds associated with severe winter storms, severe thunderstorms, downburst, and very steep pressure gradients. Windstorms, other than tornadoes, are experienced in all regions of the United States. It is difficult to separate the various wind components that cause damage from other wind-related natural events that often occur with or generate windstorms.

Although Iowa does not experience direct impacts from hurricanes, the state is no stranger to strong, damaging winds. Unlike tornadoes, windstorms may have a destructive path that is tens of miles wide and the duration of the event could range from hours to days. These events can produce straight line winds in excess of 64 knots causing some power outages, property damage, impaired visibility, and crop damage.

Windstorms occur in Kossuth County. Historically, windstorm events are associated with severe thunderstorms and blizzards. It is often difficult to separate windstorms and tornado damage when winds get above 64 knots (73MPH).

The NWS has developed a windstorm warning system similar to other events such as, tornado, winter storm, and thunderstorm. Watches are issued when conditions are favorable for windstorms to develop and they come 12 to 24 hours in advance. Advisories are issued when existing or imminent windstorms cover part or all of the area and pose a mere inconvenience. Windstorm warnings are issued when existing or imminent high winds cover part or all of the forecast area and pose a threat to life and property.

According to NCDC data there are no reports of strong wind events, although as mentioned above it is hard to separate wind events from thunderstorms and tornados. According to the 2010 State of Iowa Hazard Mitigation Plan Kossuth County has experienced between 36-43 events since 1993.

The planning committee determined that the probability of a windstorm event in Kossuth County as highly likely to occur in any given year.

Hazard	Windstorm	Score
Probability	Windstorms occur in Kossuth County. Historically, windstorm events are associated with severe thunderstorms and blizzards. It is often difficult to separate windstorms and tornado damage when winds get above 64 knots (73MPH).  According to NCDC data there are no reports of strong wind events, although as mentioned above it is hard to separate wind events from thunderstorms and tornados. According to the 2010 State of Iowa Hazard Mitigation Plan Kossuth County has experienced between 36-43 events since 1993.	4

Magnitude/ Severity	<p>Those most at risk from windstorms include living in mobile homes, campgrounds, and other dwellings without secure foundations or basements. People in automobiles are also very vulnerable to wind storms, particularly tornadoes. The elderly, very young, and the physically and mentally handicapped are most vulnerable because of the lack of mobility to seek shelter or escape the path of destruction. People who may not understand watches and warnings due to language barriers are also at risk.</p> <p>Unlike tornadoes, windstorms may have a destructive path that is tens of miles wide and several hundred miles long. 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.</p> <p>Disruption of critical services can also affect operations. Employees may be affected and unable to attend work-related issues. Impacts can range from broken tree branches, shingle damage to roofs, and some broken windows; all the way to complete destruction of well-constructed structures, infrastructure, and trees.</p> <p>Windstorms can affect many critical services, especially electrical power. Buried services are not as vulnerable, but can be affected by their system components that are above ground.</p> <p>Economic impacts can result from direct damages to facilities or business disruption from the lack of critical services such as power. Crop damage is often associated with windstorms; laying down crops, breaking stalks, and twisting plants, reducing the yield and making it difficult to harvest.</p>	2
Warning Time	<p>Wind speeds may approach 120 miles per hour and the storm can travel across the ground at more than 50 mph. These winds can uproot trees and structures and turn harmless objects into deadly missiles, all in a matter of seconds. The development of conditions suitable for high and strong wind events is available a day in advance. The advancement in weather forecasting has allowed watches to be delivered to those in the path of these storms up to hours in advance. The best warning lead-time for a specific severe storm is about 30 minutes.</p>	4
Duration	<p>The response tied to windstorm events is one directly related to the immediate protection of vulnerable populations from the direct threat to life and property. Response time is limited to event duration and immediate impact.</p>	1
Final Weighted Score		3.1

Sources for Windstorms	
NCDC	<a href="http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms">http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms</a>
FEMA	<a href="http://www.fema.gov/hazard/tornado/index.shtm">http://www.fema.gov/hazard/tornado/index.shtm</a>

**TABLE 19 – 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 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 1-4ft. 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 walking against wind
8	34-30	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 walking against wind
9	41-47	Strong Gale	High waves (20 ft), sea begins to roll, dense streaks of foam, spray may reduce visibility	Slight structural damage 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	

## HAZARDS NOT CONSIDERED

There are many hazards that are identified by the Federal Emergency Management Agency and the State of Iowa that do not apply to Kossuth County or were not considered to be profiled by the Kossuth Planning Committee. The following table identifies the hazards that are not included in this plan and the reason they were excluded.

**TABLE 20 – Excluded Hazards**

<b>Hazard Excluded</b>	<b>Reasoning</b>
<b>Expansive Soils</b>	Expansive soils hazard and risk information provided by Iowa HLSEM, the Multi-Hazard Identification and Risk document, USGS, and the Kossuth County Emergency Management Coordinator indicated the level of risk associated with expansive soils was slight with little swelling clay potential.
<b>Landslide</b>	Minor landslides and rock falls do occur in Kossuth County. Due to the geography and incident rate information provided by HLSEM, that any landslide that may occur is only going to be small and cause only minor damage with no threats to human safety and minimal threats to property.
<b>Levee Failure</b>	Levee failure is not considered because according to the United States Army Corps of Engineers (USACE) there is no levee protecting any portion of Kossuth County or jurisdiction located within Kossuth County.
<b>Dam Failure</b>	Dam failure is not being profiled due to any known high-hazard dams being located in the county, according to IHSEMD. All dams that are located in the Kossuth County are of the low-head type. Low-head dams do not hold water back in a reservoir they were mostly used for grain milling in the late 1800's and now provides stream flow stabilization.
<b>Sink Holes</b>	Not profiled due to no or low occurrence in the county according to the committee. Measures are in place for rescue due to a sink hole if necessary.

## HAZARD SCORING SUMMARY

The Kossuth County hazard mitigation planning committee reviewed discussed and scored all of the hazards that might impact the county. The chart that follows shows a breakdown of the scoring for each hazard that was identified. The following tables show the scoring summary for Kossuth County and its jurisdictions. Jurisdictions scored some of the hazards different than the county and that is reflected in that particular jurisdictions table, also some communities elected to not score some of the hazards and their justification is listed after each respective hazard. The weighted score is calculated by using the following formula: (Probability x .45) + (Magnitude/Severity x .30) + (Warning Time x .15) + (Duration x .10) = Final Hazard Assessment Score

**TABLE 21 – Kossuth County Hazard Score**

Hazard	Probability	Magnitude / Severity	Warning Time	Duration	Total Score	Weighted Score
A/P/C Disease	2	3	2	4	11	2.50
Drought	2	2	1	4	9	2.05
Earthquake	1	2	4	1	8	1.75
Extreme Heat	4	2	1	3	10	2.85
Flash Flood	3	2	3	2	10	2.60
Grass or Wildland Fire	The Kossuth County planning committee determined that Grass or Wild land Fire would not be profiled for the county due to current measures being undertaken and the low probability of occurrences and potential future occurrences, as this hazard is also covered by each jurisdictions participating fire department.					
Hailstorm	3	2	4	1	10	2.65
Hazardous Materials	2	2	4	3	11	2.40
Human Disease	2	3	2	4	11	2.50
Infrastructure Failure	3	3	4	4	14	3.25
Radiological	1	2	4	2	9	1.85
River Flooding	4	2	2	3	11	3.00
Severe Winter Storm	4	3	2	3	12	3.30
Terrorism	1	3	4	3	11	2.25
Thunderstorms and Lightning	4	2	4	2	12	3.20
Tornado	3	2	4	1	10	2.65
Transportation Incident	4	1	4	2	11	2.90
Windstorm	2	2	4	2	10	2.30

**TABLE 22 – Algona/Algona Community School District (CSD) Hazard Score**

The Algona planning committee determined to score fire and explosion and include that from their previous plan. The fire and explosion score was integrated with the infrastructure failure score and a new score was made. The Algona Community School District accepts the scores and risk assessment located on page 89 and 102 respectively.

Hazard	Probability	Magnitude / Severity	Warning Time	Duration	Total Score	Weighted Score
A/P/C Disease	2	2	1	4	9	2.05
Drought	2	2	1	4	9	2.05
Earthquake	1	1	4	1	7	1.45
Extreme Heat	4	2	1	4	11	2.95
Flash Flood	3	1	3	2	9	2.3
Grass or Wildland Fire	1	1	4	1	7	1.45
Hailstorm	3	2	4	1	10	2.65
Hazardous Materials	2	3	4	3	12	2.7
Human Disease	2	3	2	4	11	2.5
Infrastructure Failure	2	3	4	3	12	2.7
Radiological	1	2	4	2	9	1.85
River Flooding	4	1	3	4	12	2.95
Severe Winter Storm	4	1	1	3	9	2.55
Terrorism	1	3	4	3	11	2.25
Thunderstorms and Lightning	4	2	4	2	12	3.2
Tornado	3	3	4	1	11	2.95
Transportation Incident	4	1	4	3	12	3
Windstorm	4	2	4	2	12	3.2

**TABLE 23 – Bancroft Hazard Score**

Hazard	Probability	Magnitude / Severity	Warning Time	Duration	Total Score	Weighted Score
A/P/C Disease	2	2	1	3	8	1.95
Drought	2	2	1	4	9	2.05
Earthquake	1	1	4	1	7	1.45
Extreme Heat	4	2	1	4	11	2.95
Flash Flood	2	1	3	2	8	1.85
Grass or Wildland Fire	1	1	4	1	7	1.45
Hailstorm	3	2	4	1	10	2.65
Hazardous Materials	2	3	4	2	11	2.6
Human Disease	2	3	2	4	11	2.5
Infrastructure Failure	1	2	4	3	10	1.95
Radiological	1	2	4	2	9	1.85
River Flooding					0	0
Severe Winter Storm	4	1	1	3	9	2.55
Terrorism	1	3	4	3	11	2.25
Thunderstorms and Lightning	4	2	4	2	12	3.2
Tornado	2	3	4	3	12	2.7
Transportation Incident	1	1	4	3	9	1.65
Windstorm	4	1	4	2	11	2.9

**TABLE 24 – Burt Hazard Score**

Hazard	Probability	Magnitude / Severity	Warning Time	Duration	Total Score	Weighted Score
A/P/C Disease	2	3	2	4	11	2.5
Drought	2	2	1	4	9	2.05
Earthquake	1	2	4	1	8	1.75
Extreme Heat	4	2	1	3	10	2.85
Flash Flood	3	2	4	2	11	2.75
Grass or Wildland Fire	1	1	4	1	7	1.45
Hailstorm	3	2	4	1	10	2.65
Hazardous Materials	3	3	4	4	14	3.25
Human Disease	2	3	2	4	11	2.5
Infrastructure Failure	3	3	4	4	14	3.25
Radiological	1	2	4	2	9	1.85
River Flooding						
Severe Winter Storm	4	3	2	3	12	3.3
Terrorism	1	3	4	3	11	2.25
Thunderstorms and Lightning	4	2	4	2	12	3.2
Tornado	3	2	4	1	10	2.65
Transportation Incident	4	1	4	2	11	2.9
Windstorm	4	3	4	2	13	3.5

**TABLE 25 – Fenton Hazard Score**

Hazard	Probability	Magnitude / Severity	Warning Time	Duration	Total Score	Weighted Score
A/P/C Disease	2	3	2	4	11	2.5
Drought	2	2	1	4	9	2.05
Earthquake	1	2	4	1	8	1.75
Extreme Heat	4	2	1	3	10	2.85
Flash Flood	3	2	3	3	11	2.7
Grass or Wildland Fire	1	1	4	1	7	1.45
Hailstorm	3	2	4	1	10	2.65
Hazardous Materials	1	2	4	3	10	1.95
Human Disease	2	3	4	4	13	2.8
Infrastructure Failure	3	3	4	4	14	3.25
Radiological	1	2	4	2	9	1.85
River Flooding						
Severe Winter Storm	4	3	2	3	12	3.3
Terrorism	1	3	4	3	11	2.25
Thunderstorms and Lightning	4	2	4	2	12	3.2
Tornado	3	4	4	1	12	3.25
Transportation Incident	1	1	4	2	8	1.55
Windstorm	2	2	4	2	10	2.3

**TABLE 26 – Lakota Hazard Score**

Hazard	Probability	Magnitude / Severity	Warning Time	Duration	Total Score	Weighted Score
A/P/C Disease						
Drought	2	2	1	4	9	2.05
Earthquake	1	2	4	1	8	1.75
Extreme Heat	4	2	1	4	11	2.95
Flash Flood	3	3	4	3	13	3.15
Grass or Wildland Fire	3	3	4	2	12	3.05
Hailstorm	4	3	4	1	12	3.4
Hazardous Materials	2	4	4	4	14	3.1
Human Disease	2	2	4	4	12	2.5
Infrastructure Failure	4	3	4	4	15	3.7
Radiological	1	2	4	2	9	1.85
River Flooding	4	2	2	3	11	3
Severe Winter Storm	4	3	4	3	14	3.6
Terrorism	1	4	4	1	10	2.35
Thunderstorms and Lightning	4	2	4	2	12	3.2
Tornado	3	4	4	1	12	3.25
Transportation Incident	2	3	4	2	11	2.6
Windstorm	2	2	4	3	11	2.4

**TABLE 27 – Ledyard Hazard Score**

Hazard	Probability	Magnitude / Severity	Warning Time	Duration	Total Score	Weighted Score
A/P/C Disease	2	3	2	4	11	2.5
Drought	2	2	1	4	9	2.05
Earthquake						
Extreme Heat	4	2	1	3	10	2.85
Flash Flood	1	2	3	2	8	1.7
Grass or Wildland Fire	1	2	4	1	8	1.75
Hailstorm	3	2	4	1	10	2.65
Hazardous Materials	2	2	4	3	11	2.4
Human Disease	2	3	2	4	11	2.5
Infrastructure Failure	3	3	4	4	14	3.25
Radiological						
River Flooding						
Severe Winter Storm	4	3	2	3	12	3.3
Terrorism						
Thunderstorms and Lightning	4	2	4	2	12	3.2
Tornado	3	2	4	1	10	2.65
Transportation Incident	2	1	4	2	9	2
Windstorm	2	2	4	2	10	2.3

**TABLE 28 – Lone Rock Hazard Score**

Hazard	Probability	Magnitude / Severity	Warning Time	Duration	Total Score	Weighted Score
A/P/C Disease						
Drought	2	2	1	4	9	2.05
Earthquake						
Extreme Heat	4	2	1	3	10	2.85
Flash Flood	2	2	3	2	9	2.15
Grass or Wildland Fire						
Hailstorm	3	2	4	1	10	2.65
Hazardous Materials	2	3	4	3	12	2.7
Human Disease	1	2	2	4	9	1.75
Infrastructure Failure	2	3	4	4	13	2.8
Radiological						
River Flooding						
Severe Winter Storm	4	2	2	3	11	3
Terrorism						
Thunderstorms and Lightning	4	2	4	2	12	3.2
Tornado	3	2	4	1	10	2.65
Transportation Incident	2	1	4	2	9	2
Windstorm	2	2	4	2	10	2.3

**TABLE 29 – LuVerne Hazard Score**

Hazard	Probability	Magnitude / Severity	Warning Time	Duration	Total Score	Weighted Score
A/P/C Disease						
Drought						
Earthquake						
Extreme Heat	3	1	1	3	8	2.1
Flash Flood	1	1	4	2	8	1.55
Grass or Wildland Fire						
Hailstorm	2	2	4	1	9	2.2
Hazardous Materials	3	3	4	3	13	3.15
Human Disease	2	3	2	4	11	2.5
Infrastructure Failure	3	2	4	4	13	2.95
Radiological	1	2	4	2	9	1.85
River Flooding						
Severe Winter Storm	4	2	2	3	11	3
Terrorism	1	3	4	3	11	2.25
Thunderstorms and Lightning	4	2	4	2	12	3.2
Tornado	3	4	4	1	12	3.25
Transportation Incident	4	1	4	2	11	2.9
Windstorm	3	3	4	2	12	3.05

**TABLE 30 – Swea City Hazard Score**

Hazard	Probability	Magnitude / Severity	Warning Time	Duration	Total Score	Weighted Score
A/P/C Disease						
Drought						
Earthquake	1	2	4	1	8	1.75
Extreme Heat	3	2	1	3	9	2.4
Flash Flood	1	3	3	3	10	2.1
Grass or Wildland Fire						
Hailstorm	3	2	4	1	10	2.65
Hazardous Materials	3	3	4	3	13	3.15
Human Disease	2	3	2	4	11	2.5
Infrastructure Failure	3	3	4	4	14	3.25
Radiological	1	2	4	2	9	1.85
River Flooding						
Severe Winter Storm	4	3	2	3	12	3.3
Terrorism						
Thunderstorms and Lightning	4	2	4	2	12	3.2
Tornado	3	2	4	1	10	2.65
Transportation Incident	4	2	4	2	12	3.2
Windstorm	2	2	4	2	10	2.3

**TABLE 31 – Titonka Hazard Score**

Hazard	Probability	Magnitude / Severity	Warning Time	Duration	Total Score	Weighted Score
A/P/C Disease						
Drought	2	2	1	4	9	2.05
Earthquake	1	3	4	1	9	2.05
Extreme Heat	4	1	1	3	9	2.55
Flash Flood	1	2	4	3	10	1.95
Grass or Wildland Fire	1	1	4	1	7	1.45
Hailstorm	3	2	4	1	10	2.65
Hazardous Materials	2	2	4	3	11	2.4
Human Disease	1	3	1	4	9	1.9
Infrastructure Failure	3	3	4	4	14	3.25
Radiological						
River Flooding	3	2	2	3	10	2.55
Severe Winter Storm	4	3	2	3	12	3.3
Terrorism						
Thunderstorms and Lightning	4	2	4	2	12	3.2
Tornado	3	4	4	1	12	3.25
Transportation Incident	1	1	4	1	7	1.45
Windstorm	1	2	4	2	9	1.85

**TABLE 32 – Wesley Hazard Score**

Hazard	Probability	Magnitude / Severity	Warning Time	Duration	Total Score	Weighted Score
A/P/C Disease	2	2	2	4	10	2.2
Drought	2	2	1	4	9	2.05
Earthquake						
Extreme Heat	4	2	1	3	10	2.85
Flash Flood	2	2	3	3	10	2.25
Grass or Wildland Fire						
Hailstorm	2	2	4	1	9	2.2
Hazardous Materials	3	2	4	3	12	2.85
Human Disease	2	2	2	4	10	2.2
Infrastructure Failure	3	3	4	4	14	3.25
Radiological						
River Flooding						
Severe Winter Storm	4	3	2	3	12	3.3
Terrorism						
Thunderstorms and Lightning	4	2	4	2	12	3.2
Tornado	3	3	4	1	11	2.95
Transportation Incident	4	1	4	2	11	2.9
Windstorm	2	2	4	2	10	2.3

**TABLE 33 – Whittemore Hazard Score**

Hazard	Probability	Magnitude / Severity	Warning Time	Duration	Total Score	Weighted Score
A/P/C Disease						
Drought						
Earthquake	1	3	4	1	9	2.05
Extreme Heat						
Flash Flood	2	2	3	2	9	2.15
Grass or Wildland Fire						
Hailstorm	3	3	4	1	11	2.95
Hazardous Materials	2	2	4	3	11	2.4
Human Disease	1	3	2	4	10	2.05
Infrastructure Failure	1	4	4	4	13	2.65
Radiological						
River Flooding						
Severe Winter Storm	4	2	2	3	11	3
Terrorism	1	3	4	3	11	2.25
Thunderstorms and Lightning	4	2	4	2	12	3.2
Tornado	3	4	4	1	12	3.25
Transportation Incident	1	1	4	2	8	1.55
Windstorm						

## HAZARD PRIORITIZATION/RISK ASSESSMENT AND VULNERABILITY

Hazard Mitigation planning committee has scored and identified the hazards affecting their community. They examined each hazard in relation to the risk it posed to the county. The committee then gave each identified hazard a priority level. The weighted score served to give the committee a basis to put the hazards in a priority level which then determined which mitigation measures to put with each hazard. The following tables show the priority levels for each jurisdiction starting with the County. Priority Group 1 hazards are candidates for immediate focus in the emergency plans because of their high risk. Priority Group 2 hazards are those hazards that should be addressed, but are longer-term in focus. These are low-risk hazards that can affect the community, but will not be addressed immediately. Priority Group 3 hazards are those that have an acceptable level of risk. In the happenstance that the weighted score is the same between two or more hazards the hazards are listed in alphabetical order.

The Hazard Analysis and Risk Assessment (HARA) is a product developed to provide an overview and analysis of the county's vulnerability to hazards. This plan used Census 2010 data, American Community Survey data 2005-2009, Kossuth County Abstract of Assessment for 2012. Development patterns in the County primarily are concentrated in Forest City and Lake Mills, rural areas of the county continue to decline in population. To assess the 16 identified hazards, a methodology was established to account for how hazards impacted the county or could potentially impact the county. The HARA is the process of measuring the potential loss of life, personal injury, economic injury, and property damage resulting from hazards by assessing:

- Probability – The likelihood of the hazard occurring in any given year while also incorporating any available data on historical occurrences.
- Magnitude/Severity – Measure of severity in terms of injuries and fatalities, personal property, and infrastructure and the extent with which the hazard affects the county.
- Warning Time – The potential amount of warning time that is available before the hazard occurs.
- Duration – A measure of the amount of time that the hazard will affect the county.

The hazard analysis and risk assessment process sought to strike a balance between evaluation criteria. An example would be the evaluation of low probability-high impact events versus high probability-low impact events. Each category of a particular hazard is rated on a scale of one through four. Totaling the categorical ratings and averaging the scores provide an overall score in the range of 1.0 to 4.0.

The methodology includes a scoring guide, which was used by the Kossuth Planning Committee and each jurisdictions planning committee to help obtain a proper assessment for each of the hazards in a countywide context. A scale of one through four was used in all of the scoring guide tables because of the large variation in historical occurrences, probabilities, percentages of vulnerabilities, percentage of spatial extent, the number of casualties, or the value of property damaged. Often this data was not available or would

have been impossible to extract from aggregate data. Using this scale provided the best option for comparison of vastly different types of hazards.

Using a quantifiable system as described above gives more detail and still allows for adjustments when necessary. The idea of weighing comes from the State of Iowa 2010 Hazard Mitigation Plan. The committee determined that it was easier to use the State’s method than create their own. To determine loss estimates from the hazards the committee determined to use the State of Iowa Hazard Mitigation Plan dated 2010. The following table has the loss estimates by hazard for Kossuth County.

**TABLE 34 – Annual Loss Estimation by Natural Hazard**

County	Flood	Drought	Crop Loss	Extreme Heat	Extreme Cold	Hail
Kossuth	\$12,386,647	\$2,033,031	\$1,414,811	\$3,000	\$283,375	\$71,562
County	Snow & Ice	Tornado	Lightning	Thunderstorm	Windstorm	
Kossuth	\$27,168	\$1,040,716	\$3,764	\$145,352	\$82,045	

Under the section Inventory of Assets which follows this section provides vulnerability in the terms of property and values of said property. These values are for the whole county and would be representative of total loss. The committee understands not any one hazard will cause a complete destruction of assets. The committee determined and agreed to the annual loss estimation by natural hazard that was stated in the State of Iowa’s Hazard Mitigation Plan for Kossuth County. The numbers represented in the above table are acceptable to the Kossuth County planning committee.

**TABLE 35 – Hazard Priority for Kossuth County**

No known structures could be found within a SFHA according to FIRMs and BING Maps. Flash Flooding event of 2000- Some of the heaviest rainfall occurred in southern Kossuth County, where as much as 10 inches of rain was measured. About 40 homes in the town of LuVerne were damaged by the wind driven rain with numerous basements flooded. Nearly all of the county blacktop roads were under water at one point.

Hazard Analysis Ranking	Hazard	Weighted Score Total	Priority
1	Severe Winter Storm	3.30	1
2	Infrastructure Failure	3.25	
3	Thunderstorms and Lightning	3.20	
4	River Flooding	3.00	
5	Transportation Incident	2.90	
6	Extreme Heat	2.85	2
7	Hailstorm	2.65	
8	Tornado	2.65	
9	Flash Flood	2.60	
10	A/P/C Disease	2.50	
11	Human Disease	2.50	3
12	Hazardous Materials	2.40	
13	Windstorm	2.30	
14	Terrorism	2.25	
15	Drought	2.05	
16	Radiological	1.85	
17	Earthquake	1.75	

**TABLE 36 – Hazard Priority for Algona/Algona CSD**

Algona has approximately 15 commercial structures located in the SFHA according to the FIRM and BING maps. There are no school structures located within the SFHA and the Algona School District accepts the assessment of the City of Algona.

Flash Flooding event of 1998- Three to five inches of rain occurred in Sac and parts of Kossuth Counties as well. Flash Flooding event of 2005- Flooding was less severe in Kossuth County, however the flooding took place in and around the town of Algona. Flash Flooding 2010-Trained spotter reported flooding on Blackford and Overmeyer Roads with water flowing.

