

2016-2021

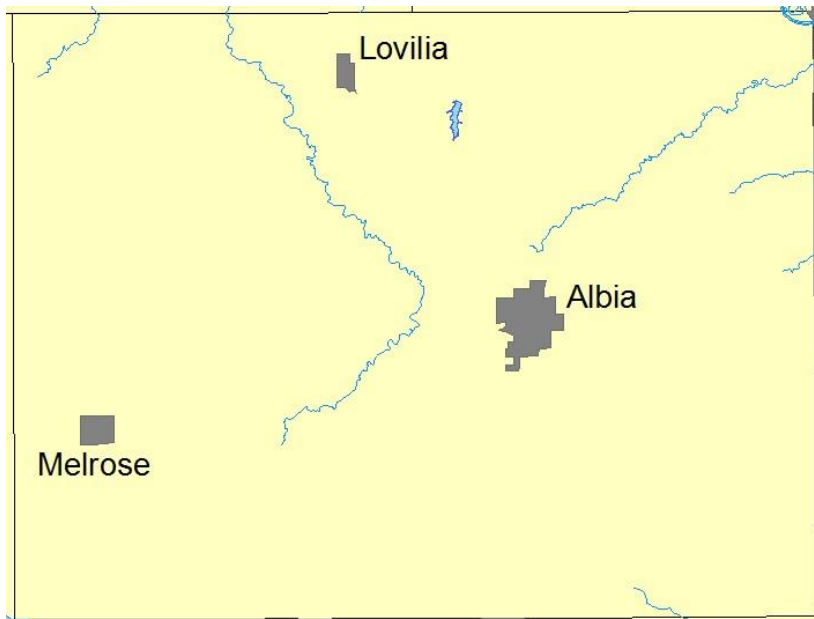
Monroe County Multi-Jurisdictional Hazard Mitigation Plan

Unincorporated Monroe County

Albia

Lovilia

Melrose



**FEMA Approved on:
July 5, 2016**



308 North 12th Street
Centerville, Iowa 52544
641-437-4359 - phone
641-437-1161 – fax
www.charitonvalleyplanning.com

Table of Contents

A. Introduction & Planning.....	4
1. Adoption.....	4
2. Purpose & Participation.....	4
3. What is a Hazard Mitigation Plan?	5
4. Planning Process.....	6
5. Materials Reviewed.....	7
6. Evaluation & Monitoring.....	7
B. Jurisdiction Profiles.....	11
1. Monroe County Unincorporated	11
2. Albia.....	16
3. Lovilia.....	21
4. Melrose.....	24
C. Identifying Hazards	26
1. Hazard Definitions	26
2. State & FEMA Hazards Not Detailed.....	28
3. Risk Assessment.....	29
4. Hazard Prioritization.....	30
5. Fire Insurance Rating.....	30
6. NFIP.....	30
D. Goals, Objectives & Strategies.....	31
E. Hazard Profiles, Vulnerability, & Mitigation Strategies.....	35
1. Hazardous Materials.....	35
2. Transportation Incident.....	54
3. Thunderstorm & Lightning.....	75
4. Hailstorm.....	84
5. Severe Winter Storms.....	93
6. Radiological.....	105
7. Infrastructure Failure.....	113
8. Human Disease.....	126
9. Tornadoes.....	130
10. Windstorm.....	142
11. River Flooding.....	150
12. Animal/Plant/Crop Disease.....	157
13. Earthquake.....	159
14. Terrorism.....	168
15. Flash Flooding.....	178
16. Drought.....	187
17. Extreme Heat.....	190
18. Grass or Wild Land Fire.....	194
19. Expansive Soils.....	201
20. Landslide.....	206
21. Dam Failure.....	209
22. Sinkholes.....	214

F. Prioritized Mitigation Strategies.....	221
G. Appendix	
1. Iowa DNR Draft Flood Mapping.....	225
2. Melrose FIRM.....	247
3. Modified Mercalli Scale.....	248
4. Alternate Facilities Valuation Estimate Tool.....	249
5. History of Iowa Earthquakes.....	250
6. TORRO Hailstorm Intensity.....	251
7. Iowa NDR Coal Mining Maps.....	252
8. Enhanced Fujita Parameter & Damage Details.....	257
9. Hazard by Jurisdiction.....	260
10. Meeting Flyers, Minutes, & Attendance.....	261
11. Hazard Scoring Sheets.....	315
12. Natural Hazard Events.....	319
13. Fixed Hazardous Materials Locations.....	335
14. 2012 Mitigation Strategies.....	342
15. Soil Composition.....	347
16. Resolutions.....	348
17. Glossary.....	349
18. Goals, Objectives & Strategies.....	358
19. Contact Information.....	363

A. Introduction

This chapter addresses the background and purpose of this plan, who was involved, and how it was developed. Combined, these elements are expected to provide an overview of the decision making process on disaster mitigation issues. This document is officially a Multi-Jurisdictional Hazard Mitigation Plan, but for simplicity, it may also be referred to as the Monroe Disaster Mitigation Plan in this document.