Hazard Analysis Ranking	Hazard	Weighted Score Total	Priority
1	Thunderstorms and Lightning	3.2	1
2	Windstorm	3.2	
3	Transportation Incident	3	
4	Extreme Heat	2.95	
5	River Flooding	2.95	
6	Tornado	2.95	
7	Hazardous Materials	2.7	2
8	Infrastructure Failure	2.7	
9	Hailstorm	2.65	
10	Severe Winter Storm	2.55	
11	Human Disease	2.5	
12	Flash Flood	2.3	
13	Terrorism	2.25	3
14	A/P/C Disease	2.05	
15	Drought	2.05	
16	Radiological	1.85	
17	Earthquake	1.45	
18	Grass or Wild land Fire	1.45	

**TABLE 37 – Hazard Priority for Bancroft**

Approximately 9 residential structures could be found within a SFHA according to FIRMs and BING Maps. River Flooding was eliminated in Bancroft due to no river present within the community. Flash Flooding-2008 Black Cat Creek was flowing over Highway 169 and was under water between Burt and Bancroft.

Hazard Analysis Ranking	Hazard	Weighted Score Total	Priority
1	Thunderstorms and Lightning	3.2	1
2	Extreme Heat	2.95	
3	Windstorm	2.9	
4	Tornado	2.7	
5	Hailstorm	2.65	
6	Hazardous Materials	2.6	2
7	Severe Winter Storm	2.55	
8	Human Disease	2.5	
9	Terrorism	2.25	
10	Drought	2.05	
11	A/P/C Disease	1.95	3
12	Infrastructure Failure	1.95	
13	Flash Flood	1.85	
14	Radiological	1.85	
15	Transportation Incident	1.65	
16	Earthquake	1.45	
17	Grass or Wild land Fire	1.45	

**TABLE 38 – Hazard Priority for Burt**

River flooding was eliminated due to no river being present within the community. Flash Flooding-2008 Black Cat Creek was flowing over Highway 169 and was under water between Burt and Bancroft.

Hazard Analysis Ranking	Hazard	Weighted Score Total	Priority
1	Windstorm	3.5	1
2	Severe Winter Storm	3.3	
3	Hazardous Materials	3.25	
4	Infrastructure Failure	3.25	
5	Thunderstorms and Lightning	3.2	
6	Transportation Incident	2.9	2
7	Extreme Heat	2.85	
8	Flash Flood	2.75	
9	Hailstorm	2.65	
10	Tornado	2.65	
11	A/P/C Disease	2.5	3
12	Human Disease	2.5	
13	Terrorism	2.25	
14	Drought	2.05	
15	Radiological	1.85	
16	Earthquake	1.75	
17	Grass or Wild land Fire	1.45	

**TABLE 39 – Hazard Priority for Fenton**

Approximately 2 residential structures could be found within a SFHA according to FIRMs and BING Maps. River flooding was eliminated due to no river being present within the community.

Hazard Analysis Ranking	Hazard	Weighted Score Total	Priority
1	Severe Winter Storm	3.3	1
2	Infrastructure Failure	3.25	
3	Tornado	3.25	
4	Thunderstorms and Lightning	3.2	
5	Extreme Heat	2.85	2
6	Human Disease	2.8	
7	Flash Flood	2.7	
8	Hailstorm	2.65	
9	A/P/C Disease	2.5	
10	Windstorm	2.3	
11	Terrorism	2.25	3
12	Drought	2.05	
13	Hazardous Materials	1.95	
14	Radiological	1.85	
15	Earthquake	1.75	
16	Transportation Incident	1.55	
17	Grass or Wild land Fire	1.45	

**TABLE 40 – Hazard Priority for Lakota**

A/P/C Disease was eliminated due to no known hazards present within the community and most types of this hazard occur outside the community. The community’s committee determined that it was best to eliminate it from their scoring sheet.

Hazard Analysis Ranking	Hazard	Weighted Score Total	Priority
1	Infrastructure Failure	3.7	1
2	Severe Winter Storm	3.6	
3	Hailstorm	3.4	
4	Tornado	3.25	
5	Thunderstorms and Lightning	3.2	
6	Flash Flood	3.15	
7	Hazardous Materials	3.1	2
8	Grass or Wild land Fire	3.05	
9	River Flooding	3	
10	Extreme Heat	2.95	
11	Transportation Incident	2.6	
12	Human Disease	2.5	
13	Windstorm	2.4	
14	Terrorism	2.35	3
15	Drought	2.05	
16	Radiological	1.85	
17	Earthquake	1.75	

**TABLE 41 – Hazard Priority for Ledyard**

Radiological was eliminated due to no known hazards passing near or through town, River Flooding was eliminated due to no river being present within town, Terrorism was eliminated due to no known targets or a very remote possibility to even be considered by the committee.

Hazard Analysis Ranking	Hazard	Weighted Score Total	Priority
1	Severe Winter Storm	3.3	1
2	Infrastructure Failure	3.25	
3	Thunderstorms and Lightning	3.2	
4	Extreme Heat	2.85	
5	Hailstorm	2.65	2
6	Tornado	2.65	
7	A/P/C Disease	2.5	
8	Human Disease	2.5	
9	Hazardous Materials	2.4	
10	Windstorm	2.3	
11	Drought	2.05	3
12	Transportation Incident	2	
13	Grass or Wild land Fire	1.75	
14	Flash Flood	1.7	

**TABLE 42 – Hazard Priority for Lone Rock**

A/P/C Disease, Earthquake, Grass or Wild land Fire, Radiological, River Flooding, and Terrorism were eliminated by the committee due to various reasons, River Flooding-no river present within the community; Grass or Wild land Fire-no grassland present within the community or outside the community; Radiological-no major transportation routes through the town that would present a threat; Earthquake-being located in seismic zone 0 according to USGS; Terrorism-eliminated due to no known targets or a very remote possibility to even be considered; A/P/C Disease due to current actions and most threats lie outside the community.

Hazard Analysis Ranking	Hazard	Weighted Score Total	Priority
1	Thunderstorms and Lightning	3.2	1
2	Severe Winter Storm	3	
3	Extreme Heat	2.85	
4	Infrastructure Failure	2.8	
5	Hazardous Materials	2.7	2
6	Hailstorm	2.65	
7	Tornado	2.65	
8	Windstorm	2.3	
9	Flash Flood	2.15	3
10	Drought	2.05	
11	Transportation Incident	2	
12	Human Disease	1.75	

**TABLE 43 – Hazard Priority for LuVerne**

A/P/C Disease, Drought, Earthquake, Grass or Wild land Fire, and River Flooding were eliminated due to various reasons. Grass or Wild land Fire was eliminated by the committee because they determined that the hazard was well under control due to current measures and training by local fire department and the lack of combustible material within the community; Drought was eliminated by the committee determining that drought even though it is experienced did not affect them to a degree as to score or discuss mitigation measures; Earthquake was eliminated due to community being located in seismic zone 0 according to the USGS; A/P/C Disease due to current measures and most threats lie outside the community; River Flooding due to no river present within the community. No known structures could be found within a SFHA according to FIRMs and BING Maps.

Hazard Analysis Ranking	Hazard	Weighted Score Total	Priority
1	Tornado	3.25	1
2	Thunderstorms and Lightning	3.2	
3	Hazardous Materials	3.15	
4	Windstorm	3.05	
5	Severe Winter Storm	3	
6	Infrastructure Failure	2.95	2
7	Transportation Incident	2.9	
8	Human Disease	2.5	
9	Terrorism	2.25	
10	Hailstorm	2.2	3
11	Extreme Heat	2.1	
12	Radiological	1.85	
13	Flash Flood	1.55	

**TABLE 44 – Hazard Priority for Swea City**

A/P/C Disease, Drought, Grass or Wild land Fire, and River Flooding were eliminated due to various reasons. A/P/C Disease-due to current measures and most threats lie outside the community; Drought-eliminated by the committee determining that drought even though it is experienced did not affect them to a degree as to score or discuss mitigation measures; Grass or Wild land Fire-eliminated by the committee because they determined that the hazard did not pose a threat due to current measures and training by local fire department and the lack of combustible material within the community; River Flooding-eliminated due to no river present within the community.

Hazard Analysis Ranking	Hazard	Weighted Score Total	Priority
1	Severe Winter Storm	3.3	1
2	Infrastructure Failure	3.25	
3	Thunderstorms and Lightning	3.2	
4	Transportation Incident	3.2	
5	Hazardous Materials	3.15	2
6	Hailstorm	2.65	
7	Tornado	2.65	
8	Human Disease	2.5	
9	Extreme Heat	2.4	
10	Windstorm	2.3	3
11	Flash Flood	2.1	
12	Radiological	1.85	
13	Earthquake	1.75	

**TABLE 45 – Hazard Priority for Titonka**

A/P/C Disease, Radiological, and Terrorism were eliminated due to various reasons. A/P/C Disease-due to current measures and most threats lie outside the community; Radiological-eliminated due to no major transportation routes near or through the community; Terrorism-eliminated due to no known major targets or very remote possibility to be considered. No known structures could be found within a SFHA according to FIRMs and BING Maps.

Hazard Analysis Ranking	Hazard	Weighted Score Total	Priority
1	Severe Winter Storm	3.3	1
2	Infrastructure Failure	3.25	
3	Tornado	3.25	
4	Thunderstorms and Lightning	3.2	
5	Hailstorm	2.65	2
6	Extreme Heat	2.55	
7	River Flooding	2.55	
8	Hazardous Materials	2.4	
9	Drought	2.05	
10	Earthquake	2.05	
11	Flash Flood	1.95	3
12	Human Disease	1.9	
13	Windstorm	1.85	
14	Grass or Wild land Fire	1.45	
15	Transportation Incident	1.45	

**TABLE 46 – Hazard Priority for Wesley**

Earthquake, Grass or Wild land Fire, Radiological, River Flooding, and Terrorism were eliminated due to various reasons. Earthquake-eliminated due to Wesley being located in Seismic Zone 0 according to USGS; Grass or Wild land Fire-eliminated by the committee because they determined that the hazard was well under control due to current measures and training by local fire department and the lack of combustible material within the community; Radiological-eliminated due to no major transportation routes near or through the community; River Flooding-eliminated due to no river present within the community; Terrorism-eliminated due to no known major targets or very remote possibility to be considered. Flash Flood- 2008 Extensive flooding reported in Wesley, blocking access to the area. Flash flooding on Highway 18 west of Wesley. Also, Highway 169 is flooded south of Algona.

Hazard Analysis Ranking	Hazard	Weighted Score Total	Priority
1	Severe Winter Storm	3.3	1
2	Infrastructure Failure	3.25	
3	Thunderstorms and Lightning	3.2	
4	Tornado	2.95	
5	Transportation Incident	2.9	2
6	Extreme Heat	2.85	
7	Hazardous Materials	2.85	
8	Windstorm	2.3	
9	Flash Flood	2.25	
10	A/P/C Disease	2.2	3
11	Hailstorm	2.2	
12	Human Disease	2.2	
13	Drought	2.05	

**TABLE 47 – Hazard Priority for Whittemore**

A/P/C/ Disease, Drought, Extreme Heat, Grass or Wild land Fire, Radiological, River Flooding, and Windstorm were eliminated due to various reasons. A/P/C Disease-due to current measures and most threats lie outside the community; Drought-eliminated by the committee determining that drought even though it is experienced did not affect them to a degree as to score or discuss mitigation measures; Extreme Heat-eliminated due to current cooling centers that the community has in place for such an event; Grass or Wild land Fire-eliminated by the committee because they determined that the hazard did not pose a threat due to current measures and training by local fire department and the lack of combustible material within the community; Radiological-eliminated due to no major transportation routes near or through the community; River Flooding-eliminated due to no river present within the community;

Hazard Analysis Ranking	Hazard	Weighted Score Total	Priority
1	Tornado	3.25	1
2	Thunderstorms and Lightning	3.2	
3	Severe Winter Storm	3	
4	Hailstorm	2.95	2
5	Infrastructure Failure	2.65	
6	Hazardous Materials	2.4	
7	Terrorism	2.25	
8	Flash Flood	2.15	3
9	Earthquake	2.05	
10	Human Disease	2.05	
11	Transportation Incident	1.55	

In order to identify appropriate mitigation techniques and projects the committee determined that it was necessary to identify the assets of the community. The table that follows lists the Kossuth County's assets that would be affected if the entire community was to be impacted by a hazard. Hazards do not typically affect an entire community to complete destruction; however, Tables 43 and 44 indicates community valuations for Kossuth County (unincorporated and incorporated). Community valuations for each jurisdiction are included on Tables 9-13. The committee determined that hazards do not typically affect a jurisdiction to complete destruction.

**TABLE 48 – County Values**

Type of Structure	Number of Structures		Value of Structures		Number of People	
	# in County	# at risk	\$ in County	\$ at risk	# in County	# at risk
Residential	6,718	6,718	416,719,442	416,719,442		
Commercial	829	829	121,373,616	121,373,616		
Industrial	59	59	95,867,988	95,867,988		
Agricultural	-	-	1,176,216,553	1,176,216,553		
Exempt Parcels	-	-	38,874,763	38,874,763		
Totals	5,959	5,959	1,849,052,362	1,849,052,362	15,543	

Source: Kossuth County Assessor's Office-Abstract for 2012-Unincorporated and Incorporated

**TABLE 49 – Unincorporated Values**

Type of Structure	Number of Structures		Value of Structures		Number of People
	# in County	# at risk	\$ in County	\$ at risk	# at risk
Residential	907	907	95,449,769	95,449,769	-
Commercial	99	99	15,485,686	15,485,686	-
Industrial	18	18	51,153,232	51,153,232	-
Agricultural Realty	-	-	1,066,961,791	1,066,961,791	-
Residential dwellings on Agricultural Realty	1,633	1,633	104,758,481	104,758,481	-
Exempt Parcels	-	-	38,874,763	38,874,763	-
Totals	2,657	2,657	1,267,925,241	1,267,925,241	5,753

Source: Kossuth County Assessors Office-Abstract for 2012-Unincorporated Data Only

Residential/Commercial/Industrial = Assessed Value.  
 Agricultural = Undeveloped parcels of land.

Exempt Parcels: Religious, Non-profits, County Courthouse, Fire Stations, Public Works facilities, etc

Kossuth County has identified specific structures in the county as critical facilities and infrastructure. Due to the function and value of the structures in the community, they need to be protected against the identified hazards. The critical facilities maps are located in the appendix of this plan, along with a list of critical facilities.

**TABLE 50 – Critical Facility Values**

Structures listed below are not known to be in a SFHA, more research will be conducted at the next plan update to determine if any of the following structures or possible new structures added to this list at the next plan update currently dwell within an SFHA. County critical facility properties replacement values are located on in Appendix II on page 160-161. These are the critical facility values that were received by the planner by the timeline that was set.

<b>Critical Facility</b>	<b>Replacement Value \$</b>	<b>Content Value \$</b>	<b>Square Feet</b>	<b>Occupancy</b>
City Hall Titonka	\$96,421	\$31,707	-	-
Water pump and treatment plant Titonka	\$475,639	\$31,707	-	-
Water Tower Titonka	\$435,897	-	-	-
L.P. Gas facility Titonka	\$111,819	\$44,388	-	-
EMS Building Titonka	\$296,681	\$50,729	-	-
Lift Station Titonka	\$218,117	\$7,608	-	-
Shelter House City Park Titonka	\$89,672	\$1,268	-	-
City Hall Wesley	\$481,729	\$94,126	4,182	-
EMS Building Wesley	\$50,000	-	-	-

**CURRENT MITIGATION ACTIVITIES**

This section is intended to give a brief overview of current and past mitigation activities that Kossuth County has undertaken.

### **Hazardous Materials**

The North Iowa Hazardous Emergency Action Team (NIHEAT) was formed in 1993. The program is administered by the North Central Regional Emergency Planning Commission (NCREPC) with representatives from Cerro Gordo, Emmet, Floyd, Franklin, Hancock, Kossuth, Mitchell, Palo Alto, Kossuth and Worth. The hazardous emergency action team consists of twenty-six (26) hazardous materials technicians, twenty-six (26) of which are Mason City Firefighters. When a hazmat incident occurs the team assembles technicians for response. The firefighters in Kossuth County's fire departments are trained to operations level. Contact information for Hazardous Material Response is as follows:

#### **Hazardous Material Response**

350 Fifth St. SW  
Mason City, IA 50401  
Phone: 641-421-3640

### **Tornado/Windstorm Activities**

Tornadoes have been known to cause great destruction. They can demolish entire buildings and it is not uncommon to hear of a tornado tearing off the roof of a house. With this type of potential damage, it is important that mitigation efforts are made to protect people from this deadly force. The most important measure in reducing the threat of injury is to be aware of the oncoming danger. Kossuth County has weather sirens implemented within most communities. Members of the emergency services departments in the cities act as tornado spotters if storm conditions warrant.

There are a wide variety of early warning messages provided through local radio and television stations as well as the cable channel, Weather Channel. The National Oceanic and Atmospheric Administration (NOAA) provide an alternative weather band over the radio. Special NOAA Weather Radios and general radios capable of tuning into this band receive weather information that is broadcast from nearby National Weather Service offices. The local National Weather Service office broadcasts National Weather Service warnings, watches, forecasts and other hazardous weather information 24 hours a day. Information regarding protecting one's self in the event of a tornado should be largely publicized in the form of flyers, radio, newspaper and television announcements. The following is an example of the types of actions that should be taken in the event of a tornadic storm.

### **TABLE 51 - Tornado Safety Rules**

1.	In a home or building, move to a pre-designated shelter such as a basement.
2.	If an underground shelter is not available, move to a small interior room or hallway on the lowest floor and get under a sturdy piece of furniture. Put as many walls as possible between you and the outdoors.
3.	Stay away from windows.
4.	Stay away from automobiles.
5.	Do not try to outrun a tornado in your car, leave it and immediately seek shelter. If caught outside or in a vehicle, lie flat in a nearby ditch or depression and cover your head with your hands.
6.	Highway overpasses do not provide shelter from tornadoes and high speed winds.
7.	Be aware of flying debris. Flying debris from tornadoes causes most fatalities and injuries.
8.	Mobile homes, even if tied down, offer little protection from tornadoes. You should leave a mobile home and go to the lowest floor of a sturdy nearby building or storm safe-room.

### **Winter Storm**

Kossuth residents rely on local forecasting efforts to predict the onset of a winter storm. Current technology usually allows for one or more days of notice before the arrival of a major winter storm. NOAA estimates that approximately 70 percent of all deaths attributed to winter storms occur in an automobile. Therefore, the County of Kossuth road department provides snow and ice removal for roadways to mitigate the negative effects of winter storms. Snow removal equipment has been updated regularly within the past five years to give Kossuth County a fast response time.

### **Sheriff's Department**

Law enforcement and protection is provided by the Kossuth County Sheriff's Department, which is located at 121 West State Street Algona, IA. All officers must be certified by the Iowa Law Enforcement Academy, be certified in CPR annually, train on a firing range annually and view films on crime control. Additional police services are provided through the local jurisdictions police departments and the Iowa State Patrol and the communications center is also operated by the Kossuth County Sheriff's office within the City of Algona.

**Kossuth County Sheriff's Office  
121 West State Street  
Algona, IA 50511  
(641) 585-2828**

### **Emergency Medical Services and Health and Human Services**

Kossuth Regional Health Center (KRHC) began with the opening of St. Ann Hospital, which was the result of more than five years efforts to secure a modern hospital for the people of Kossuth County. The first formal meeting occurred in April, 1945, which included Dr. Melvin Bourne and the Sisters of Mercy.

In 1946, it was estimated that a 50-bed hospital would cost \$400,000. The Sisters of Mercy would raise \$200,000; \$100,000 would be raised locally and the remaining \$100,000 would come from a federal grant. However, complying with all the requirements of the federal government would delay the project, so the Sisters of Mercy agreed to pay the balance of the cost over and above the amount subscribed locally, out of their own funds. The ground breaking ceremonies took place on August 13, 1948. St. Ann Hospital, under the management of the Sisters of Mercy was completed and dedicated on October 3, 1949. The final cost of the hospital was \$650,000.

The hospital continued to operate under the Sisters of Mercy until September 1967 when the Sisters of St. Benedict purchased the building. It was under their operation until January 1973, at which time it was taken over by Kossuth County and became Kossuth County Hospital.

Today, Kossuth Regional Health Center operates a 25-bed critical access hospital, two physician clinics, home care, hospice and public health nursing agencies. KRHC employs approximately 215 individuals and maintains Master Affiliation and Professional Services Agreements with Mercy Medical Center-North Iowa.

Kossuth Regional Health Center will begin construction on the emergency department and lab in July 2012. Renovations will create a more private and user-friendly space for patients and staff, plus upgrade equipment used in the ER.

Patients with health problems exceeding the county's medical expertise are referred to larger health care facilities in Iowa or Minnesota including Mercy Medical Center in Mason City, IA; and the Mayo Clinic in Rochester, MN.

## HAZARD MITIGATION PLAN GOALS

The Kossuth County Mitigation Planning Committee identified the mitigation plan goals. The committee set as a priority the development of broad-based goals that would address a multitude of hazards and encompass a variety of mitigation activities. The hazard mitigation plan goals identified are as follows:

The purpose of establishing goal statements is to set a general guideline for eliminating or reducing the long-term effects to property and life, reducing costs of response and recovery and minimizing disruption to Kossuth County following a hazardous event. Goal statements do not spell out specific strategies that can be measured but are written in general terms. Mitigation actions or measures are designed to be measured. The subsections of the hazards worksheets sections, i.e., probability, magnitude/severity, warning time, and duration (which form the methodology of the assessment) were consulted as necessary. These are all the goals that were established and considered by the Kossuth Planning Committee.

The individual jurisdictions accepted the goals for each of their respective communities. The Kossuth County and Algona planning committees concluded that they would remain consistent with the other jurisdictions by adopting the new plan goals and actions.

**TABLE 52 – Goals**

Goals <b>Requirement §201.6(c)(3)(i):</b> <i>[The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.</i>	
1. Minimize vulnerability of the people and their property in Kossuth County to the impacts of hazards.	2. Protect critical facilities, infrastructure and other community assets from the impacts of hazards.
3. Improve education and awareness regarding hazards and risk in Kossuth County.	4. Strengthen communication among agencies and between agencies and the public.

## MITIGATION MEASURES FEASIBILITY

**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 Kossuth Hazard Mitigation committee and each jurisdictions planning committee were given a list of mitigation measures which all 12 follow starting on page 120, these were all the mitigation measures that were discussed. After mitigation measures were chosen each person present was given the STAPLEE score sheet which follows and was told to rate each mitigation measure based upon the STAPLEE statements but to rate each mitigation measure based on a 0-3 score listed on the STAPLEE sheet that follows on page 119. The scores were collected and were added and divided by the number turned into the planner to receive the priority of the mitigation measure.

The mitigation measures are categorized as follows:

- A. **Prevention:** Administrative or regulatory actions or processes that influence the way land and buildings are developed and built.
- B. **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.
- C. **Structural:** Actions that involve the construction of structures to reduce the impact of hazards.
- D. **Natural resource protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems.
- E. **Public education and awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential way to mitigate them.

The planning committee reviewed the hazards that had been identified as well as the mitigation measure goals and categories with regards to the identified hazards. Anyone on the committee and in attendance at the meetings could verbally submit a mitigation measure to be considered in the plan, and then each mitigation measure was discussed, placing particular emphasis on new and existing buildings and infrastructure. Through much discussion of a comprehensive range of alternatives the planning committee achieved and consensus on the measures to include in the plan. Each jurisdiction had respective measures that were important to them. Each jurisdiction would be willing to accomplish any/all measure(s), if funds were secured.

STAPLEE stands for the following:

**Social:** Will the action be acceptable to the community? Could it have an unfair effect on a particular segment of the population?

**Technical:** Is the action technically feasible? Are there secondary impacts? Does it offer a long-term solution?

**Administrative:** Are there adequate staffing, funding, and maintenance capabilities to implement the project?

**Political:** Will there be adequate political and public support for the project?

**Legal:** Does your jurisdiction have the legal authority to implement the action?

**Economic:** Is the action cost-beneficial? Is there funding available? Will the action contribute to the local economy?

**Environmental:** Will there be negative environmental consequences from the action? Does it comply with environmental regulations? Is it consistent with community environmental goals?

**Score**

**0**

**Explanation**

I do not feel this is a mitigation action that needs to be considered.

**1**

This is an action I do feel would benefit the mitigation of hazards, but I considered it a **LOW** priority based on the STAPLEE criteria.

**2**

This is an action I do feel would benefit the mitigation of hazards, but I consider it a **MODERATE** priority based on the STAPLEE criteria.

**3**

This is an action I do feel would benefit the mitigation of hazards and I consider it a **HIGH** priority based on the STAPLEE criteria.

## Analysis of Mitigation Measures

- 1. Develop/update/publicize emergency management plans, including preparedness, response, recover, operations, long term recovery, and mitigation plans and maintain data inventory.**

This measure will allow the jurisdiction to produce required and relevant plans that are up to date and are working documents that the community can use.

- 2. Public Education and Awareness of all hazards.**

This measure gives the jurisdiction the opportunity to produce, inform, etc. using a variety of mass communication methods to inform the public and to keep them aware of the hazards that pose or could potentially pose a threat to the jurisdiction.

- 3. Continuity of Operations Plan (COOP)**

This measure gives the jurisdiction the means to provide the jurisdiction a plan that in the case of severe destruction a means to continue operations, who is in charge, where to set up control and command, etc.

- 4. Construct, retrofit, or maintain water supply, drainage, sewage, retention and detention systems to provide for the proper functioning of those systems.**

This measure will allow the jurisdiction to construct proper water supply, drainage and sewer systems in order to prevent infiltration of silt, soil, and other foreign materials into their supply and sewage systems causing backup into homes and businesses and to maintain proper functioning of water supply to decrease inefficiencies in those systems.

- 5. Construction or retrofit existing structures into public safe rooms at government facilities, recreational facilities, recreational areas, manufactured home parks, schools, day care centers, and other critical facilities.**

This measure will allow the jurisdiction to construct safe rooms that will protect the public during extremely hazardous events, i.e., tornado, thunderstorms and lightning, severe winter storm, etc. The Algona Community School District, would like to have tornado safe rooms as a part of their facilities in order to protect the children during hazardous weather. Right now the children go to the hallway during a tornado warning which has been proven as unsafe. This measure would ensure that the children and others that are in the school building are protected during a tornadic event. This measure is supported by the school districts as well as the communities as the facilities that are designed to be used not only by the school but also the community as a whole, many residents will also benefit from the safe room.

**6. Acquire flood prone properties for conversion into green space; or elevate structures to or above base flood elevation; construction of levees, dams, and culverts to ensure adequate capacity and protection levels for property and critical facilities.**

This measure will allow the jurisdiction the option to acquire flooded properties in order to prevent the continued flooding of structures located in a flood plain, or elevate structures as to not have to have the threat of repeated flooding to the subject property. This measure will allow the jurisdiction the ability to prevent damage from flash floods with additional capacity to handle large amounts of water from heavy rains.

**7. Purchase/install backup power generators.**

This mitigation measure assures that a jurisdiction's critical facilities as designated by the Board of Supervisors, City Councils, Emergency Management Coordinator, Sheriff's Department, etc., have adequate backup power supply to carry on the critical mission of the jurisdictions during a disaster.

**8. Heating/Cooling centers/shelters.**

This measure will allow the jurisdiction to provide a place for residents to come to get warm or cool depending on the time of year and preferably would have backup power generators due to the use of these structures during an infrastructure failure i.e. energy failure.

**9. Install and maintain security measures at all critical facilities and training of emergency response personnel.**

This measure will ensure that security measures at noted critical facilities will be in place to prevent damage and protect those that rely on the function of those critical facilities. This measure will also provide that training of response personnel is up to date and relevant to the disaster at hand.

**10. Complete FIRM (Flood Insurance Rate Maps) and encourage NFIP community and individual participation, and survey of flood prone areas, and river channel studies, and update of existing flood maps.**

This action ensures the safety and property protection of Kossuth County residents and property owners and the participation in NFIP.

**11. Develop and promote comprehensive, cost-effective, common sense recommendations for adoption and enforcement of land use, ordinances and regulations, zoning, and building codes that decrease risk in areas susceptible to hazards.**

This measure will allow jurisdictions the option of putting into place proper ordinances and building codes to prevent or lessen the damage from hazardous events.

**12. Natural resource measures to prevent the damage to critical facility functions.**

This measure will prevent many hazardous events like flooding, grass or wild-land fire, etc. This measure will ensure safety and property protection of Kossuth County residents and property owners.

The following tables show the mitigation measures for each jurisdiction that were chosen by each jurisdiction and their respective scores. The weighted score gives the priority of mitigation measures for each jurisdiction. The score ranges from 0-3; a score of 0=no priority, or mitigation measure does not need to be considered; 3=mitigation measure needs to be focused on by the city.

**TABLE 53 – Algona/Algona CSD Mitigation Measure Score**

The Algona Community School district determined that they will use Algona’s mitigation measure score for mitigation number 5 and that is the only mitigation measure they chose.

Mitigation Measure	Algona-Individual Scores										Raw Score	Weighted Score
1	3	2	3	3	2	3	3	2	3	2	26	2.6
2	3	3	3	3	3	3	3	3	3	3	30	3
3	3	1	3	2	2	2	2	2	3	3	23	2.3
5	2	1	3	1	1	1	1	2	3	3	18	1.8
7	2	1	2	1	0	1	3	3	1	0	14	1.4
8	2	1	2	1	1	1	3	2	2	1	16	1.6
10	1	2	1	1	1	1	1	2	3	1	14	1.4
12	2	1	3	2	2	2	1	2	1	2	18	1.8

**TABLE 54 – Bancroft Mitigation Measure Score**

Mitigation Measure	Bancroft-Individual Scores								Raw Score	Weighted Score
1	3	3	3	2	2	3	2	18	2.57	
2	3	3	3	3	3	3	3	21	3.00	
3	3	2	2	2	3	2	2	16	2.29	
5	2	1	2	2	1	2	3	13	1.86	
6	1	1	0	1	1	2	1	7	1.00	
7	3	3	3	2	3	1	3	18	2.57	
8	1	1	2	1	3	3	2	13	1.86	
9	2	3	2	3	3	3	3	19	2.71	
10	2	1	0	1	2	2	1	9	1.29	
11	1	1	2	1	2	3	1	11	1.57	

**TABLE 55 – Burt Mitigation Measure Score**

<b>Mitigation Measure</b>	<b>Burt-Individual Scores</b>																				<b>Raw Score</b>	<b>Weighted Score</b>			
1	2	3	2	2	2	3	3	3	3	2	2	3	3	3	2	3	2	3	3	3	3	3	61	2.65	
2	3	3	2	3	2	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	66	2.87	
3	3	3	2	2	2	3	3	2	3	2	2	2	1	2	1	3	2	3	3	3	3	2	2	54	2.35
4	2	2	3	1	1	2	2	3	3	2	3	2	3	2	3	2	3	3	1	1	3	2	3	52	2.26
5	1	3	3	1	1	2	2	2	3	3	1	2	1	1	1	2	2	2	1	1	1	1	3	40	1.74
6	0	1	2	0	1	0	0	1	2	1	0	1	0	1	1	1	0	1	0	1	0	1	2	17	0.74
7	1	3	3	3	3	2	2	3	3	2	3	3	3	3	3	3	2	3	3	3	3	3	3	63	2.74
8	1	3	3	3	3	2	2	3	3	2	2	3	2	3	3	3	3	2	2	2	3	3	3	59	2.57
9	3	3	2	3	3	3	3	3	3	3	2	3	3	3	1	3	3	3	3	2	2	3	3	63	2.74
10	0	2	2	1	1	0	0	2	1	0	2	1	0	1	2	2	1	1	0	0	0	1	2	22	0.96
12	2	3	2	2	2	3	3	2	3	0	2	2	1	2	2	2	3	3	2	1	2	2	3	49	2.13
13	2	3	1	2	2	2	2	2	3	1	0	1	3	1	1	2	2	2	2	3	2	1	2	42	1.83

**TABLE 56 – Fenton Mitigation Measure Score**

<b>Mitigation Measure</b>	<b>Fenton</b>															<b>Raw Score</b>	<b>Weighted Score</b>	
1	2	3	2	3	2	1	3	3	3	2	3	3	3	3	3	39	2.60	
2	3	3	3	3	3	1	2	2	3	2	3	2	2	2	2	36	2.40	
3	3	2	3	3	3	2	2	2	2	2	3	2	3	3	1	36	2.40	
4	3	3	3	3	2	1	3	3	2	2	1	2	1	2	3	34	2.27	
5	3	3	3	3	2	1	1	2	0	2	2	1	1	0	2	26	1.73	
6	1	1	1	3	2	1	0	0	0	3	2	1	0	0	0	15	1.00	
7	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	44	2.93
8	3	1	1	3	2	3	3	3	3	3	3	3	3	0	3	37	2.47	
9	0	2	0	3	2	2	2	3	3	3	3	2	0	3	2	30	2.00	
10	1	1	1	3	1	3	1	2	0	3	0	1	2	0	0	19	1.27	
11	3	2	3	3	2	3	0	2	1	3	2	1	1	2	1	29	1.93	
12	3	2	3	3	1	3	0	2	1	3	2	2	1	3	1	30	2.00	

**TABLE 57 – Lakota Mitigation Measure Score**

Mitigation Measure	Lakota-Individual Scores														Raw Score	Weighted Score
1	3	3	3	3	3	3	2	3	3	3	3	3	0	3	38	2.71
2	3	3	3	3	3	3	3	3	3	2	3	3	1	3	39	2.79
4	3	3	3	2	2	2	3	1	3	1	2	2	3	0	30	2.14
5	1	2	2	1	1	2	2	2	3	2	3	3	1	0	25	1.79
6	1	1	1	1	1	2	1	1	2	2	2	1	1	0	17	1.21
7	3	2	2	2	2	3	3	3	3	3	3	3	1	0	33	2.36
8	3	2	2	3	3	3	3	3	3	2	3	2	2	0	34	2.43
9	3	1	3	2	2	2	3	3	3	3	3	2	1	0	31	2.21
10	1	0	1	1	1	2	1	1	2	1	1	1	0	0	13	0.93
11	1	1	2	1	1	1	2	1	3	3	1	1	1	0	19	1.36
12	1	1	2	2	2	1	3	1	2	2	1	1	0	0	19	1.36

**TABLE 58 – Ledyard Mitigation Measure Score**

Mitigation Measure	Ledyard-Individual Scores																								
1	0	0	1	2	1	0	3	2	1	3	3	1	2	2	2	2	3	0	3	2	2	3	2	2	1
2	1	0	3	1	1	0	3	2	3	3	2	2	3	2	3	3	3	0	3	3	2	3	3	2	2
5	2	0	1	2	3	0	1	1	1	1	0	2	2	3	2	0	0	0	1	1	1	1	1	2	0
7	2	0	3	2	3	0	2	3	0	3	3	2	1	3	3	0	3	0	2	3	2	3	3	2	1
8	0	0	2	2	3	0	2	2	1	3	3	0	2	3	3	3	3	0	3	1	2	3	3	3	0
9	0	0	2	2	0	0	2	2	3	0	2	2	2	2	3	2	3	0	3	1	0	0	3	2	2
10	0	0	1	0	1	0	1	0	1	0	0	2	1	1	2	0	2	0	1	2	1	1	1	2	1

Mitigation Measure	Ledyard-Individual Scores														Raw Score	Weighted Score		
1	1	3	2	2	2	2	0	3	1	3	1	3	1	3	1	2	69	1.77
2	2	3	2	3	2	3	0	3	2	3	3	3	3	3	2	87	2.23	
5	0	2	2	2	1	1	0	1	2	1	3	1	1	1	46	1.18		
7	2	3	2	3	2	2	0	2	3	2	2	2	3	3	80	2.05		
8	2	2	2	3	1	2	0	0	2	0	2	2	1	3	69	1.77		
9	1	3	2	2	2	3	0	3	3	3	3	3	2	2	70	1.79		
10	2	1	2	1	0	1	0	0	1	1	2	0	0	0	32	0.82		

**TABLE 59 – Lone Rock Mitigation Measure Score**

Mitigation Measure	Lone Rock –Individual Scores													Raw Score	Weighted Score
1	2	1	1	3	1	0	0	0	3	2	2	0	1	16	1.23
2	1	3	3	3	2	2	2	2	2	3	3	2	1	29	2.23
4	1	1	3	2	3	0	2	2	3	2	0	1	0	20	1.54
7	2	3	3	3	2	2	1	1	2	2	2	0	1	24	1.85
8	0	2	0	2	1	0	1	1	1	2	3	1	1	15	1.15
9	3	1	3	3	2	0	2	2	2	2	2	1	1	24	1.85

**TABLE 60 – LuVerne Mitigation Measure Score**

Mitigation Measure	LuVerne-Individual Scores														Raw Score	Weighted Score
1	3	3	3	1	3	2	0	2	1	2	3	3	3	3	32	2.29
2	3	3	3	1	3	3	1	2	3	2	3	3	3	3	36	2.57
3	2	2	2	1	1	1	2	0	1	3	3	3	2	3	26	1.86
5	2	2	2	1	3	3	2	1	1	3	3	3	3	3	32	2.29
6	1	1	1	3	2	1	0	0	1	1	3	2	3	3	22	1.57
7	3	3	3	1	3	3	3	3	3	3	3	3	3	3	40	2.86
8	3	3	3	1	3	3	3	2	3	2	3	3	3	3	38	2.71
9	3	3	3	1	3	1	1	1	3	2	3	0	2	3	29	2.07
10	2	1	1	1	1	1	2	0	1	3	3	2	3	3	24	1.71

**TABLE 61 – Swea City Mitigation Measure Score**

Mitigation Measure	Swea City-Individual Scores																				Raw Score	Weighted Score		
1	3	2	3	3	3	3	2	3	3	2	3	2	3	3	1	1	3	2	2	3	3	3	56	2.55
2	2	2	3	3	2	3	3	3	2	2	3	2	2	3	3	3	3	2	2	1	0	3	52	2.36
3	3	2	2	2	3	2	2	3	1	1	2	1	2	2	2	1	2	2	1	2	2	2	42	1.91
4	2	2	3	3	3	3	2	3	3	2	2	3	3	3	3	1	2	3	2	2	3	2	55	2.50
5	2	2	3	3	3	0	1	2	1	1	3	3	2	2	1	1	2	2	1	1	3	3	42	1.91
7	2	2	3	1	3	1	3	1	2	1	2	3	3	3	3	0	3	3	1	1	3	1	45	2.05
8	2	2	3	1	2	2	2	3	2	1	3	3	2	2	2	2	3	3	2	1	3	2	48	2.18
9	3	2	3	3	3	3	1	2	2	1	3	2	3	2	3	2	2	3	3	1	3	3	53	2.41
10	2	2	3	0	1	1	3	1	1	0	3	2	1	1	0	0	2	2	2	0	1	1	29	1.32
11	2	2	3	0	3	2	1	3	1	1	1	3	2	2	1	2	2	2	2	2	1	2	40	1.82
12	2	2	3	1	2	1	1	2	1	1	2	2	3	2	0	1	2	2	2	1	2	3	38	1.73

**TABLE 62 – Titonka Mitigation Measure Score**

Mitigation Measure	Titonka-Individual Scores													Raw Score	Weighted Score
1	2	3	2	3	3	0	2	3	1	3	3	2	27	2.25	
2	1	3	3	3	2	3	2	3	1	3	3	2	29	2.42	
3	2	2	3	2	3	1	2	1	3	2	3	2	26	2.17	
4	2	3	2	2	2	3	2	2	1	2	3	1	25	2.08	
5	0	2	3	2	3	2	2	2	1	1	2	1	21	1.75	
6	0	1	0	1	2	2	2	1	0	0	1	1	11	0.92	
7	2	3	2	3	3	3	2	3	2	2	1	2	28	2.33	
8	0	3	2	3	3	1	2	2	2	0	0	1	19	1.58	
9	2	3	3	3	3	3	2	2	2	3	3	2	31	2.58	
10	2	3	2	3	2	3	2	3	2	2	3	1	28	2.33	
12	0	2	3	2	2	2	0	1	1	1	1	3	18	1.50	

**TABLE 63 – Wesley Mitigation Measure Score**

Mitigation Measure	Wesley-Individual Scores																						Raw Score	Weighted Score			
1	3	3	1	0	1	3	1	0	3	3	2	0	3	0	1	3	3	2	3	3	3	2	2	2	2	49	1.96
2	3	3	2	0	1	3	3	2	3	3	3	0	2	0	3	3	3	3	3	3	2	3	3	3	3	60	2.4
4	1	1	2	0	3	2	1	2	3	3	3	0	2	0	1	2	2	0	3	1	1	3	1	2	1	40	1.6
5	1	1	2	0	1	3	3	2	2	3	2	0	2	0	1	2	2	0	3	3	2	1	2	1	0	39	1.56
7	1	0	1	0	3	2	3	2	1	2	2	0	2	0	1	3	3	3	3	1	3	0	1	1	3	41	1.64
8	2	1	0	0	2	3	2	2	1	2	3	0	3	0	1	3	3	3	2	2	2	1	1	2	3	44	1.76
9	2	2	1	0	1	3	2	2	2	3	3	0	3	0	1	3	3	3	2	2	3	3	3	3	2	52	2.08
11	1	1	2	0	1	3	2	3	2	3	2	0	2	0	3	2	2	3	1	3	2	3	2	2	3	48	1.92

**TABLE 64 – Whittemore Mitigation Measure Score**

Mitigation Measure	Whittemore-Individual Scores														Raw Score	Weighted Score
1	3	3	3	3	3	2	3	3	3	3	3	3	3	3	41	2.93
2	2	2	2	2	3	2	2	3	3	3	3	3	3	2	35	2.50
3	3	3	3	3	2	1	1	2	3	3	3	3	3	3	36	2.57
5	0	0	0	0	3	1	1	2	3	3	3	3	3	0	22	1.57
7	0	0	0	0	3	2	2	3	3	3	3	3	3	3	28	2.00
8	0	0	0	0	2	2	2	2	3	3	3	3	3	2	25	1.79
9	1	1	1	1	3	2	2	3	3	3	3	3	3	3	32	2.29

**TABLE 65 – Kossuth County Mitigation Measure Score**

The Kossuth County committee used an average of the individual participating communities weighted score, in order to determine the county's weighted score. Weighted score calculated by adding weighted score of individual communities to produce a raw score and then divide the raw score by the number of communities that identified that individual mitigation measure.

<b>Mitigation Measure</b>	<b>Raw Score</b>	<b>Weighted Score</b>
<b>1</b>	<b>28.11</b>	<b>2.34</b>
<b>2</b>	<b>30.77</b>	<b>2.56</b>
<b>3</b>	<b>17.85</b>	<b>2.23</b>
<b>4</b>	<b>14.39</b>	<b>2.05</b>
<b>5</b>	<b>19.12</b>	<b>1.74</b>
<b>6</b>	<b>6.44</b>	<b>1.07</b>
<b>7</b>	<b>26.72</b>	<b>2.23</b>
<b>8</b>	<b>23.87</b>	<b>1.99</b>
<b>9</b>	<b>24.73</b>	<b>2.25</b>
<b>10</b>	<b>12.03</b>	<b>1.34</b>
<b>11</b>	<b>8.6</b>	<b>1.72</b>
<b>12</b>	<b>10.52</b>	<b>1.75</b>

## MITIGATION MEASURES AND GOALS

**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.*

All the mitigation actions included in the revised list received a preponderance of positive ratings and were discussed at length. The planning committee's chose many of the same measures and many of them received the highest votes. The following Mitigation Actions Table identifies the goal(s), hazard addressed, action category (ies) from page 118.

Priority is based on the number of votes. Since many jurisdictions chose 3-4 mitigation measures the measure with the highest vote is listed as a high priority the next top vote getter receives medium priority and so on. In the case of a tie, priority is given to the measure with the least costs but most benefit.

**TABLE 66 – Mitigation Measures and Goals**

Measure	Goals	Hazard addressed	Action Category
<b>Develop/update/publicize emergency management plans, including preparedness, response, recover, operations, long term recovery, and mitigation plans and maintain data inventory.</b>	1,2,3,4	All hazards	Public education and awareness
<b>Public education and awareness of all hazards.</b>	3,4	All hazards	Public education and awareness
<b>Continuity of Operations Plan (COOP)</b>	2,4	Radiological, Terrorism, Tornado	Prevention
<b>Construct, retrofit, or maintain water supply, drainage, sewage, retention and detention systems to provide for the proper functioning of those systems.</b>	1,2	Flash Flood, River Flooding, Infrastructure Failure	Property protection, structural
<b>Construction or retrofit existing structures into public safe rooms at government facilities, recreational facilities, recreational areas, manufactured home parks, schools, day care centers, and other critical facilities.</b>	1,2	Tornado, Windstorm	Property protection, structural
<b>Acquire flood prone properties for conversion into green space; or elevate structures to or above base flood elevation; construction of levees, dams, and culverts to ensure adequate</b>	1,2	Flash Flood, River Flooding	Prevention, Property protection, structural

<b>capacity and protection levels for property and critical facilities.</b>			
<b>Purchase/install backup power generators.</b>	1,2	Flash Flood, Hailstorm, Infrastructure Failure, River Flooding, Severe Winter Storm, Terrorism, Thunderstorms and Lightning, Tornado, Windstorm	
<b>Heating/Cooling centers/shelters.</b>	2	Extreme Heat, Severe Winter Storm	Structural
<b>Install and maintain security measures at all critical facilities and training of emergency response personnel.</b>	1,2,4	All hazards	Prevention, Property protection, structural
<b>Complete FIRM (Flood Insurance Rate Maps) and encourage NFIP community and individual participation, and survey of flood prone areas, and river channel studies, and update of existing flood maps.</b>	1,2,3	Flash Flood, River Flooding	Prevention, Property protection, structural, public education and awareness
<b>Develop and promote comprehensive, cost-effective, common sense recommendations for adoption and enforcement of land use, ordinances and regulations, zoning, and building codes that decrease risk in areas susceptible to hazards.</b>	1,2,3,4	All hazards	Prevention, Property protection, Natural resource protection
<b>Natural resource measures to prevent the damage to critical facility functions.</b>	1,2	All hazards	Natural resource protection

## FUNDING OF FUTURE MITIGATION MEASURES

The planning committee analyzed the future mitigation actions and identified future funding associated with each mitigation action. The actions that called for a continuation of a current activity were easily identified, whereas other cost estimates were available from previous planning documents or project plans. Some of the costs were estimated by the committee's knowledge of the activity in question. **The projects are to be considered for implementation during the next five years and a full cost/benefit analysis will be required to determine the feasibility of each project.**

Factors and/or information necessary for further consideration of future mitigation activities:

1. Estimated Cost = Estimated cost to construct or purchase.
2. Federal Funds = Federal funds identified as possible source of funds.
3. State Funds = State funds identified as possible source of funds.
4. Local Funds = Local (City and County) funds identified as possible source of funds.
5. \$ = Possible future funding source.

**TABLE 67 – Funding of Future Measures**

Mitigation Action	Estimated Cost	Funding Sources			Comment and Responsible Party
		Federal Funds	State Funds	Local Funds	
<b>Develop/update/publicize emergency management plans, including preparedness, response, recover, operations, long term recovery, and mitigation plans and maintain data inventory.</b>	\$1,000+	-	-	15%-100%	Local boards and councils, Emergency Management Coordinator, Fire Departments
<b>Public education and awareness of all hazards.</b>	-	-	-	100%	Local Boards and Councils, Emergency Management Coordinator
<b>Continuity of Operations Plan (COOP)</b>	-	-	-	100%	Local Boards and Councils
<b>Construct, retrofit, or maintain water supply, drainage, sewage, retention and detention systems to provide for the proper functioning of those systems.</b>	\$50,000+	?	?	10%-100%	Local Boards and Councils, Public Works Departments
<b>Construction or retrofit existing structures into public safe rooms at government facilities, recreational facilities, recreational areas, manufactured home parks, schools, day care centers, and</b>	\$250,000+	75%	10%	15%	Local Boards and Councils,

<b>other critical facilities.</b>					
<b>Acquire flood prone properties for conversion into green space; or elevate structures to or above base flood elevation; construction of levees, dams, and culverts to ensure adequate capacity and protection levels for property and critical facilities.</b>	\$5,000+	75%	10%	15%	Local Boards and Councils, Emergency Management Coordinator, Local Floodplain Managers
<b>Purchase/install backup power generators.</b>	\$5,000+	-	-	100%	Local Boards and Councils
<b>Heating/Cooling centers/shelters.</b>	\$5,000+	-	-	100%	Local Boards and Councils
<b>Install and maintain security measures at all critical facilities and training of emergency response personnel.</b>	\$500+	-	-	100%	Local Boards and Councils, Police and Fire Departments, Public Works Departments
<b>Complete FIRM (Flood Insurance Rate Maps) and encourage NFIP community and individual participation, and survey of flood prone areas, and river channel studies, and update of existing flood maps.</b>	?	-	-	-	Local Boards and Councils, State DNR and Emergency Management
<b>Develop and promote comprehensive, cost-effective, common sense recommendations for adoption and enforcement of land use, ordinances and regulations, zoning, and building codes that decrease risk in areas susceptible to hazards.</b>	?	-	-	-	Local Boards and Councils
<b>Natural resource measures to prevent the damage to critical facility functions.</b>	\$500+	-	-	100%	

## PLAN MAINTENANCE, REVIEW AND UPDATE

### **Mitigation Prioritization**

There are a number of hazards that could potentially affect the residents of Kossuth County indicated throughout this plan. In relation, there are also a large number of activities that could be undertaken to mitigate the effects of these hazards. Unfortunately, the County does not have an unlimited amount of funds or funding sources for mitigation projects. In an attempt to determine the most immediate mitigation needs, the planning committee prioritized each mitigation activity for every hazard as detailed in the MITIGATION MEASURES FEASIBILITY section of this plan. There were two mitigation actions that received a positive score for each mitigation measure.

### **Plan Adoption and Amendment**

This plan and any future amendments to the plan shall occur only after an official Public Notice has been posted in a local publication announcing a Public Hearing on the matter. After the public has had the opportunity to review the proposed amendments the Kossuth County Board of Supervisors may, by resolution, choose to accept any amendments to the plan. Amendments to the plan will be shared with the County Emergency Management Coordinator, the Iowa Department of Homeland Security and Emergency Management Division and the Federal Emergency Management Agency.

### **Phasing**

Phasing is a budgetary responsibility of the Kossuth County Board of Supervisors and Department Heads who will review the projects annually. It is recommended that this review be incorporated into the strategic planning documents and plans, i.e. comprehensive land use plan, floodplain ordinance, etc. For projects that require a local match commitment, the council should begin setting aside appropriate resources to meet their match liability. Land-use plans and county evacuation plans shall be incorporated within this plan as well as this plan shall be implemented in those future plans. The Board of Supervisors will incorporate the requirements of this plan into these future plans and any other plans the Board sees fit to include.

### **Continued Public Participation**

In order to ensure that the public remains involved in the future implementation of this plan a file shall remain on hand at the County Court House. This plan shall be made available to any party who requests to see it. Furthermore, if Kossuth County intends to make amendments to the plan, a posted public notice in local newspapers and local fliers should be made available so that the public can be made aware. Public notice should also be posted for any meetings that deal with the amendment of this plan. Said meetings are to remain open to the public.

### **Evaluation and Review Process**

The planning committee is to be comprised of representatives from all county departments; members of the public and elected officials will review and evaluate progress of the mitigation plan once each year. The plan will be reviewed and updated by the end of every fifth year. The planning committee will invite a cross section of the community to participate in any future meetings regarding the update or amendment of the Plan. In addition, public notice will be posted at the County Courthouse inviting the general public to participate as members of the planning committee and/or to review the plan and provide comments. The county is responsible for contacting members and organizing five year update meetings. The meetings will be held after the first of the year and committee members will be responsible for evaluating the progress of the plan activities. To make sure the plan is current with expected conditions, the planning committee will review each goal and activity to determine the relevance to the county, as well as changes in state or federal policies. The planning committee will also review the risk assessment for updates and modifications. The responsible department for each activity will then report the status of each project including implementation process that worked well, the difficulties that were encountered during the activity and how strategies could be revised. Kossuth County will then update the plan and make the appropriate changes to the plan. Copies of the plan and the committee's review will be available at the County Courthouse. Following the planning committee's completion of the review process, the findings of the annual review and recommended changes, if applicable, will be presented during a regular Board of Supervisors meeting and a public hearing will be held at that time. Copies of the plan will then be sent to the Iowa Department of Homeland Security and Emergency Management Division and the Federal Emergency Management Agency. Any changes to future plans will be integrated with the multi-hazard mitigation plan. The multi-hazard mitigation plan will also take into account any changes in these plans and incorporate the information in the next update.

The County will use Worksheet #1 (located in the Appendix) when they are working on a mitigation activity. This will give the future committee a good place to start when updating the plan and deciding which activities was successful or not. The committee will use Worksheet #2 during each yearly review and during the 5 year plan update to evaluate how to make the committee more representative of the community and surrounding communities. The committee and county will use Worksheet #3 to evaluate each activity that was completed and each activity that was not completed. The committee will use Worksheet #4 at each yearly review and update to evaluate the risk assessment in order to address new concerns and update inventories of assets.

The Kossuth County Multi-Jurisdictional Mitigation Plan will be updated every five years as stated, and reviewed annually by the Board of Supervisors, Emergency Management Coordinator, Zoning Administrator and other key county members or after a hazardous event, whichever one occurs first.

### **Schedule for Updating**

In the five year cycle, the Board of Supervisors will look at the plan at its annual review and at that time appoint a committee to update the plan. If assistance is needed the county will contact a planner and ask for assistance in updating their plan. The updating process will consist of two to three meetings of the committee to discuss changes that need to be made to the plan and after that time the committee will recommend the plan be offered for adoption by the Kossuth County Board of Supervisors. Following adoption by the Board the county will submit the plan to Iowa Homeland Security and Emergency Management and FEMA for final approval. The following is a schedule that Kossuth County will follow for plan updates.

Objective A. Evaluate the effectiveness of the planning process.

1. Reconvene or reappoint the Planning Team.
2. Review your Planning Process.  
Items to Discuss:
  - a. Building the Planning Team.
  - b. Engaging the Public.
  - c. Data Gathering and Analysis.
  - d. Coordinating with other Agencies.

Objective B. Evaluate the effectiveness of your actions.

1. What were the results of the implemented action? Did the results achieve the goals/objectives outlined in the plan? Did the actions have the intended results?
2. Were the actions cost-effective? Did (or would) the project result in the reduction of potential losses?
3. Document those actions that were slow to get started or not implemented.

Objective C. Determine why the actions worked or did not work.

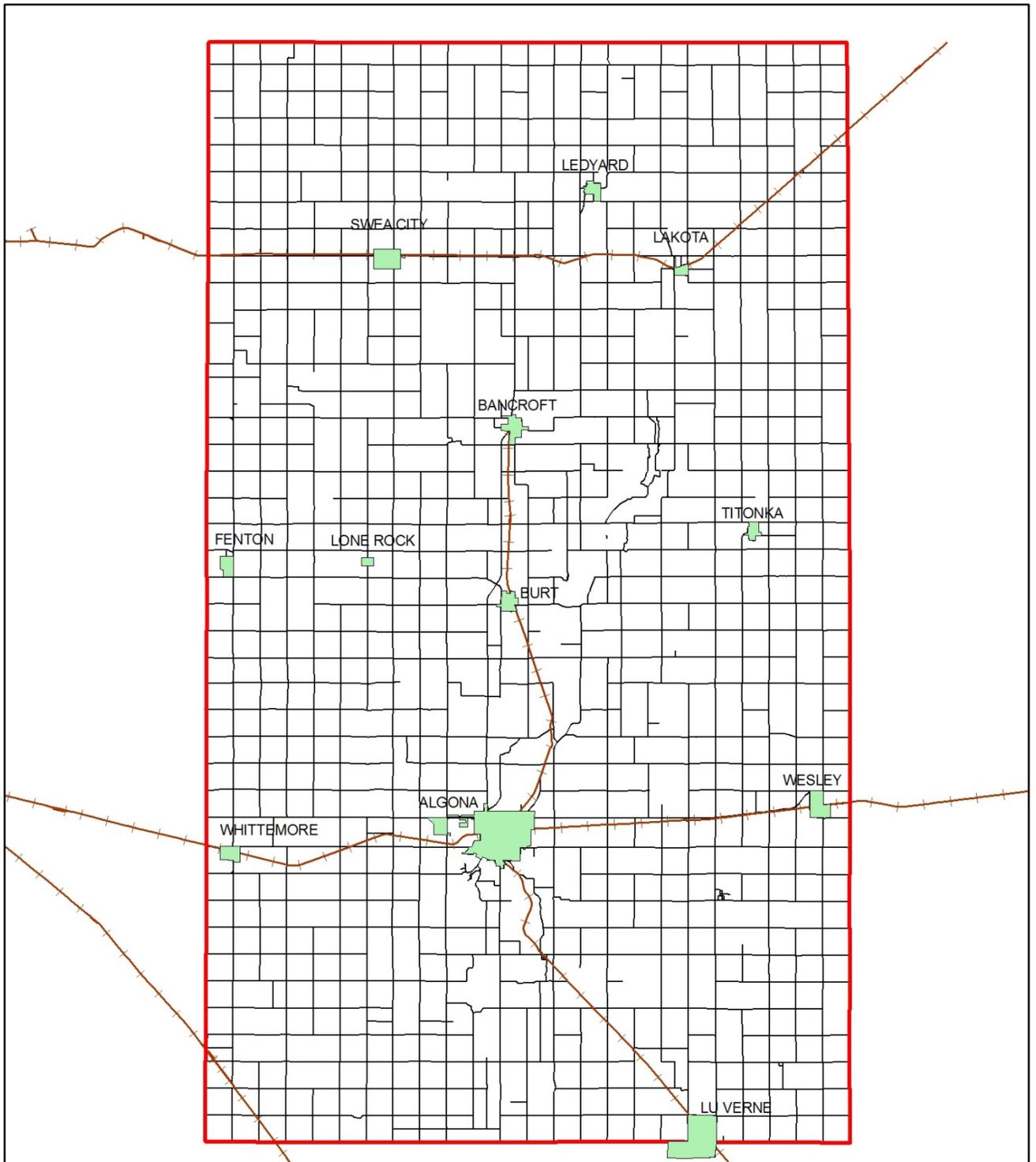
1. Lack of available resources.
2. The political or popular support for or against the action.
3. The availability of funds.
4. The workloads of the responsible parties.
5. The actual time necessary to implement the actions.

### **Existing Document Incorporation**

The Kossuth County Multi-Jurisdictional Hazard Mitigation Committee will remain focused on this plan and will ensure this plan's recommendations are included in current planning processes. The Emergency Management Coordinator will monitor development and the effectiveness of ordinances and will continue to do so following adoption of the Mitigation Plan. These activities will be incorporated into the Plan Evaluation and Review Process.

Note that the Committee intends to review current ordinances as part of the implementation, in order to ensure that we do not have to wait until a new plan or ordinance is created in order to update the methods used to monitor land use in the county. The capital improvements planning of the future will include some of the recommendations of this plan and will include funding toward some of the capital infrastructure issues discussed in this plan. Within 12 months, the adopted plan should be incorporated fully into the current and future county and other jurisdiction plans.

# APPENDIX I: MAPS



## Kossuth County Roads and Railroads

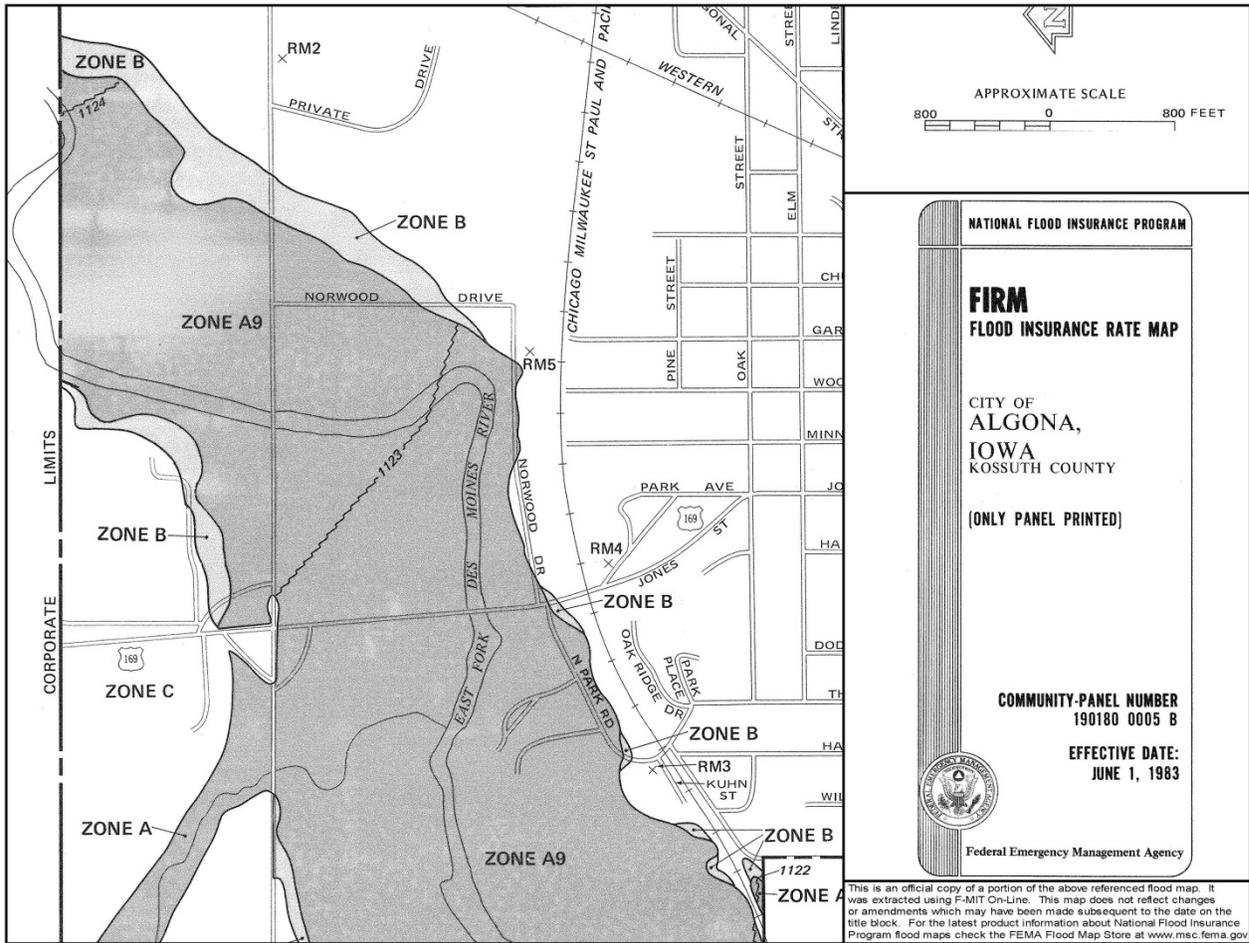
### Legend

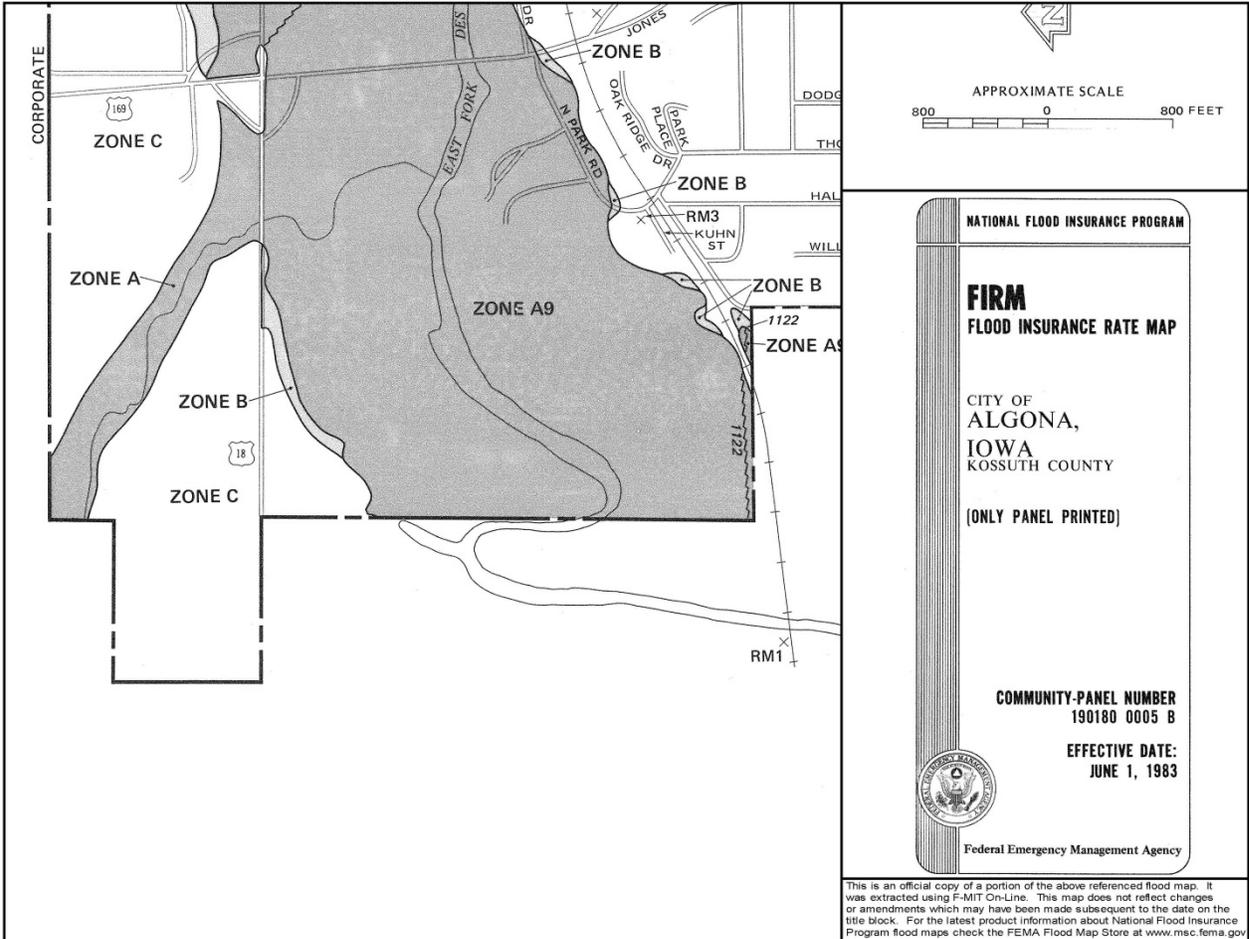
- CORP\_LINES selection
- 55\_ROAD\_INFO\_2008
- county selection
- RAILROADS

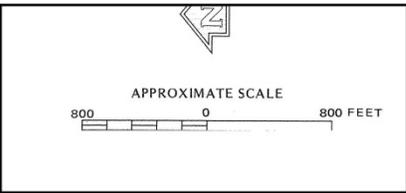
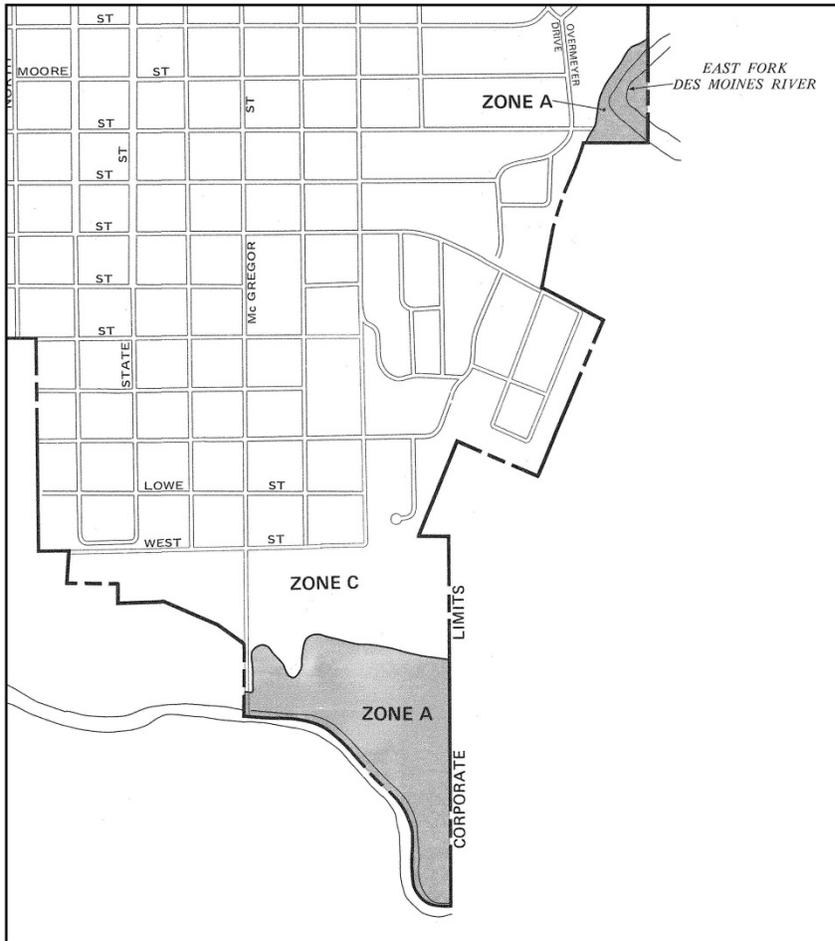
0 3 6 12 Miles

Created by: NIACOG  
Date: 2/6/13









**NATIONAL FLOOD INSURANCE PROGRAM**

**FIRM**  
**FLOOD INSURANCE RATE MAP**

CITY OF  
**ALGONA,**  
IOWA  
KOSSUTH COUNTY

(ONLY PANEL PRINTED)

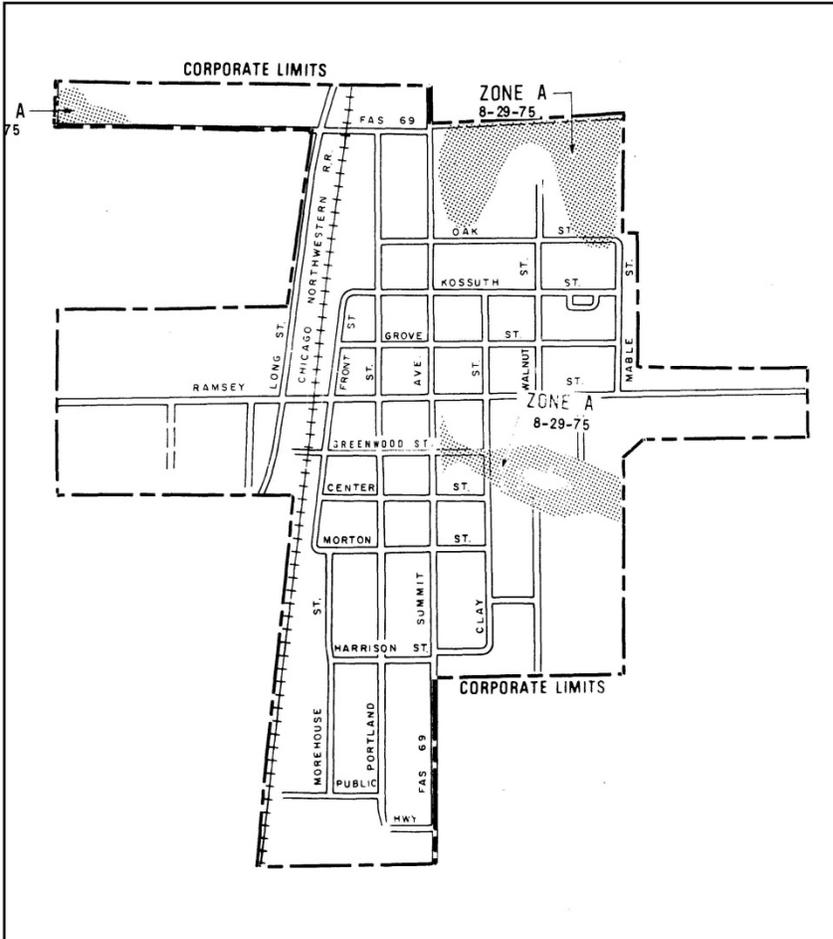
**COMMUNITY-PANEL NUMBER**  
190180 0005 B

**EFFECTIVE DATE:**  
JUNE 1, 1983



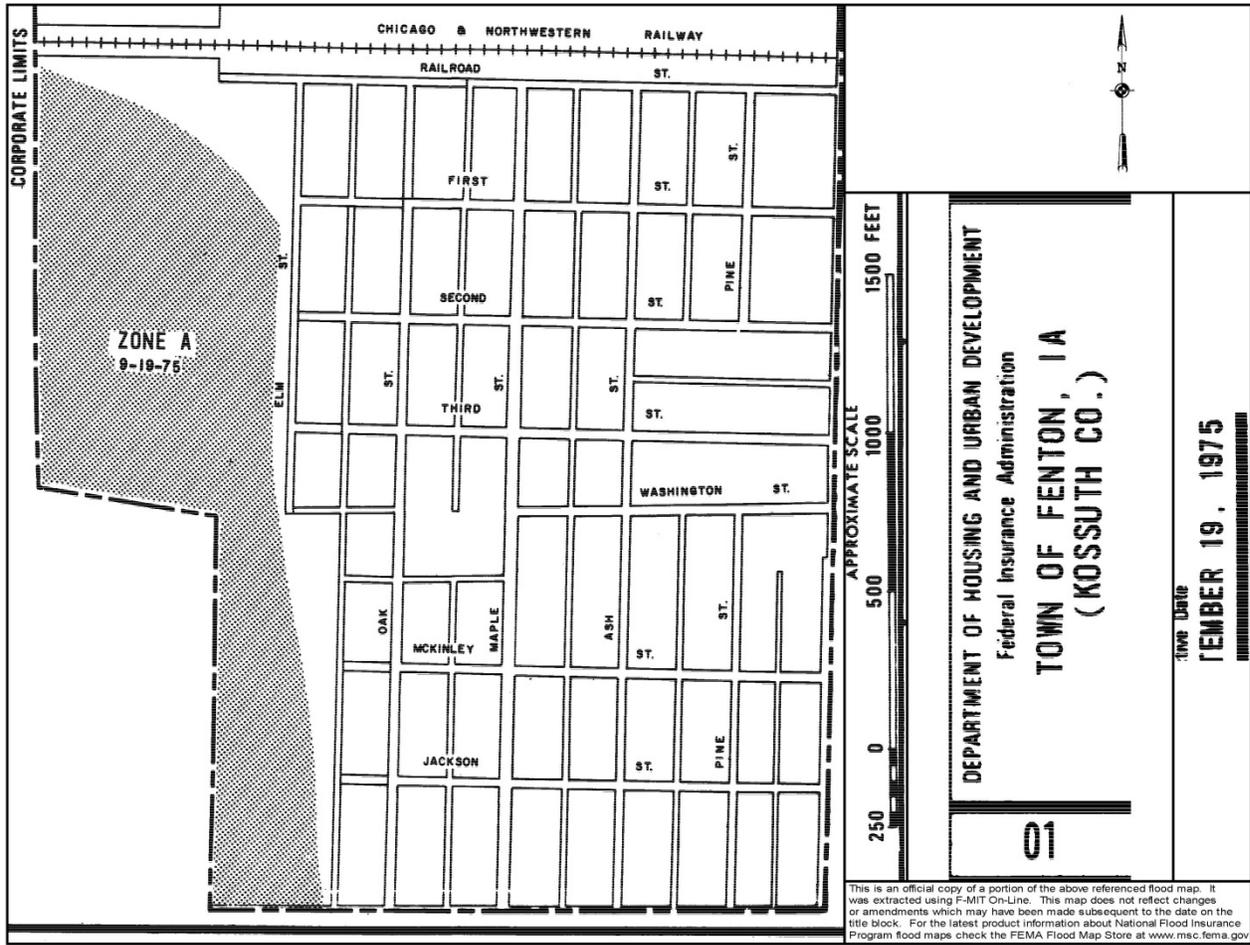
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

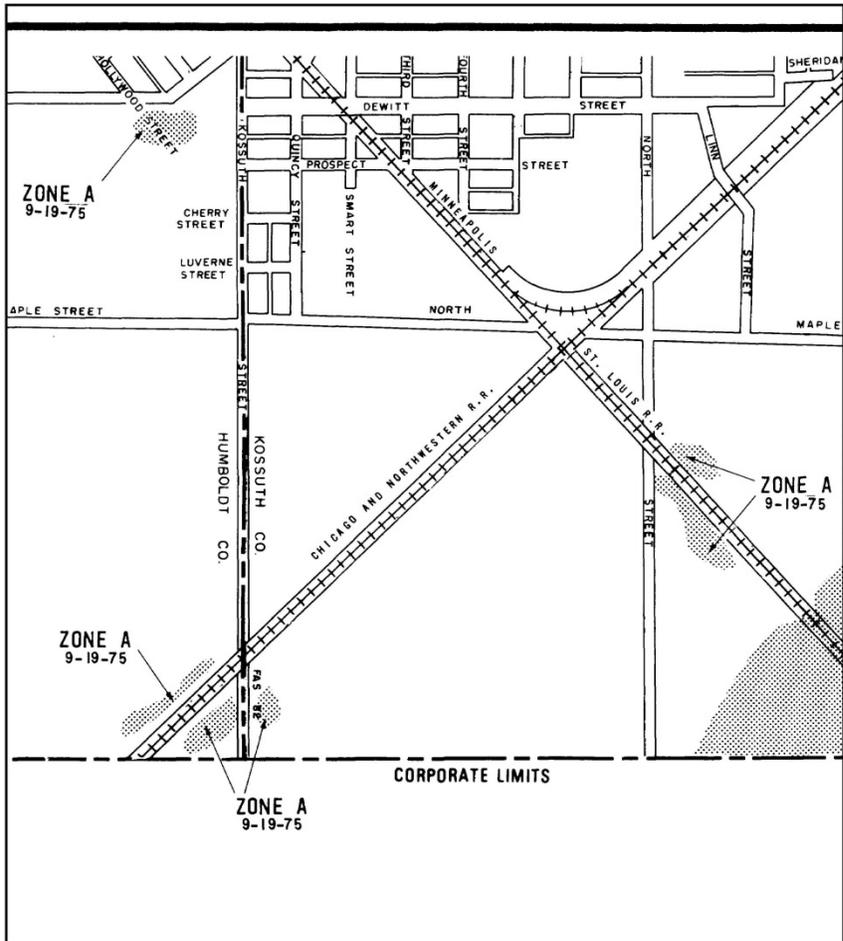


00 0 1000 2000 3000 FEET <small>APPROXIMATE SCALE</small> <small>FOR HAZARD BOUNDARY MAP</small>	Effective Date <b>AUGUST 29, 1975</b>	DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT Federal Insurance Administration <b>CITY OF BANCROFT, IA</b> (KOSSUTH CO.)
		FIA No

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



N

APPROXIMATE SCALE

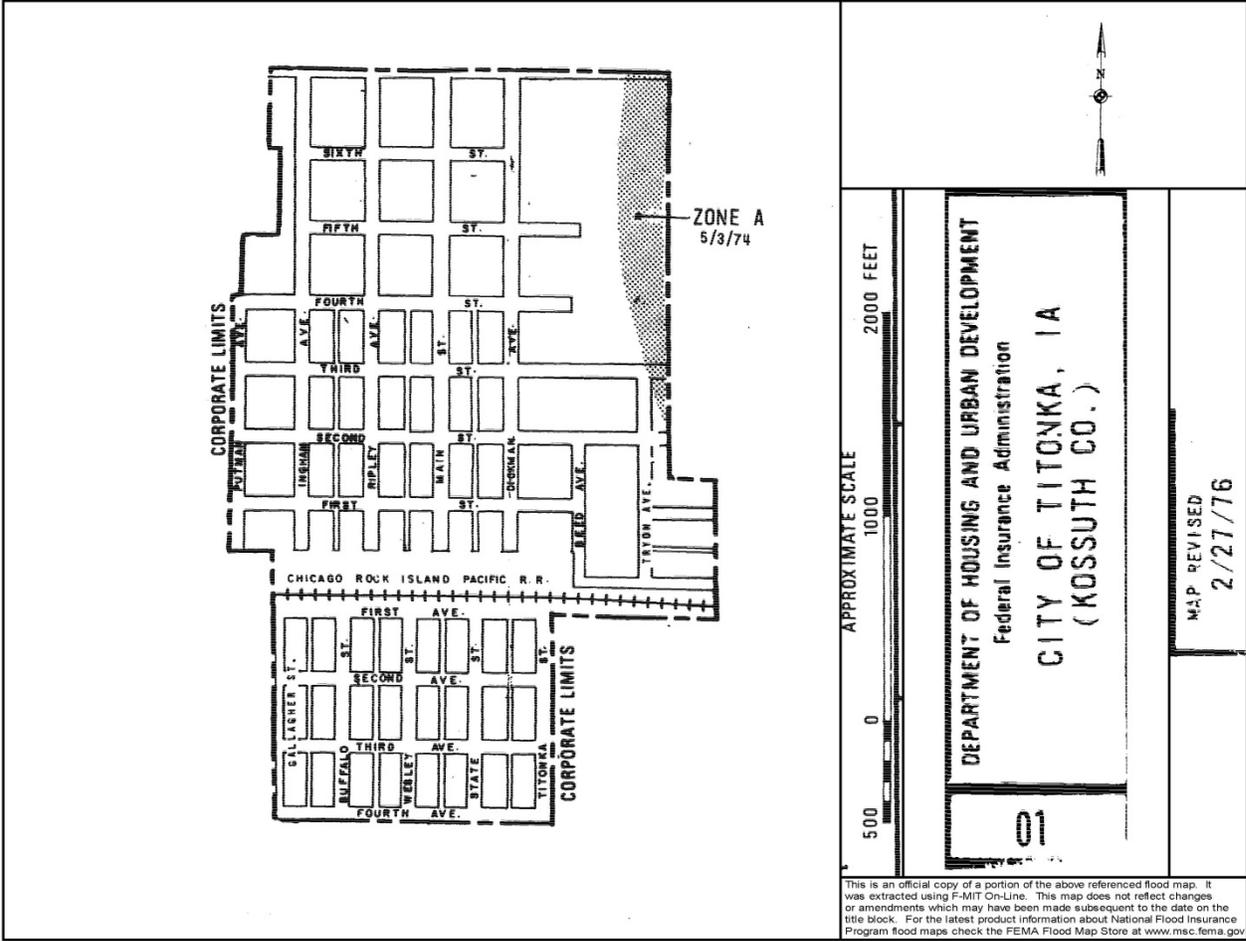
500 1000 2000 3000 FEET

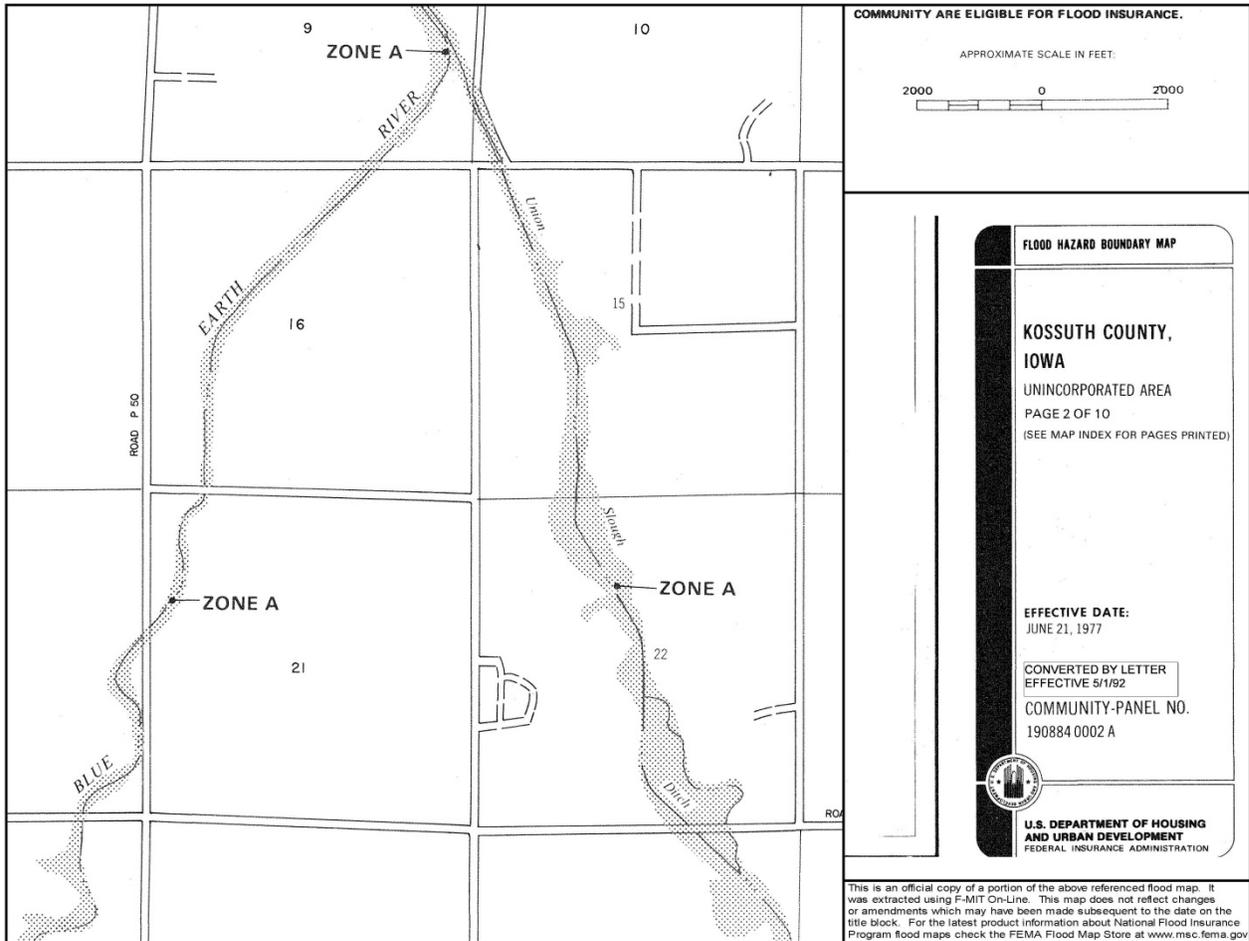
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
 Federal Insurance Administration  
**TOWN OF LUVERNE, IA**  
**(HUMBOLDT AND KOSSUTH COS.)**

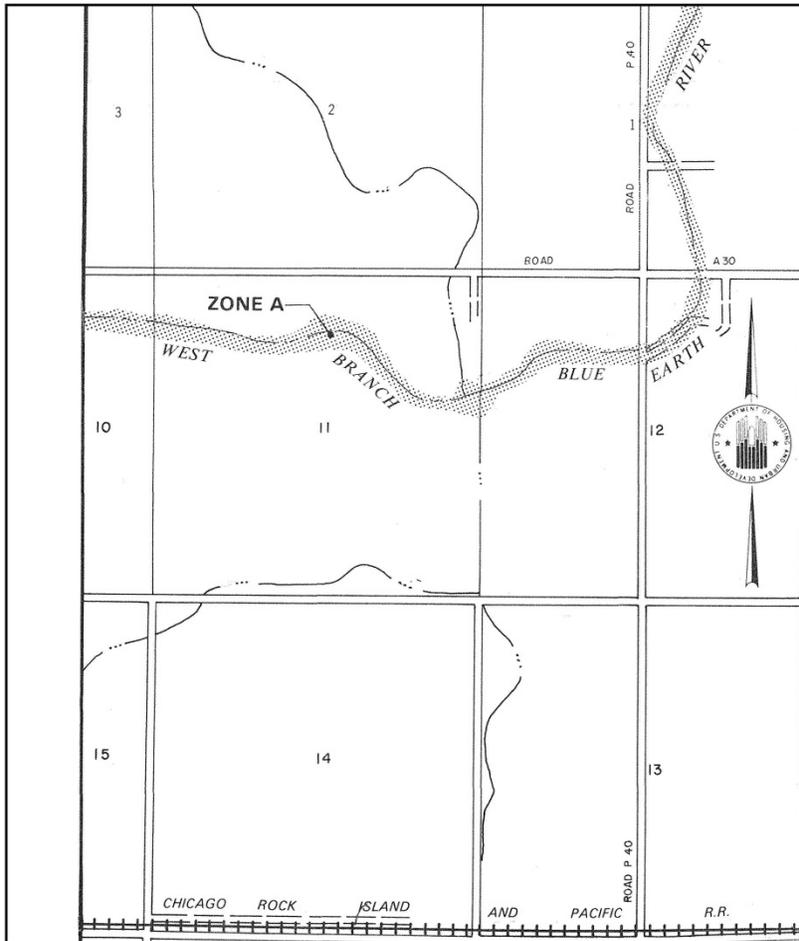
02

Issue Date  
**SEPTEMBER 19, 1975**

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)







COMMUNITY ARE ELIGIBLE FOR FLOOD INSURANCE.

APPROXIMATE SCALE IN FEET:

2000 0 2000

**FLOOD HAZARD BOUNDARY MAP**

**KOSSUTH COUNTY, IOWA**  
 UNINCORPORATED AREA  
 PAGE 3 OF 10  
 (SEE MAP INDEX FOR PAGES PRINTED)

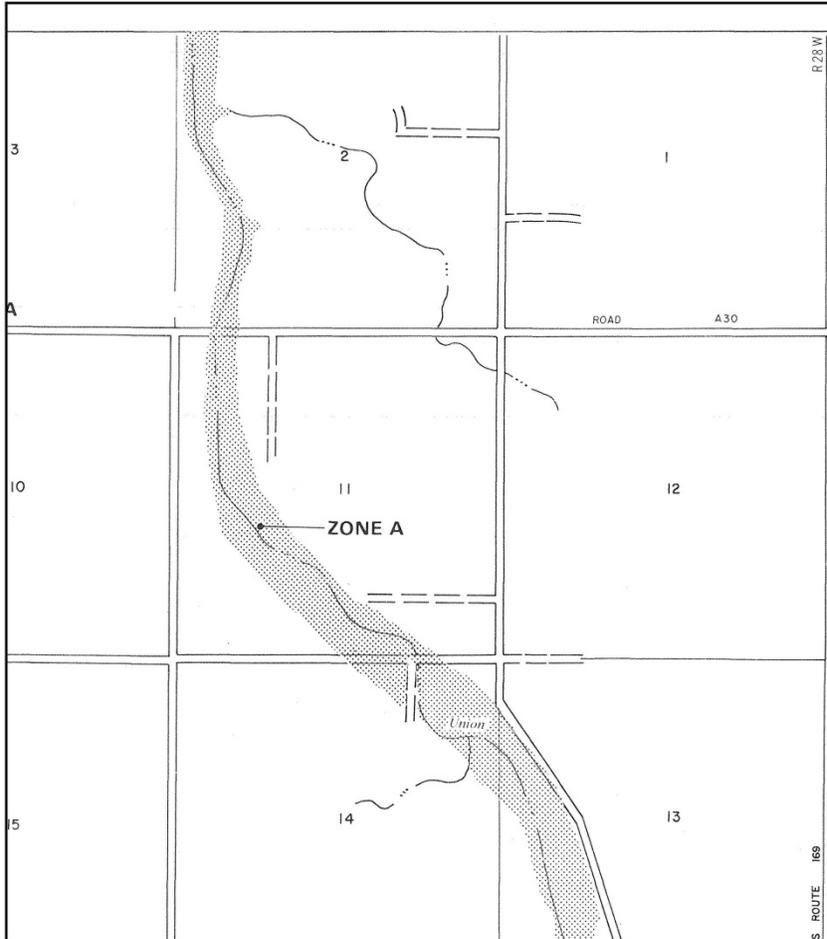
**EFFECTIVE DATE:**  
 JUNE 21, 1977

CONVERTED BY LETTER  
 EFFECTIVE 5/1/92

COMMUNITY-PANEL NO.  
 190884 0003 A

**U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT**  
 FEDERAL INSURANCE ADMINISTRATION

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



FLOOD HAZARD BOUNDARY MAP

**KOSSUTH COUNTY,  
IOWA**

UNINCORPORATED AREA  
PAGE 4 OF 10  
(SEE MAP INDEX FOR PAGES PRINTED)

**EFFECTIVE DATE:**  
JUNE 21, 1977

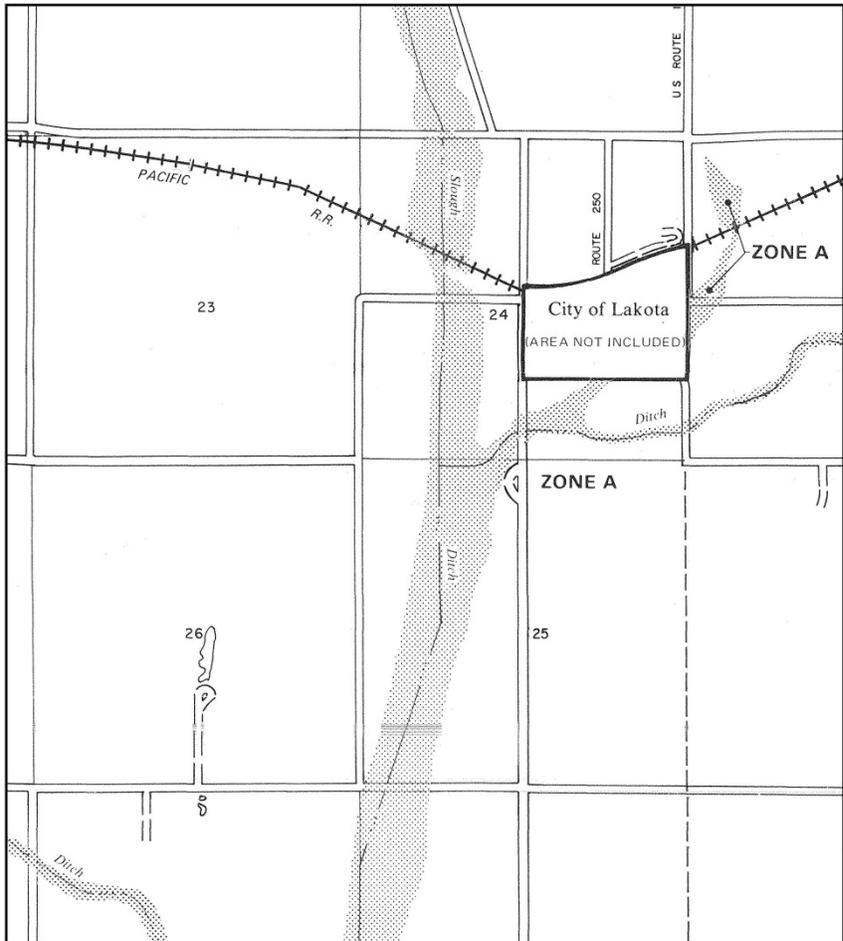
CONVERTED BY LETTER  
EFFECTIVE 5/1/92

COMMUNITY-PANEL NO.  
190884 0004 A



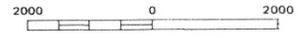
**U.S. DEPARTMENT OF HOUSING  
AND URBAN DEVELOPMENT**  
FEDERAL INSURANCE ADMINISTRATION

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



COMMUNITY ARE ELIGIBLE FOR FLOOD INSURANCE.

APPROXIMATE SCALE IN FEET



FLOOD HAZARD BOUNDARY MAP

**KOSSUTH COUNTY,  
IOWA**

UNINCORPORATED AREA

PAGE 4 OF 10  
(SEE MAP INDEX FOR PAGES PRINTED)

**EFFECTIVE DATE:**  
JUNE 21, 1977

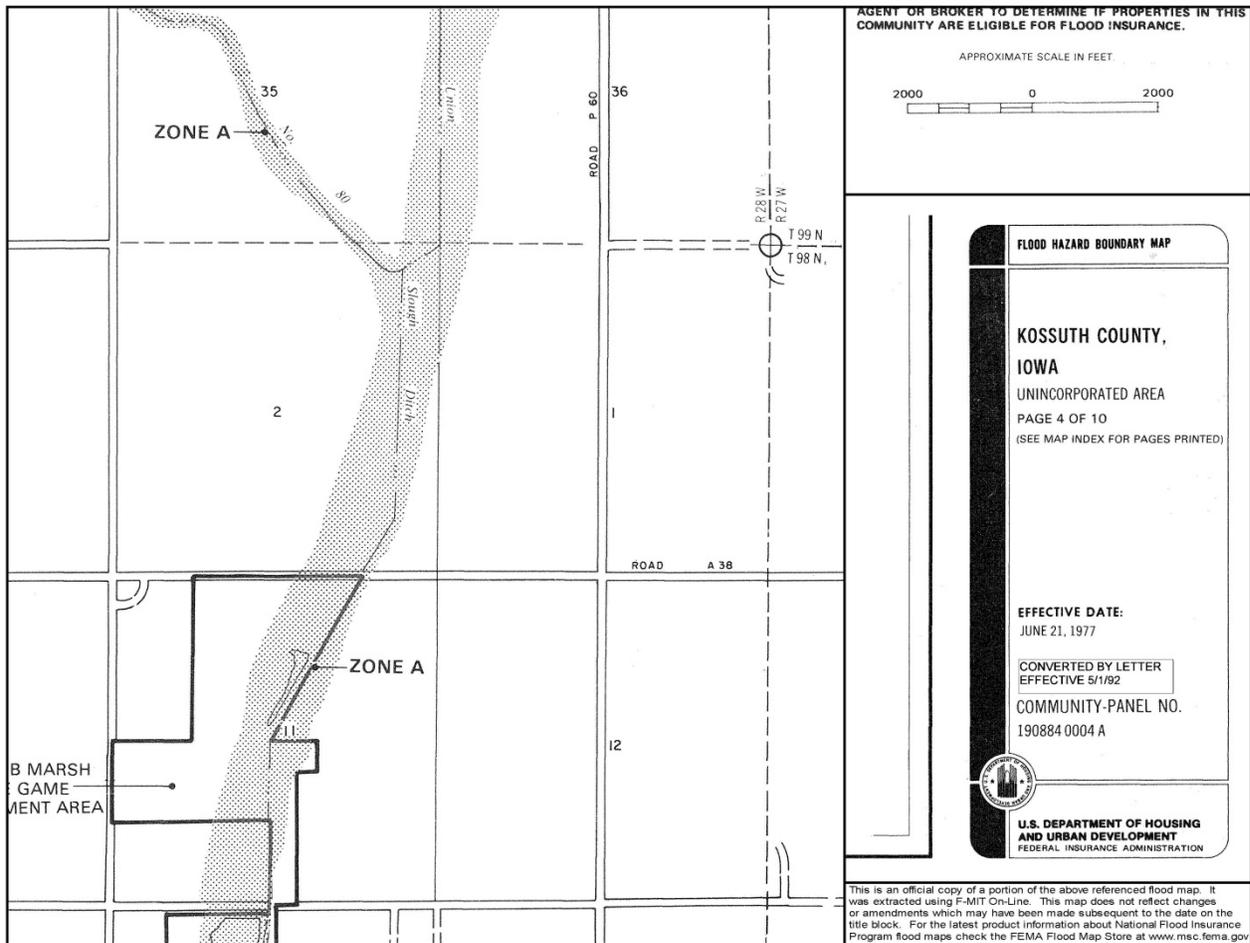
CONVERTED BY LETTER  
EFFECTIVE 5/1/92

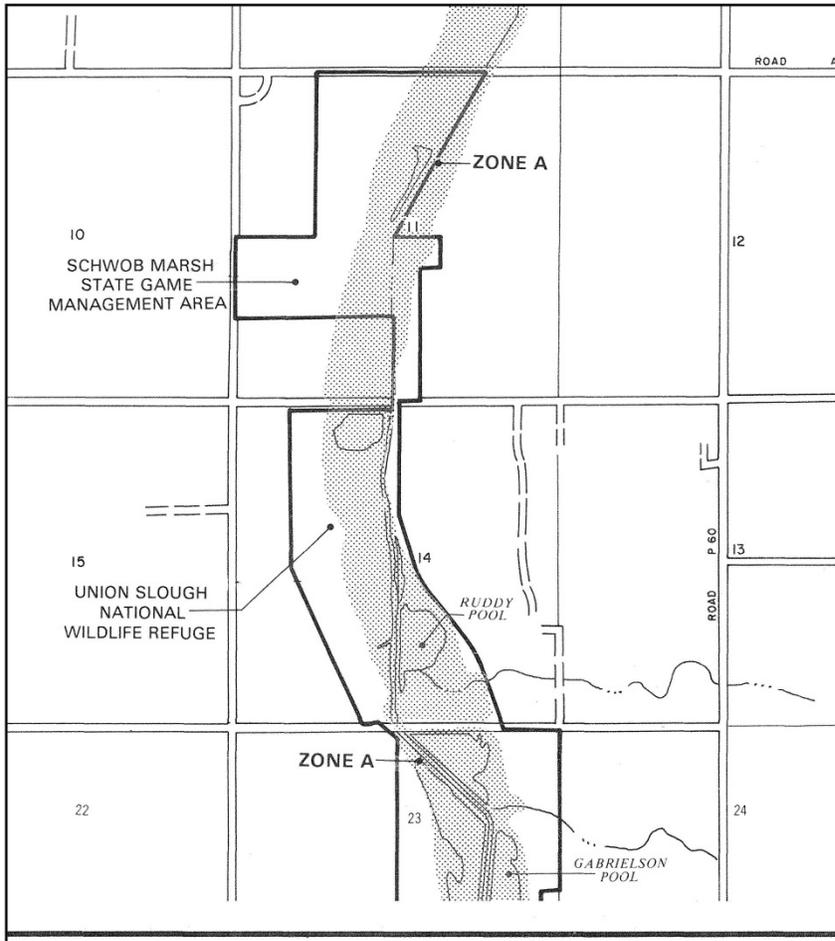
COMMUNITY-PANEL NO.  
190884 0004 A



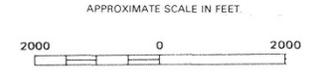
**U.S. DEPARTMENT OF HOUSING  
AND URBAN DEVELOPMENT**  
FEDERAL INSURANCE ADMINISTRATION

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)





AGENT OR BROKER TO DETERMINE IF PROPERTIES IN THIS COMMUNITY ARE ELIGIBLE FOR FLOOD INSURANCE.



**FLOOD HAZARD BOUNDARY MAP**

**KOSSUTH COUNTY,  
IOWA**

UNINCORPORATED AREA  
PAGE 4 OF 10  
(SEE MAP INDEX FOR PAGES PRINTED)

**EFFECTIVE DATE:**  
JUNE 21, 1977

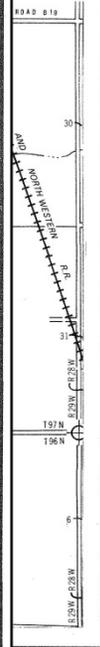
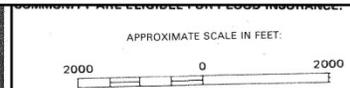
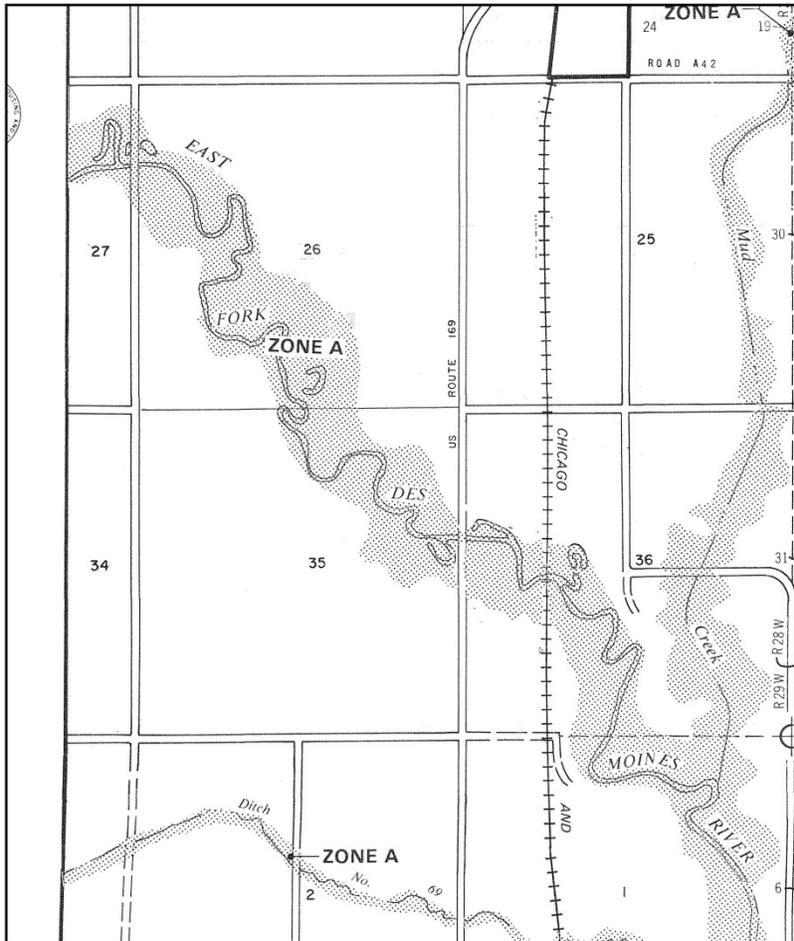
CONVERTED BY LETTER  
EFFECTIVE 5/1/92

COMMUNITY-PANEL NO.  
190884 0004 A



**U.S. DEPARTMENT OF HOUSING  
AND URBAN DEVELOPMENT**  
FEDERAL INSURANCE ADMINISTRATION

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



**FLOOD HAZARD BOUNDARY MAP**

**KOSSUTH COUNTY,  
IOWA**

UNINCORPORATED AREA  
PAGE 5 OF 10  
(SEE MAP INDEX FOR PAGES PRINTED)

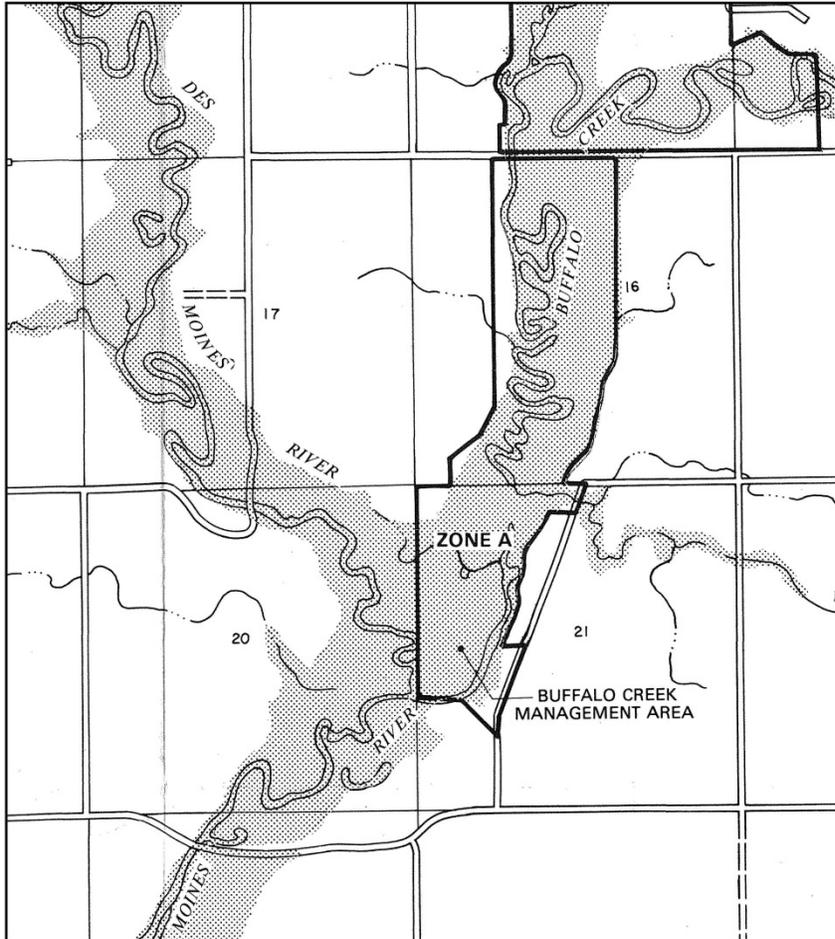
**EFFECTIVE DATE:**  
JUNE 21, 1977

CONVERTED BY LETTER  
EFFECTIVE 5/1/92

COMMUNITY-PANEL NO.  
190884 0005 A

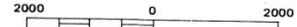
**U.S. DEPARTMENT OF HOUSING  
AND URBAN DEVELOPMENT**  
FEDERAL INSURANCE ADMINISTRATION

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



AGENT OR BROKER TO DETERMINE IF PROPERTIES IN THIS COMMUNITY ARE ELIGIBLE FOR FLOOD INSURANCE.

APPROXIMATE SCALE IN FEET:



**FLOOD HAZARD BOUNDARY MAP**

**KOSSUTH COUNTY,  
IOWA**

UNINCORPORATED AREA

PAGE 6 OF 10  
(SEE MAP INDEX FOR PAGES PRINTED)

**EFFECTIVE DATE:**  
JUNE 21, 1977

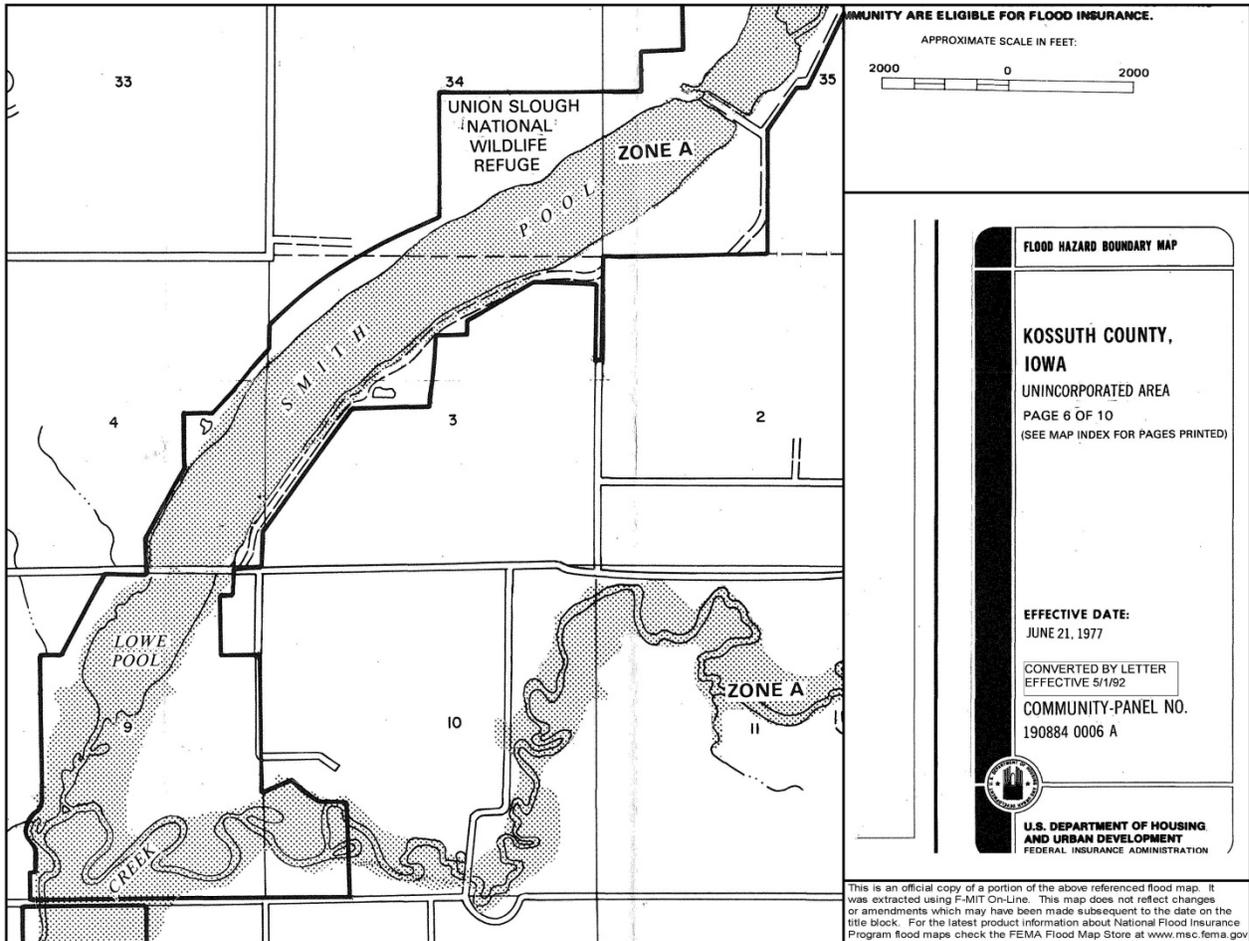
CONVERTED BY LETTER  
EFFECTIVE 5/1/92

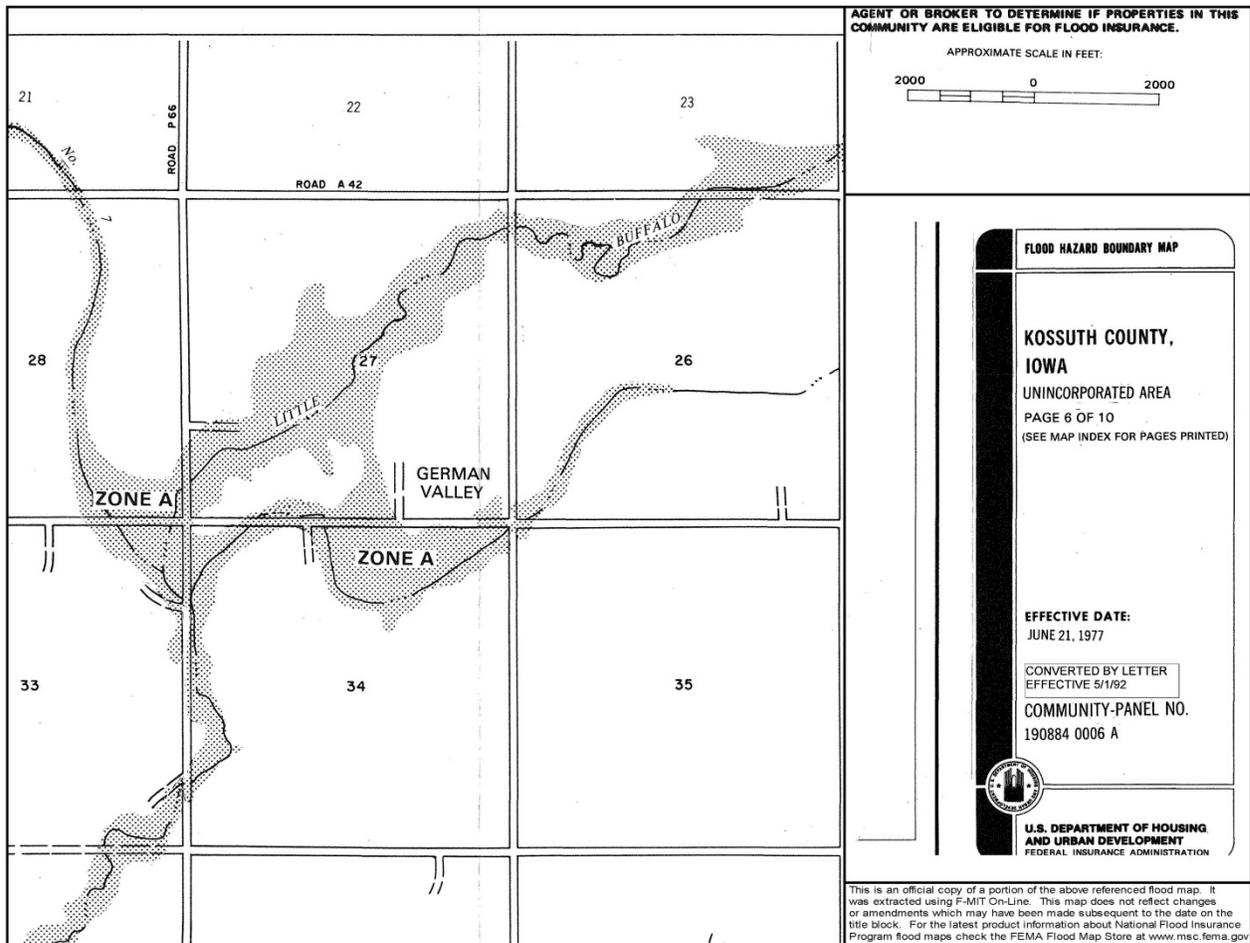
COMMUNITY-PANEL NO.  
190884 0006 A



**U.S. DEPARTMENT OF HOUSING  
AND URBAN DEVELOPMENT**  
FEDERAL INSURANCE ADMINISTRATION

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)





**IOWA COMMUNITIES ASSURANCE POOL**  
Property Breakout

Member: Kossuth County  
Anniversary July 1, 2012

<u>Location</u>	<u>Address</u>	<u>Total TIV</u>	<u>Contribution</u>
1-1	114 W State Street Courthouse	\$10,423,250	\$28,219
2-2	224 Elevator Avenue E	\$874,198	\$2,367
3-3	711 S. Phillips St	\$1,726,027	\$4,673
4-4	205 Edmond Street -County Shed	\$965,394	\$2,614
5-5	100 1st Street - County Shed	\$754,870	\$2,044
6-6	607 4th Ave W. - County Shed	\$1,167,104	\$3,160
7-7	414 3rd Street - County Shed	\$943,884	\$2,555
8-8	701 Read St. W. - County Shed	\$1,052,200	\$2,849
9-9	607 Front Street - County Shed	\$1,305,579	\$3,535
10-10	Sec 23 Union Twshp - Smith Lake	\$270,875	\$733
10-19	N Side Sec 23 Union Twshp - Smith Lake	\$45,000	\$122
10-20	N Side Sec 23 Union Twshp - Smith Lake	\$26,650	\$72
10-21	N Side Sec 23 Union Twshp - Smith Lake	\$110,000	\$298
10-44	N Side Sec 23 Union Twp	\$1,788,000	\$4,841
10-45	N Side Sec 23 Union Twshp - Smith Lake	\$7,500	\$20
10-46	N Side Sec 23 Union Twshp - Smith Lake	\$9,000	\$24
10-47	N Side Sec 23 Union Twshp - Smith Lake	\$11,000	\$30
11-11	17 135th Street	\$941,800	\$2,550
12-12	Sec 9, Eagle Twshp	\$0	\$0
13-13	W. McGregor St	\$90,000	\$244
14-14	711 S Phillips St.	\$740,800	\$2,006
15-15	Radio Tower	\$55,000	\$149
16-16	112 W. Call	\$42,000	\$114
17-17	607 4th Ave W	\$104,500	\$283
18-18	601 Front Street	\$38,000	\$103
22-22	Sec 9 Whittemore Twshp	\$27,000	\$73
22-48	Sec 9 Whittemore Twshp	\$19,000	\$51
22-49	Sec 9 Whittemore Twshp	\$54,000	\$146
23-23	Sec 23 Riverdale Twshp	\$24,150	\$65
24-24	Sec 1, Portland Twp	\$24,150	\$65
25-25	2900 130th Street - Transfer Station	\$180,260	\$488
26-26	301 E Oak Street	\$1,376,000	\$3,725
27-27	608 Park Street	\$585,770	\$1,586
28-28	414 3rd Street	\$48,300	\$131
29-29	1001 S. Phillips Street	\$584,250	\$1,582
30-30	2900 130 th Street	\$480,150	\$1,300
31-31	205 Edmund Street	\$438,000	\$1,186
32-32	2307 Hwy 169N	\$179,000	\$485
33-33	711 S. Phillips St	\$39,100	\$106
33-35	711 S. Phillips Street	\$44,600	\$121
33-36	711 S. Phillips Street	\$44,600	\$121
34-34	608 Park Street	\$37,000	\$100
34-37	121 W. State Street	\$4,549,500	\$12,317
35-38	601 Front Street	\$44,590	\$121
36-39	701 Read St W.	\$31,000	\$84

**IOWA COMMUNITIES ASSURANCE POOL**  
Property Breakout

Member: Kossuth County  
Anniversary July 1, 2012

<u>Location</u>	<u>Address</u>	<u>Total TIV</u>	<u>Contribution</u>
37-40	17 135th Street	\$34,350	\$93
38-41	West Bend	\$29,100	\$79
39-42	Sec 19 Twp 96N Rge 31W	\$83,150	\$225
40-43	205 W. State Street	\$1,196,453	\$3,237
41-9	109 West State Street	\$607,950	\$1,646
42-50	Burt Lake	\$3,800	\$10
97-97	Various Locations	\$578,183	\$1,565
<b>TOTALS:</b>		<b>\$34,836,037</b>	<b>\$94,313</b>

# APPENDIX II: AGENDAS, MINUTES, AND RESOLUTIONS

**Kossuth County Multi-Jurisdictional Hazard Mitigation Meeting #1**

11 August 2011 7:30pm

Assembly Room Kossuth County Courthouse

1. Introduction
2. Hazard Mitigation Explanation
3. Planning Process
4. Forming Planning Committee
5. Getting Public Involved
6. Community Evaluation
7. Explanation of HARA
8. Identify Hazards and Score Hazards
9. Adjourn

Public Invitation to attend the  
Bancroft Hazard Mitigation  
Planning Meeting  
Monday October 24, 2011  
7:00 pm North Kossuth Golf Club  
\*(community input for the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan)

1. Introduction
2. Prioritize hazards
3. Community Background Information
4. Identify Critical Facilities
5. Identify current mitigation measures
6. Identify and score mitigation measures
7. Adjourn

Public Invitation to attend the  
Burt Hazard Mitigation  
Planning Meeting  
Tuesday October 25, 2011  
7:00 pm Burt City Hall  
\*(community input for the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan)

1. Introduction
2. Prioritize hazards
3. Community Background Information
4. Identify Critical Facilities
5. Identify current mitigation measures
6. Identify and score mitigation measures
7. Adjourn

Public Invitation to attend the  
Algona Hazard Mitigation  
Planning Meeting  
Thursday October 27, 2011  
7:00 pm Algona City Hall  
\*(community input for the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan)

1. Introduction
2. Prioritize hazards
3. Community Background Information
4. Identify Critical Facilities
5. Identify current mitigation measures
6. Identify and score mitigation measures
7. Adjourn

Public Invitation to attend the  
Fenton Hazard Mitigation  
Planning Meeting  
Monday January 30, 2012  
7:00 pm Fenton Public Library  
\*(community input for the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan)

1. Introduction
2. Prioritize hazards
3. Community Background Information
4. Identify Critical Facilities
5. Identify current mitigation measures
6. Identify and score mitigation measures
7. Adjourn

Public Invitation to attend the  
Ledyard Hazard Mitigation  
Planning Meeting  
Thursday July 12, 2012  
7:00 pm Ledyard City Hall  
\*(community input for the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan)

1. Introduction
2. Prioritize hazards
3. Community Background Information
4. Identify Critical Facilities
5. Identify current mitigation measures
6. Identify and score mitigation measures
7. Adjourn

Public Invitation to attend the  
Titonka Hazard Mitigation  
Planning Meeting  
Monday July 16<sup>th</sup>, 2012  
6:30 pm Titonka City Hall  
\*(community input for the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan)

1. Introduction
2. Prioritize hazards
3. Community Background Information
4. Identify Critical Facilities
5. Identify current mitigation measures
6. Identify and score mitigation measures
7. Adjourn

Public Invitation to attend the  
LuVerne Hazard Mitigation  
Planning Meeting  
Tuesday July 24<sup>th</sup>, 2012  
7:00 pm LuVerne Library  
\*(community input for the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan)

1. Introduction
2. Prioritize hazards
3. Community Background Information
4. Identify Critical Facilities
5. Identify current mitigation measures
6. Identify and score mitigation measures
7. Adjourn

Public Invitation to attend the  
Swea City Hazard Mitigation  
Planning Meeting  
Tuesday August 7<sup>th</sup>, 2012  
7:00 pm Swea City City Hall  
\*(community input for the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan)

1. Introduction
2. Prioritize hazards
3. Community Background Information
4. Identify Critical Facilities
5. Identify current mitigation measures
6. Identify and score mitigation measures
7. Adjourn

Public Invitation to attend the  
Whittemore Hazard Mitigation  
Planning Meeting  
Wednesday August 8<sup>th</sup>, 2012  
5:30 pm Whittemore American Legion Hall  
\*(community input for the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan)

1. Introduction
2. Prioritize hazards
3. Community Background Information
4. Identify Critical Facilities
5. Identify current mitigation measures
6. Identify and score mitigation measures
7. Adjourn

Public Invitation to attend the  
Lakota Hazard Mitigation  
Planning Meeting  
Tuesday August 14<sup>th</sup>, 2012  
6:00 pm at the Eagle Center  
\*(community input for the Kossuth County  
Multi-Jurisdictional Hazard Mitigation Plan)

1. Introduction
2. Prioritize hazards
3. Community Background Information
4. Identify Critical Facilities
5. Identify current mitigation measures
6. Identify and score mitigation measures
7. Adjourn

# Public Invitation to attend the Lone Rock Hazard Mitigation Planning Meeting

Thursday August 16<sup>th</sup>, 2012

7:00 pm Lone Rock City Hall

\*(community input for the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan)

1. Introduction
2. Prioritize hazards
3. Community Background Information
4. Identify Critical Facilities
5. Identify current mitigation measures
6. Identify and score mitigation measures
7. Adjourn

Public Invitation to attend the  
Wesley Hazard Mitigation  
Planning Meeting  
Monday August 27<sup>th</sup>, 2012  
6:30 pm Wesley City Hall  
\*(community input for the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan)

1. Introduction
2. Prioritize hazards
3. Community Background Information
4. Identify Critical Facilities
5. Identify current mitigation measures
6. Identify and score mitigation measures
7. Adjourn

Kossuth County, Iowa meeting for the community portion of the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan  
11 August 2011, 7:30 p.m. – 9:30 p.m.  
Kossuth County Courthouse meeting room

Conducted by NIACOG Planner

Introduction-

Explained that FEMA and the State now require multi-jurisdictional plans.

Definition and explanation of Hazard Mitigation, multi-jurisdictional plans, community responsibilities in planning process, & that each community will have representation within the plan.

Explanation of meetings and steps needed to complete plan process. How to get the public involved in the process.

Sign in sheet/attendance and “local match” explained. \*see attached sign- in sheets.

Reviewed & discussed Community Background information regarding community plans, ordinances, etc. and will continue to communicate with Kossuth County to gather all needed information.

Identified Critical Facilities in Kossuth County and will continue to work with the county to gather additional information.

Explained the HARA and identified and scored hazards accordingly.

Explained the next steps needed in the plan development.

Answered questions.

Meeting adjourned at 9:30 p.m.

Bancroft, Iowa meeting for the community portion of the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan  
24 October 2011 7:00 p.m. – 9:00  
North Kossuth Golf Club

Conducted by NIACOG Planner

Introduction-

Explained that FEMA and the State now require multi-jurisdictional plans.

Definition and explanation of Hazard Mitigation, multi-jurisdictional plans, community responsibilities in planning process, & that each community will have representation within the plan.

Explanation of meetings and steps needed to complete plan process.

Sign in sheet/attendance and “local match” explained. \*see attached sign- in sheets.

Reviewed specific county level hazards that had been identified at the County meeting and then identified hazards specific to Bancroft.

Explained scoring system/process for each hazard and ranking process. Discussed & scored hazards based on probability, magnitude/severity, warning, and duration for each hazard identified by Bancroft.

Reviewed & discussed Community Background information regarding community plans, ordinances, etc. and will continue to communicate with Bancroft City Clerk to gather all needed information.

Identified Critical Facilities in Bancroft and will continue to work with Clerk to gather additional information.

Identified and discussed current mitigation measures within Bancroft.

Identified and scored new/future mitigation measures.

Explained the next steps needed in the plan development.

Answered questions.

Meeting adjourned at 9:00 p.m.

Burt, Iowa meeting for the community portion of the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan  
25 October 2011 7:00 p.m. – 9:00pm  
Burt City Hall

Conducted by NIACOG Planner

Introduction-

Explained that FEMA and the State now require multi-jurisdictional plans.

Definition and explanation of Hazard Mitigation, multi-jurisdictional plans, community responsibilities in planning process, & that each community will have representation within the plan.

Explanation of meetings and steps needed to complete plan process.

Sign in sheet/attendance and “local match” explained. \*see attached sign- in sheets.

Reviewed specific county level hazards that had been identified at the County meeting and then identified hazards specific to Burt.

Explained scoring system/process for each hazard and ranking process. Discussed & scored hazards based on probability, magnitude/severity, warning, and duration for each hazard identified by Burt.

Reviewed & discussed Community Background information regarding community plans, ordinances, etc. and will continue to communicate with Burt City Clerk to gather all needed information.

Identified Critical Facilities in Burt and will continue to work with Clerk to gather additional information.

Identified and discussed current mitigation measures within Burt.

Identified and scored new/future mitigation measures.

Explained the next steps needed in the plan development.

Answered questions.

Meeting adjourned at 9:00 p.m.

Algona, Iowa meeting for the community portion of the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan  
27 October 2011 7:00 p.m. – 9:00pm  
Algona City Hall

Conducted by NIACOG Planner

Introduction-

Explained that FEMA and the State now require multi-jurisdictional plans.

Definition and explanation of Hazard Mitigation, multi-jurisdictional plans, community responsibilities in planning process, & that each community will have representation within the plan.

Explanation of meetings and steps needed to complete plan process.

Sign in sheet/attendance and “local match” explained. \*see attached sign- in sheets.

Reviewed specific county level hazards that had been identified at the County meeting and then identified hazards specific to Algona.

Explained scoring system/process for each hazard and ranking process. Discussed & scored hazards based on probability, magnitude/severity, warning, and duration for each hazard identified by Algona.

Reviewed & discussed Community Background information regarding community plans, ordinances, etc. and will continue to communicate with Algona City Clerk to gather all needed information.

Identified Critical Facilities in Algona and will continue to work with Clerk to gather additional information.

Identified and discussed current mitigation measures within Algona.

Identified and scored new/future mitigation measures.

Explained the next steps needed in the plan development.

Answered questions.

Meeting adjourned at 9:00 p.m.

Fenton, Iowa meeting for the community portion of the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan  
30 January 2012 7:00 p.m. – 9:00pm  
Fenton Public Library

Conducted by NIACOG Planner

Introduction-

Explained that FEMA and the State now require multi-jurisdictional plans.

Definition and explanation of Hazard Mitigation, multi-jurisdictional plans, community responsibilities in planning process, & that each community will have representation within the plan.

Explanation of meetings and steps needed to complete plan process.

Sign in sheet/attendance and “local match” explained. \*see attached sign- in sheets.

Reviewed specific county level hazards that had been identified at the County meeting and then identified hazards specific to Fenton.

Explained scoring system/process for each hazard and ranking process. Discussed & scored hazards based on probability, magnitude/severity, warning, and duration for each hazard identified by Fenton.

Reviewed & discussed Community Background information regarding community plans, ordinances, etc. and will continue to communicate with Fenton City Clerk to gather all needed information.

Identified Critical Facilities in Fenton and will continue to work with Clerk to gather additional information.

Identified and discussed current mitigation measures within Fenton.

Identified and scored new/future mitigation measures.

Explained the next steps needed in the plan development.

Answered questions.

Meeting adjourned at 9:00 p.m.

Ledyard, Iowa meeting for the community portion of the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan  
12 July 2012 7:00 p.m. – 9:00pm  
Ledyard City Hall

Conducted by NIACOG Planner

Introduction-

Explained that FEMA and the State now require multi-jurisdictional plans.

Definition and explanation of Hazard Mitigation, multi-jurisdictional plans, community responsibilities in planning process, & that each community will have representation within the plan.

Explanation of meetings and steps needed to complete plan process.

Sign in sheet/attendance and “local match” explained. \*see attached sign- in sheets.

Reviewed specific county level hazards that had been identified at the County meeting and then identified hazards specific to Ledyard.

Explained scoring system/process for each hazard and ranking process. Discussed & scored hazards based on probability, magnitude/severity, warning, and duration for each hazard identified by Ledyard.

Reviewed & discussed Community Background information regarding community plans, ordinances, etc. and will continue to communicate with Ledyard City Clerk to gather all needed information.

Identified Critical Facilities in Ledyard and will continue to work with Clerk to gather additional information.

Identified and discussed current mitigation measures within Ledyard.

Identified and scored new/future mitigation measures.

Explained the next steps needed in the plan development.

Answered questions.

Meeting adjourned at 9:00 p.m.

Titonka, Iowa meeting for the community portion of the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan  
16 July, 2012 6:30 p.m. – 9:00  
Titonka City Hall

Conducted by NIACOG Planner

Introduction-

Explained that FEMA now requires multi-jurisdictional plans.

Definition and explanation of Hazard Mitigation, multi-jurisdictional plans, community responsibilities in planning process, & that each community will have representation within the plan.

Explanation of meetings and steps needed to complete plan process.

Sign in sheet/attendance and “local match” explained. \*see attached sign- in sheets.

Reviewed specific county level hazards that had been identified at the County meeting and then identified hazards specific to Titonka.

Explained scoring system/process for each hazard and ranking process. Discussed & scored hazards based on probability, magnitude/severity, warning, and duration for each hazard identified by Titonka.

Reviewed & discussed Community Background information regarding community plans, ordinances, etc. and will continue to communicate with Titonka City Clerk to gather all needed information.

Identified Critical Facilities in Titonka and will continue to work with Clerk to gather additional information.

Identified and discussed current mitigation measures within Titonka.

Identified and scored new/future mitigation measures.

Explained the next steps needed in the plan development.

Answered questions.

Meeting adjourned at 9:00 p.m.

LuVerne, Iowa meeting for the community portion of the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan  
24 July, 2012, 7:00 p.m. – 9:00 p.m.  
LuVerne Public Library

Conducted by NIACOG Planner

Introduction-

Explained that FEMA now requires multi-jurisdictional plans.

Definition and explanation of Hazard Mitigation, multi-jurisdictional plans, community responsibilities in planning process, & that each community will have representation within the plan.

Explanation of meetings and steps needed to complete plan process.

Sign in sheet/attendance and “local match” explained. \*see attached sign- in sheets.

Reviewed specific county level hazards that had been identified at the County meeting and then identified hazards specific to LuVerne.

Explained scoring system/process for each hazard and ranking process. Discussed & scored hazards based on probability, magnitude/severity, warning, and duration for each hazard identified by LuVerne.

Reviewed & discussed Community Background information regarding community plans, ordinances, etc. and will continue to communicate with LuVerne City Clerk to gather all needed information.

Identified Critical Facilities in LuVerne and will continue to work with Clerk to gather additional information.

Identified and discussed current mitigation measures within LuVerne.

Identified and scored new/future mitigation measures needed/wanted.

Explained the next steps needed in the plan development.

Answered questions.

Meeting adjourned at 9:00 p.m.

Swea City, Iowa meeting for the community portion of the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan  
7 August 2012 7:00 p.m. – 9:00pm  
Swea City City Hall

Conducted by NIACOG Planner

Introduction-

Explained that FEMA and the State now require multi-jurisdictional plans.

Definition and explanation of Hazard Mitigation, multi-jurisdictional plans, community responsibilities in planning process, & that each community will have representation within the plan.

Explanation of meetings and steps needed to complete plan process.

Sign in sheet/attendance and “local match” explained. \*see attached sign- in sheets.

Reviewed specific county level hazards that had been identified at the County meeting and then identified hazards specific to Swea City.

Explained scoring system/process for each hazard and ranking process. Discussed & scored hazards based on probability, magnitude/severity, warning, and duration for each hazard identified by Swea City.

Reviewed & discussed Community Background information regarding community plans, ordinances, etc. and will continue to communicate with Swea City City Clerk to gather all needed information.

Identified Critical Facilities in Swea City and will continue to work with Clerk to gather additional information.

Identified and discussed current mitigation measures within Swea City.

Identified and scored new/future mitigation measures.

Explained the next steps needed in the plan development.

Answered questions.

Meeting adjourned at 9:00 p.m.

Whittemore, Iowa meeting for the community portion of the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan  
8 August, 2012, 5:30 p.m. – 8:00 p.m.  
Whittemore Legion Hall

Conducted by NIACOG Planner

Introduction-

Explained that FEMA now requires multi-jurisdictional plans.

Definition and explanation of Hazard Mitigation, multi-jurisdictional plans, community responsibilities in planning process, & that each community will have representation within the plan.

Explanation of meetings and steps needed to complete plan process.

Sign in sheet/attendance and “local match” explained. \*see attached sign- in sheets.

Reviewed & discussed Community Background information regarding community plans, ordinances, etc. and will continue to communicate with Whittemore City Clerk to gather all needed information.

Identified Critical Facilities in Whittemore and will continue to work with Clerk to gather additional information.

Reviewed specific county level hazards that had been identified at the County meeting and then identified hazards specific to Whittemore.

Explained scoring system/process for each hazard and ranking process. Discussed & scored hazards based on probability, magnitude/severity, warning, and duration for each hazard identified by Whittemore.

Identified and discussed current mitigation measures within Whittemore.

Identified and scored new/future mitigation measures needed/wanted.

Explained the next steps needed in the plan development.

Answered questions.

Meeting adjourned at 8:00 p.m.

Lakota, Iowa meeting for the community portion of the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan  
14 August, 2012, 6:00 p.m. – 8:00 p.m.  
Lakota Eagle Center

Conducted by NIACOG Planner

Introduction-

Explained that FEMA now requires multi-jurisdictional plans.

Definition and explanation of Hazard Mitigation, multi-jurisdictional plans, community responsibilities in planning process, & that each community will have representation within the plan.

Explanation of meetings and steps needed to complete plan process.

Sign in sheet/attendance and “local match” explained. \*see attached sign- in sheets.

Reviewed & discussed Community Background information regarding community plans, ordinances, etc. and will continue to communicate with Lakota City Clerk to gather all needed information.

Identified Critical Facilities in Lakota and will continue to work with Clerk to gather additional information.

Reviewed specific county level hazards that had been identified at the County meeting and then identified hazards specific to Lakota.

Explained scoring system/process for each hazard and ranking process. Discussed & scored hazards based on probability, magnitude/severity, warning, and duration for each hazard identified by Lakota.

Identified and discussed current mitigation measures within Lakota.

Identified and scored new/future mitigation measures needed/wanted.

Explained the next steps needed in the plan development.

Answered questions.

Meeting adjourned at 8:00 p.m.

Lone Rock, Iowa meeting for the community portion of the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan  
16 August 2012 7:00 p.m. – 9:00pm  
Lone Rock City Hall

Conducted by NIACOG Planner

Introduction-

Explained that FEMA and the State now require multi-jurisdictional plans.

Definition and explanation of Hazard Mitigation, multi-jurisdictional plans, community responsibilities in planning process, & that each community will have representation within the plan.

Explanation of meetings and steps needed to complete plan process.

Sign in sheet/attendance and “local match” explained. \*see attached sign- in sheets.

Reviewed specific county level hazards that had been identified at the County meeting and then identified hazards specific to Lone Rock.

Explained scoring system/process for each hazard and ranking process. Discussed & scored hazards based on probability, magnitude/severity, warning, and duration for each hazard identified by Lone Rock.

Reviewed & discussed Community Background information regarding community plans, ordinances, etc. and will continue to communicate with Lone Rock City Clerk to gather all needed information.

Identified Critical Facilities in Lone Rock and will continue to work with Clerk to gather additional information.

Identified and discussed current mitigation measures within Lone Rock.

Identified and scored new/future mitigation measures.

Explained the next steps needed in the plan development.

Answered questions.

Meeting adjourned at 9:00 p.m.

Wesley, Iowa meeting for the community portion of the  
Kossuth County Multi-Jurisdictional Hazard Mitigation Plan  
27 August 6:30 p.m. – 8:30pm  
Wesley City Hall

Conducted by NIACOG Planner

Introduction-

Explained that FEMA and the State now require multi-jurisdictional plans.

Definition and explanation of Hazard Mitigation, multi-jurisdictional plans, community responsibilities in planning process, & that each community will have representation within the plan.

Explanation of meetings and steps needed to complete plan process.

Sign in sheet/attendance and “local match” explained. \*see attached sign- in sheets.

Reviewed specific county level hazards that had been identified at the County meeting and then identified hazards specific to Wesley.

Explained scoring system/process for each hazard and ranking process. Discussed & scored hazards based on probability, magnitude/severity, warning, and duration for each hazard identified by Wesley.

Reviewed & discussed Community Background information regarding community plans, ordinances, etc. and will continue to communicate with Wesley City Clerk to gather all needed information.

Identified Critical Facilities in Wesley and will continue to work with Clerk to gather additional information.

Identified and discussed current mitigation measures within Wesley.

Identified and scored new/future mitigation measures.

Explained the next steps needed in the plan development.

Answered questions.

Meeting adjourned at 8:30 p.m.

# APPENDIX III: PLANNING COMMITTEE AND SIGN-IN SHEETS

## **KOSSUTH COUNTY PLANNING COMMITTEE**

- Jim Kelley-Kossuth County-EMA
- Pam Wymore-Kossuth County-Supervisor
- Michael Brennen-Bancroft-City Administrator
- Craig Giddings-Burt-City Superintendent
- Vickie Madsen-Burt-City Clerk
- Lynn Kueck-Algona-Mayor
- Chuck Bell-Algona-Fire Chief
- Alan Miller-Fenton-City Council
- Janice Bruhn-Fenton-Citizen
- Brad Engelby-Ledyard-City Council
- John Lee-Titonka-Fire Department
- Aaron Boyken-Titonka-Mayor
- Sara Hamilton-Titonka-Citizen
- CP Patterson-LuVerne-City Council
- Cal Wolterman-Swea City-Fire Department
- Royce Janssen-Lakota-City Council
- Randy Draper-Swea City-Fire Department
- Sandy Long-Whittemore-Public Library
- Cindy Simonson-Whittemore-Legion Auxillary
- Gary Anderson-Lakota-City Employee
- Gerald Thompson-Lone Rock-Mayor
- Craig Larson-Wesley-City Employee
- Helen Youngwith-Wesley-Citizen



### Hazard Mitigation Planning Meeting Sign-In Sheet

Jurisdiction: Kossuth County		Date: 8/11/11		Time: 7:30-9:30am	
Print Name	Sign Name	Address or Phone # or email address	Representing (City Council, citizen, City works, school district, business, etc.) Name of who you are representing	Volunteer	Compensated
Sample Name		555-456-3223	Anytown City Council	x	
Don Besch	Don Besch	515 583 2354	Kossuth Co	x	
Jim Kelley	Jim Kelley	515-295-5904	Kossuth Co.	x	
Pam Wymore	Pam Wymore	515-295-7314	Kossuth Co	x	
John Boeckholt	John Boeckholt	515-341-0314	Burt / Council	x	
RICHARD KNOWL	Richard Knowl	515-888-2163 515-200-9205	FENTON FIRE DEPT CITY OF FENTON	x	
ERIC GOODMAN	E. Goodman	515-320-0404	Whittemore Ems City of Whittemore	x	
Tony Brundage	Tony Brundage	515-320-2334	Whittemore Fire Dept.	x	
Michael Bronson	Michael Bronson	515-885-2382	Bancroft	x	
Dennis Holmes	Dennis E. Holmes	515-882-3318	Luluana	x	



Hazard Mitigation Planning Meeting Sign-In Sheet					
Jurisdiction: Kossuth County-Burt			Date: 10/25/11	Time: 7:00am - 9:00am	
Print Name	Sign Name	Address or Phone # or email address	Representing (City Council, citizen, City works, school district, business, etc.) Name of who you are representing	Volunteer	Compensated
Sample Name		555-456-3223	Anytown City Council	x	
Craig Giddings	Craig W. Giddings	515-341-4618	City Supt.	X	
Jordan Jahnke	JJ	515-924-3316	Burt Fire Dept	X	
Adam Poseg	Adam Poseg	515-924-3295	Burt Fire Dept	X	
PAJ Foertsch	Pat Foertsch	515-924-3354	Burt Fire Dept	X	
Chris White	Chris White	515-320-6001	Burt Fire Dept	X	
Jean Menning	Jean Menning	515-984-4101	Exceptional Opportunities, Inc	X	
Lori McBair	Lori McBair	515-924-3465	Burt First Responders	X	
Royce Janssen	RJ	515-924-3242	Business owner	X	
Brian Song	Brian Song	515-320-5277	Burt Fire & 1st Responders	X	
Nathan Countryman	NC	515-295-3535	Algonu Publishing	X	
Mike Chihak	Mike Chihak	515-924-3710 504 W. 1st St. Burt mchihak@netins.net	Burt Fire Dept.	X	
Jim Kelley	Jim Kelley	515-295-5904 Kossuth Co. Executive	Kossuth Co. Embr	X	
Jim Magland	Jim Magland	515-928-2110 Jim Magland @ TBC Tel. Co.	Business Telephone Co. Manager	X	
Chris Heyis	Chris Heyis	515-924-3530	Burt Fire Dept Burt EMS	X	
Joe Heyis	Joe Heyis	515-320-1353	Burt Fire	X	
Joe Jahnke	Joe Jahnke	(515) 341-0281	Burt Fire / City Maintenance	X	
Dana Wignall	Dana Wignall	515-928-7017	Burt EMS	X	



### Hazard Mitigation Planning Meeting Sign-In Sheet

Jurisdiction: Kossuth County-Algona			Date: 10/27/11	Time: 7:00pm - 9:00pm	
Print Name	Sign Name	Address or Phone # or email address	Representing (City Council, citizen, City works, school district, business, etc.) Name of who you are representing	Volunteer	Compensated
Sample Name		555-456-3223	Anytown City Council	x	
LYNN KUECK (MR.)	<i>Lynn Kueck</i>	<i>lynn.kueck@ci.algona.iowa.us</i>	MAYOR OF ALGONA	X	
Ron COVERT	<i>Ron Covert</i>	515-295-5404	City of Algona - Public Works	✓	
Kurt Nielsen	<i>Kurt Nielsen</i>	515-341-2177	City of Algona St. Dept.	✓	
Chuck Bell	<i>Chuck Bell</i>	515-341-2978	Fire Chief	X	
GARY F. MERRILL	<i>Gary Merrill</i>	712 480 2314	ALGONA EMERGENCY MEDICAL SERVICE	X	
CURTIS L. SCHIPPER	<i>Curtis Schipper</i>	515-295-3515	ALGONA POLICE DEPT.	X	
Jim Kelley	<i>Jim Kelley</i>	<i>Kossuth Co. Kossuth IOWA</i> 515-295-5904	Kossuth Co. IA	X	
John Bilstein	<i>John Bilstein</i>	515-295-9612	Algona Municipal Utilities	X	
DAVE KERKOVE	<i>Dave Kerkove</i>	<i>dkerkove@algona.k12.iowa.us</i>	Algona Schools	X	
Colo'Donnell	<i>Colo'Donnell</i>	<i>colodonnell@ci.algona.iowa.us</i>	City of Algona	X	

### Hazard Mitigation Planning Meeting Sign-In Sheet

Jurisdiction: Kossuth County-Fenton			Date: 1/30/12	Time: 7:00pm - 9:30pm	
Print Name	Sign Name	Address or Phone # or email address	Representing (City Council, citizen, City works, school district, business, etc.) Name of who you are representing	Volunteer	Compensated
Sample Name		555-456-3223	Anytown City Council	x	
SUSAN M. POTRATZ	Susan M. Potratz	515-889-2887	CITY CLERK	X	
Alan Miller	Alan Miller	515-889-2704	City Council	X	
Roger STRUCKER	Roger Strucker	515-889-2968	City Council	X	
DURNE HANNOVER	Darne Hannover	515 889 2288	CITIZEN	X	
RICHARD KNOW	Richard Know	515 889-7763	FIRE DEPT	X	
Robert Potratz	Robert Potratz	515-889-2395	Business owner	X	
ALAN J. THLGES	Alan Thlges	515-889-2878	City Council FIRE DEPT	X	
Peter Koenck	Peter Koenck	515 889 2358	Citizen	X	
Larry Goetzemaier	Larry Goetzemaier	515-999-2751	City Council	X	
Betty Olesen	Betty Olesen	515-889-2250	Citizen	X	
Lynn Mathison	Lynn Mathison	515-889-2801	Citizen	X	
Carl Mathison	Carl Mathison	515-889-2801	Citizen	X	
Helen Baxter	Helen Baxter	1-572-889-2889	"	X	
Timothy J. Fitzgerald	Timothy J. Fitzgerald	1 515-889 2889	Citizen	X	
Janice Bruhn	Janice Bruhn	515-889-2837	Citizen	X	

### Hazard Mitigation Planning Meeting Sign-In Sheet

Jurisdiction: Kossuth County-Ledyard			Date: 7/12/12	Time: 7:00am - 9:00am	
Print Name	Sign Name	Address or Phone # or email address	Representing (City Council, citizen, City works, school district, business, etc.) Name of who you are representing	Volunteer	Compensated
Sample Name		555-456-3223	Anytown City Council	x	
BERNARD W. REILLY	Bernard W. Reilly	515-646-2514	CITY RESIDENT	X	
Robert Ignittor	Robert Ignittor	515 646-2007	Fire dept	X	
Lee Wibben	Lee Wibben	507-525-2435	Fire dept	X	
Justin Engelly	Justin Engelly	1501 470th St, Ledyard	Fire dept	X	
Mindy Gelhaus	Mindy Gelhaus	211 Arthur Street Ledyard	Citizen	X	
Jack P. Reese	Jack P. Reese	515-646-3061	Citizen	X	
Christ Engelbarts	Christ Engelbarts	301 Blaine St.	CITIZEN	X	
Beth Engelbarts	Beth Engelbarts	301 Blaine St, Ledyard	CITIZEN	X	
Kathryn Lloyd	Kathryn Lloyd	306 Logan St	CITIZEN	X	
Therese Ternes	Therese Ternes	202 Division St	Citizen	X	
L. E. TERRES	L. E. Ternes	515-646-3560	Citizen	X	
Laurie Ternes	Laurie Ternes	307-299-1472	Citizen / City of Ledyard Mayor	X	
Joyce Steinhart	Joyce Steinhart	515-646-2701		X	
Joyce Steinhart	Joyce Steinhart	520 Division St, Ledyard	Citizen	X	
Lyla Lloyd	Lyla Lloyd	2029		X	
Lyla Lloyd	Lyla Lloyd	97-574 Division St	Citizen	X	
Lillian Johnson	Lillian Johnson	13417 - Ledyard, Ia		X	
Lillian Johnson	Lillian Johnson	tel - 646-3251	Citizen	X	
Mary Ann Reilly	Mary Ann Reilly	302 Sherman St		X	
Mary Ann Reilly	Mary Ann Reilly	515-646-2514	Citizen	X	
Rose Gelhaus	Rose Gelhaus	515 646 3395	Citizen	X	

### Hazard Mitigation Planning Meeting Sign-In Sheet

Jurisdiction: Kossuth County-Ledyard			Date: 7/12/12	Time: 7:00pm - 9:00pm	
Print Name	Sign Name	Address or Phone # or email address	Representing (City Council, citizen, City works, school district, business, etc.) Name of who you are representing	Volunteer	Compensated
Sample Name		555-456-3223	Anytown City Council	x	
PARLENE REECE	Parlene Reece	515-646-3061	Citizen	X	
Linda Eichenberger	Linda Eichenberger	515-646-2105	Citizen	X	
Lloyd Eichenberger	Lloyd Eichenberger	515-646-2055	Citizen	X	
Trudy Blome	Trudy Blome	515-646-3721	State Bank of Ledyard / Citizen	X	
PAT HOFFMAN	Pat Hoffman	209 ARTHUR ST	Citizen	X	
Donna Christ	Donna Christ	886-2334	Ledyard County Store	X	
David Christ	David Christ	886-2334	Citizen	X	
Mary Menke	Mary Menke	515-646-2730	Citizen	X	
Ken Menke	Ken Menke	515-646-2730	Citizen	X	
JOHN COXON	John Coxon	515-646-2151	FORE REPT	X	
Sean Holland	Sean Holland	515-320-8467	Stokline Cooperative	X	
Brad Engelby	Brad Engelby	515-646-2591	City Council	X	
Shawn Bradt	Shawn Bradt	515-646-2813	City Employee	X	
Evelyn Dacey	Evelyn Dacey	515-646-3005	City Council	X	
Charyl Potzin	Charyl Potzin	515-646-3511	City Council	X	
Brian Burt	Brian Burt	515-646-2019	Citizen	X	
Dawn Burt	Dawn Burt	515-646-2019	Citizen	X	

Sharon Hackenmiller Cowin	<del>Sharon</del>	515.646.2151	Mayor, Ledyard, IA	X
F.M. Winter	Don Winter	515 886 2534	Store owner	X
Royce Valvick	<del>Royce</del>	506-Division St	Citizen	X
Jim Steenhord	Jim Steenhord	515-696-2701	City Council	a
Sandra Henderson	Sandra Henderson	718-859-3806	City Clerk	X





### Hazard Mitigation Planning Meeting Sign-In Sheet

Jurisdiction: Kossuth County-LuVerne			Date: 7/24/12	Time: 7:00 p.m. - 9:00 p.m.	
Print Name	Sign Name	Address or Phone # or email address	Representing (City Council, citizen, City works, school district, business, etc.) Name of who you are representing	Volunteer	Compensated
Sample Name		555-456-3223	Anytown City Council	x	
<del>Tim &amp; Karen</del>	Tim & Karen	515-882-9508	Citizens	X X	
Ferdinand Branches	Ferdinand Branches	f.branches@yahoo.com	citizen	x	
Rick & Julie Yeargan	Julie Yeargan	4 Kossuth		x	
Dennis Holmes	Dennis Holmes	304 Cleveland	mayor	✓	
LeAnn Wemper	LeAnn Wemper	804 Logan	CITIZEN	✓	
Bob G.	Bob G.	403 Kossuth	citizen	✓	
Wilbur Dunn		109 PROSPECT		✓	
Eunice Blake		205 Hannan ave	CITIZEN	✓	
Ellen Blake		205 Hannan ave	CITIZEN	✓	
James Carroll	James Carroll	304 Prospect	Council member	✓	
CP Patterson	CP Patterson	706 Logan St.	Council member	✓	
Gene Fridors	Gene Fridors	705 Logan St	council member	✓	
Joe Cunningham	Joe Cunningham	802 Logan St.	CITIZEN	✓	
Mary Hodson	Mary Hodson	104 Prospect	"	✓	
Esther Tripp	Esther Tripp	1002 Maple St. N	Citizen	✓	

### Hazard Mitigation Planning Meeting Sign-In Sheet

Jurisdiction: Kossuth County-Swea City		Date: 8/07/12	Time: 7:00pm - 9:00pm		
Print Name	Sign Name	Address or Phone # or email address	Representing (City Council, citizen, City works, school district, business, etc.) Name of who you are representing	Volunteer	Compensated
Sample Name		555-456-3223	Anytown City Council	x	
Gay Ernster	Gay Ernster	515-272-4006	City Clerk	X	
Rhonda Lockwood	Rhonda Lockwood	515-272-4802	Dur Survivor Little Lambs	X	
Mike Lockwood	Mike Lockwood	mikel@lec.coop	City Council	X	
Dustin Sobolek	Dustin Sobolek	507-236-6021	Fire Department	X	
Dean Zielske	Dean Zielske	515-272-4997	Fire Dept	X	
Alycia Sandvig	Alycia Sandvig	515-848-5377	EMS	X	
Cal Watterman	Cal Watterman	507-236-2940	Fire Dept.	X	
Matthew Looft	Matthew Looft	515-538-0413	Fire Department	X	
Dason Vaske	Dason Vaske	515-538-0152	Fire Department	X	
Stanley Ellman	Stanley Ellman	515-272-4512	Fire Department	X	
Debra Ellman	Debra Ellman	515-272-4512	City Council	X	
Kristen Donnelly	Kristen Donnelly	515-272-4127	EMS	X	
Jessi Bauer	Jessi Bauer	515-272-9919	Fire	X	
James M Johnson	James M Johnson	515-272-4605	Fire	X	
Mitch Zielske	Mitch Zielske	515-272-4143	Fire	X	
Bill Matler	Bill Matler	515-272-4125	EMS	X	
Scott Ernster	Scott Ernster	515-320-1651	City Employee	X	



### Hazard Mitigation Planning Meeting Sign-In Sheet

Jurisdiction: Kossuth County-Whittemore			Date: 8/08/12	Time: 5:30 - 8:00pm	
Print Name	Sign Name	Address or Phone # or email address	Representing (City Council, citizen, City works, school district, business, etc.) Name of who you are representing	Volunteer	Compensated
Sample Name		555-456-3223	Anytown City Council	x	
Linda K. Farrell	<i>Linda K. Farrell</i>	515-884-2413	City Clerk, Whittemore	x	
DAN ELBERT	<i>Dan Elbert</i>	515-884-2253	Mayor - Whittemore, IA	x	
Stuart Simonson	<i>Stuart Simonson</i>	515-884-2293	City Council Whittemore	X	
Ron Hutchison	<i>Ron Hutchison</i>	515-884-2271	Maxfield Coop.	x	
Cindy Simonson	<i>Cindy Simonson</i>	515-884-2769	Legion Auxiliary	x	
Sandy Long	<i>Sandy Long</i>	515-884-2650	Public Library	x	
Coletta Mullin	<i>Coletta Mullin</i>		Citizen	x	
<del>Carol Elbert</del>	<del>Carol Elbert</del>	515-884-2597	citizen	x	
Kay Elbert	<i>Kay Elbert</i>	515-884-2249	citizen	x	
Rita Hansen	<i>Rita Hansen</i>	515-884-2325	citizen	x	
Alvin Bell	<i>Alvin Bell</i>	515-320-2199	11	X	
Ron Meyer	<i>Ron Meyer</i>	515-884-2476	Whittemore Fire Ambulance	X	
MIKE ELBERT	<i>Mike Elbert</i>	515-884-2665	Whittemore Supt.	X	
Bryan Meyer	<i>Bryan Meyer</i>	515-884-2027	Employee City	x	
Ellen Meyer	<i>Ellen Meyer</i>	515-884-2446	Citizen	X	

### Hazard Mitigation Planning Meeting Sign-In Sheet

Jurisdiction: Kossuth County-Lakota			Date: 8/14/12	Time: 6:00 - 8:00	
Print Name	Sign Name	Address or Phone # or email address	Representing (City Council, citizen, City works, school district, business, etc.) Name of who you are representing	Volunteer	Compensated
Sample Name		555-456-3223	Anytown City Council	x	
Janel Chambers	Janel Chambers	515-886-2372	Citizen	x	
Sharon Price	Sharon Price	515-886-2340	CITIZEN	x	
Donna Steven	Donna Steven	515-886-2544	Pastor - First Presbyterian	x	
George M. Good	George M. Good	515-886-2008	CITIZEN	x	
Gwen Good	Gwen Good	515-886-2008	Council Member	x	
Elene Price	Elene Price	515-886-2368	CITIZEN	x	
FLORENCE PAUSEN	FLORENCE PAUSEN	515-886-2081	CITIZEN	x	
JORN MABUS	JORN MABUS	515-886-2369	CITIZEN	x	
CATHERINE ROSENKRENZ	CATHERINE ROSENKRENZ	515-538-0323	"	x	
JANE E CRAWFORD	JANE E CRAWFORD	941-914-2127	"	x	
Royce Janssen	Royce Janssen	515-341-2314	Council Member	x	
DAWN JANSSEN	DAWN JANSSEN	515-886-2313	Citizen	x	
Dary Andersen	Dary Andersen	515-341-0912	City Emply.	x	
Kristen Cavet	Kristen Cavet	515-538-0939	" "	x	

### Hazard Mitigation Planning Meeting Sign-In Sheet

Jurisdiction: Kossuth County-Lone Rock			Date: 8/16/12	Time: 7:00 pm - 9:30	
Print Name	Sign Name	Address or Phone # or email address	Representing (City Council, citizen, City works, school district, business, etc.) Name of who you are representing	Volunteer	Compensated
Sample Name		555-456-3223	Anytown City Council	x	
DOUGLAS W HOUSE	Doug House	515 925 3244	FIRE DEPT	X	
Erauld Thompson	Erauld Thompson	515-925-3289	Mayor	X	
Angie Thompson	Angie Thompson	515-925-3289	Citizen		
Bill Weisbrod	Bill Weisbrod	515 925 3257	City Council	x	
Fritz Newbrough	Fritz Newbrough	515-925-3262	Fire Dept	X	
Dalores Newbrough	Dalores Newbrough	515-925-3262	CITIZEN	X	
DAVE NEWBROUGH	Dave Newbrough	515-925-3330	EMS	X	
Marilyn Newbrough	Marilyn Newbrough	515-925-3330	citizen	X	
Jim Cejka	Jim Cejka	515-925-3282	City Council, EMS	X	
Beth Cejka	Beth Cejka	515-925-3282	Citizen	X	
DENNIS HEERDT	Dennis Heerdt	515-924-3226	City Clerk & Treasurer	X	
Rick Thompson	Rick Thompson	515-925-3508	Business Owner	X	
Lisa Thompson	Lisa Thompson	515-925-3508	city council	X	

### Hazard Mitigation Planning Meeting Sign-In Sheet

Jurisdiction: Kossuth County-Wesley			Date: 8/27/12	Time: 6:30 - 8:30pm	
Print Name	Sign Name	Address or Phone # or email address	Representing (City Council, citizen, City works, school district, business, etc.) Name of who you are representing	Volunteer	Compensated
Sample Name		555-456-3223	Anytown City Council	x	
MARLA WINGEET	Marla Winget	515-679-4359	City Clerk	X	
DUANE LARSON	Duane Larson	515-679-4150	MAYOR	X	
Joe Golwitzer	Joe Golwitzer	515-679-4162	City Council Wesley EMS Per.	X	
Cathy Florea	Cathy Florea	515-341-1273	Citizen	X	
Craig Florea	Craig Florea	515-341-0222	City Council	X	
Mike Lentsch JR.	Mike Lentsch	515-341-0390	City Council	X	
Craig Larson	Craig Larson	515-341-4475	City Employee	X	
Ben Smith	Ben Smith	641-494-8251	CITY COUNCIL	X	
Frank Bode	Franklin Bode	515-679-4407	citizen	X	
Verna Penning	Verna Penning	515-679-4131	Citizen	X	
Earl Robinson	Earl Robinson	515-679-4128	Citizen	✓	
David Youngworth	David Youngworth	515-679-4264	Citizen	X	
Dittel Robinson	Dittel Robinson	515-679-4204	Citizen	X	
Marilyn Robinson	Marilyn Robinson	515-679-4204	Citizen	X	
Helen Youngworth	Helen Youngworth	515-679-4269	CITIZEN	X	
Darwin Fridereso	Darwin Fridereso	515-679-4211	CITIZEN	X	
Joleen Fridereso	Joleen Fridereso	515-341-5800	Citizen	X	

### Hazard Mitigation Planning Meeting Sign-In Sheet

Jurisdiction: Kossuth County-Wesley			Date: 8/27/12	Time: 6:30 - 8:30pm	
Print Name	Sign Name	Address or Phone # or email address	Representing (City Council, citizen, City works, school district, business, etc.) Name of who you are representing	Volunteer	Compensated
Sample Name		555-456-3223	Anytown City Council	x	
Robert Snyder	Robert Snyder	303 3rd St N.	citizen	X	
Rosemary Snyder	Rosemary Snyder	303 3rd St N.	citizen	X	
LaVon Larson	LaVon Larson	204 2nd St S	Citizen	X	
Judy Clark	Judy Clark	403 3rd St N.	Citizen	X	
Bob Clark	Bob Clark	403 3rd St N.	Citizen	X	
Joella Leider	Joella Leider	401 2nd St S	City Council	X	
Julie Larson	Julie Larson	515-341-6323	citizen	X	
Millie Fox	Millie Fox	501 Read St	Citizen	X	
Ethel Swanson	Ethel Swanson	679-4066	Citizen	X	

# APPENDIX IV: LETTERS TO COMMUNITIES

Board of Supervisors  
Kossuth County  
114 West State Street  
Algona, Iowa 50511

Dear Supervisors:

The North Iowa Area Council of Governments has just completed the Multi-Jurisdictional Hazard Mitigation Plan Draft for Kossuth County.

Your community leader is invited to review our Hazard Mitigation Plan. FEMA and NIACOG have requested that we, as Supervisors, contact neighboring counties and school districts to ask if they would like to review the plan.

If you would like to review the plan, please contact our Auditor at 515-295-2718 to make arrangements in reviewing the plan. The plan will be available starting March 1<sup>st</sup>, 2013. Thank you.

Sincerely,

Don Besch  
Don McGregor  
Jack Plathe  
Roger Tjarks  
Pam Wymore

# APPENDIX V: REFERENCES

## REFERENCES

U.S. Department of Homeland Security. FEMA Risk Assessment Workshop: Participant Manual FEMA, 2007.

FEMA Risk Assessment Workshop On Disk. CD-ROM. FEMA. 2007.

Mitigation Planning References. CD-ROM. Iowa Homeland Security and Emergency Management, 2008

U.S. Department of Homeland Security. FEMA Homepage. 2012

Available at: <http://www.fema.gov/>

North Iowa Area Council of Governments.

Kossuth County, Iowa Hazard Mitigation Plan. Kossuth County, IA, 2000

North Iowa Area Council of Governments

Algona Pre-Hazard Mitigation Plan, 2004

State of Iowa. Hazard Mitigation Plan. 2010

U.S. Census Bureau. United States Census Homepage. 2012

Available at: <http://www.census.gov/>

National Climatic Data Center. NOAA and NCDC Homepage. 2012

Available at: <http://www.ncdc.noaa.gov/oa/ncdc.html>

National Resources Conservation Service. NRCS Soils Homepage. 2012

Available at: <http://soils.usda.gov/>

# APPENDIX VI: ACRONYM LIST

## Acronym List

BCA	Benefit Cost Analysis
BFE	Base Flood Elevation
CBD	Central Business District
CFR	Code of Federal Regulations
COG	Council of Governments
CRS	Community Rating System
DMA 2000	Disaster Mitigation Act of 2000
EMI	Emergency Management Institute
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FMA	Flood Mitigation Assistance
GIS	Geographic Information Systems
HAZUS <sub>MH</sub>	Hazards U.S. – Multi- Hazard
HMGP	Hazard Mitigation Grant Program
HQ	Headquarters
ISO	Insurance Services Office
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
N/A	Not Applicable
NCDC	National Climatic Data Center
NEIC	National Earthquake Information Center
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
PDM	Pre-Disaster Mitigation
PGA	Peak Ground Acceleration
QC	Quality Control
SHMO	State Hazard Mitigation Officer
STAPLEE	Social, Technical, Administrative, Political, Legal, Economic, Environmental
USGS	U.S. Geological Survey

# APPENDIX VII: UPDATE SHEETS



**Plan Goal(s)/Objective(s) Addressed:**

Goal: \_\_\_\_\_

Objective: \_\_\_\_\_

**Indicator of Success** (e.g., losses avoided as a result of the acquisition program):

*In most cases, you will list losses avoided as the indicator. In cases where it is difficult to quantify the benefits in dollar amounts, you will use other indicators, such as the number of people who now know about mitigation or who are taking mitigation actions to reduce their vulnerability to hazards.*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Status** (Please check pertinent information and provide explanations for items with an asterisk. For completed or canceled projects, see Worksheet #2 — to complete a project evaluation):

Project Status

Project Cost Status

(1)  Project on schedule

(1)  Cost unchanged

(2)  Project completed

(2)  Cost overrun\*

\*explain: \_\_\_\_\_  
\_\_\_\_\_

(3)  Project delayed\*

(3)  Cost under run\*

\*explain: \_\_\_\_\_  
\_\_\_\_\_

\*explain: \_\_\_\_\_  
\_\_\_\_\_

(4)  Project canceled

**Summary of progress on project for this report:**

A. What was accomplished during this reporting period?

B. What obstacles, problems, or delays did you encounter, if any?

C. How was each problem resolved?

**Next Steps:** What is/are the next step(s) to be accomplished over the next reporting period?

**Other comments:**

## Worksheet #2: Evaluating Your Planning Team

When gearing up for the plan evaluation, the planning team should reassess its composition and ask the following questions:

	YES	NO
Have there been local staffing changes that would warrant inviting different members to the planning team?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments/Proposed Action:</b>		
Are there organizations that have been invaluable to the planning process or to project implementation that should be represented on the planning team?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments/Proposed Action:</b>		
Are there any representatives of essential organizations who have not fully participated in the planning and implementation of actions? If so, can someone else from this organization commit to the planning team?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments/Proposed Action:</b>		
Are there procedures (e.g., signing of MOAs, commenting on submitted progress reports, distributing meeting minutes, etc.) that can be done more efficiently?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments/Proposed Action:</b>		
Are there ways to gain more diverse and widespread cooperation?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments/Proposed Action:</b>		
Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments/Proposed Action:</b>		

If the planning team determines the answer to any of these questions is “yes,” some changes may be necessary.

### Worksheet #3: Evaluate Your Project Results

**Project Name and Number:**

**Project Budget:**

**Project Description:**

**Associated Goal and Objective (s):**

**Indicator of Success (e.g., losses avoided):**

*Insert location map*

*include before and after photos if appropriate*

#### Was the action implemented?

**IF YES**  
↓

**What were the results of the implemented action?**

**Why not?**

**IF NO**  
↓

Was there political support for the action?	<b>YES</b>	<b>NO</b>
Were enough funds available?	<b>YES</b>	<b>NO</b>
Were workloads equitably or realistically distributed?	<b>YES</b>	<b>NO</b>
Was new information discovered about the risks or community that made implementation difficult or no longer sensible?	<b>YES</b>	<b>NO</b>
Was the estimated time of implementation reasonable?	<b>YES</b>	<b>NO</b>
Were sufficient resources (for example staff and technical assistance) available?	<b>YES</b>	<b>NO</b>

**Were the outcomes as expected?                      YES    NO    Additional comments or other outcomes:**

**If No, please explain:**



**Did the results achieve the goal and objective (s)?                      YES    NO**

**Explain how:**

**Was the action cost-effective?**

**YES NO**

**Explain how or how not:**

**What were the losses avoided after having completed the project?**

**If it was a structural project, how did it change the hazard profile?**

Date \_\_\_\_\_

Prepared by: \_\_\_\_\_

### Worksheet #4: Revisit Your Risk Assessment

<b>Risk Assessment Steps</b>	<b>Questions</b>	<b>YES</b>	<b>NO</b>	<b>COMMENTS</b>
<b>Identify hazards</b>	Are there new hazards that can affect your community?			
<b>Profile hazard events</b>	Are new historical records available?			
	Are additional maps or new hazard studies available?			
	Have chances of future events (along with their magnitude, extent, etc.) changed?			
	Have recent and future development in the community been checked for their effect on hazard areas?			
<b>Inventory assets</b>	Have inventories of existing structures in hazard areas been updated?			
	Are future developments foreseen and accounted for in the inventories?			
	Are there any new special high-risk populations?			
<b>Estimate losses</b>	Have loss estimates been updated to account for recent changes?			

If you answered “Yes” to any of the above questions, review your data and update your risk assessment information accordingly

## Worksheet #5: Revise the Plan

### Prepare to update the plan.

#### When preparing to update the plan:

Check the box when addressed ✓

1. Gather information, including project evaluation worksheets, progress reports, studies, related plans, etc.

Comments:

2. Reconvene the planning team, making changes to the team composition as necessary (see results from *Worksheet #2*).

Comments:

### Consider the results of the evaluation and new strategies for the future.

#### When examining the community consider:

Check the box when addressed ✓

1. The results of the planning and outreach efforts.

Comments:

2. The results of the mitigation efforts.

Comments:

3. Shifts in development trends.

Comments:

4. Areas affected by recent disasters.

Comments:

5. The recent magnitude, location, and type of the most recent hazard or disaster.

Comments:

6. New studies or technologies.

**Comments:**

\_\_\_\_\_

7. Changes in local, state, or federal laws, policies, plans, priorities, or funding.

**Comments:**

8. Changes in the socioeconomic fabric of the community.

**Comments:**

9. Other changing conditions.

**Comments:**

---

---

---

---

**Incorporate your findings into the plan.**

**When examining the plan:**

**Check the box when addressed ✓**

1. Revisit the risk assessment.

**Comments:**

2. Update your goals and strategies.

**Comments:**

3. Recalculate benefit-cost analyses of projects to prioritize action items.

**Comments:**

**Use the following criteria to evaluate the plan:**

**Criteria**

**YES NO Solution**

Are the goals still applicable?

--	--	--

Have any changes in the state or community made the goals obsolete or irrelevant?

--	--	--

Do existing actions need to be reprioritized for implementation?  
Do the plan's priorities correspond with state priorities?  
Can actions be implemented with available resources?


**Comments:**