1. Adoption

The original Monroe County Multi-Jurisdictional Hazard Mitigation Plan was FEMA approved on 9/30/2011. The participating jurisdictions approved on the dates listed. The same cities participated in the plan update during 2016-2017. See Appendix 15”Resolutions” adopting the updated Monroe County Multi-Jurisdictional Hazard Mitigation Plan. Adoption is important for the communities to receive the benefits of the plan; if the plan is not adopted by a particular jurisdiction, that jurisdiction is not eligible for certain disaster recovery and disaster prevention programs and funds.

Adoption of plan by respective jurisdictions is pending FEMA and State conditional approval.

Jurisdiction	Adoption date
Un-incorporated Monroe County	
Albia	
Lovilia	
Melrose	
Albia Community Schools	
Monroe County Hospital	

2. Purpose and Participation

The purpose of the Hazard Mitigation Plan is to identify steps to prevent or reduce the impact of disasters on the residents and property in Monroe County. This is accomplished through compliance with the Federal Emergency Management Agency’s (FEMA) Mitigation Planning Regulations under Code of Federal Regulations (CFR), Title 44, Part 201 (Standard 44 CFR 201.4, 44CFR 201.5) Administrative Code 29C 605-7.3(4)(d)(1)(2).

The development of the Monroe County Hazard Mitigation Plan is the result of the input from elected officials, emergency management and other governmental personnel, agency representatives, business people, interested citizens, and the State of Iowa Hazard Mitigation Plan.

As the cost of disasters continue to rise, it became evident that more pre-disaster steps are necessary if we expected to reduce the damage that can affect the communities we live in. Hazard mitigation plans are intended to break the cycle of losses from various disasters. ADLM emergency management (providing service to Appanoose (A), Davis (D), Lucas (L), and Monroe (M) counties) secured grant funds from FEMA for the development of a multi-jurisdictional plan for Monroe County. The county then contracted with Chariton Valley Planning and Development Council of Governments to write and aid in the development of their Hazard Mitigation Plan. This plan identifies all of the natural hazards that affect and risks that pose a threat to the county. A hazard analysis, which is a part of this plan, provides a better understanding of each hazard, knowledge of the impacts the hazard could have on the county, and a prioritized list of actions for each hazard identified as a possible threat to the county. By assessing the current mitigation actions already in effect, evaluating alternatives, prioritizing and outlining a strategy for implementation the hazard mitigation plan has been developed and written.

Acknowledgements

Over the course of the planning process a number of individuals donated their time and efforts toward gathering information, attending meetings, and providing input for the successful completion of the plan. The following is a list of people who participated in preparation of the Monroe Disaster Mitigation Plan, in no particular order:

Planning Committee Members

The following chart contains the Monroe County Hazard Mitigation Planning Committee members.

<i>PARTICIPANT NAME</i>	<i>AGENCY</i>	<i>TITLE</i>
Misty Rosenberg	ADLM Emergency Management	Secretary
Jeremiah Selby	Monroe County	Engineer
Ray Vitko	Monroe County	Disaster Coordinator
Dan Johnson	Monroe Co Sheriff's Office	Sheriff
Sherry Lutz	ADLM Environmental Health	Health Officer
Tom Murphy	City of Albia	Mayor
Gene Rouze	Eddyville Fire Dept	Fire Chief
Mike Lamb	ADLM Emergency Management	Coordinator
Kim Hugen	Monroe County Public Health	Administrator
Brad Leedom	Monroe County Hospital	Emergency Services
Jay Andrews	Albia Police	Chief
Zach Randall	Lovilia Fire Department	Chief
Bruce Popowitz	Cargill	Environmental Coordinator
Dien Judge	Monroe County BOS	Supervisor
Denny Amoss	Monroe County BOS	Supervisor
Kevin Crall,	Albia Community Schools	Superintendent
Linda Heller	Melrose	City Clerk

Participation

Rosters and summaries of each meeting can be found in Appendix 10: Meeting Flyers, Minutes, & Attendance. If jurisdictions were met with on an individual basis, name of the person and the date(s) that meetings were held are supplied in the community profile.

It was determined that the most active representation of community members occurs at the Monroe County Local Emergency Planning Committee (LEPC). The participants provided information to develop this Disaster Mitigation Plan in conjunction with professional services from Chariton Valley Planning and Development Council of Governments. It was acknowledged that participation from rural jurisdictions could occur in the LEPC meetings or at other locations. The meetings are held during the day and not all community representatives can attend the meeting times. It was accepted that CVPD could meet with community members when it was convenient for them. Information regarding the purpose of the Hazard Mitigation Plan would be shared and specific community information would be gathered at that time to be included in the plan.

3. What is a Hazard Mitigation Plan?

Generally the first question asked when communities begin the process of preparing a Hazard Mitigation Plan is very simply “What is a Hazard Mitigation Plan and what is its intended purpose?” First, it is imperative to define what precisely the term mitigation entails. One definition of the term is stated perhaps most effectively by the Federal Emergency Management Agency (FEMA) and is as follows:

“Mitigation is defined as any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event. Mitigation, also known as prevention (when done before a disaster), encourages long-term reduction of hazard vulnerability. The goal of mitigation is to decrease the need for response as opposed to simply increasing the response capability.” (www.fema.gov).

A mitigation plan is a document that is intended to accomplish several things. First, through the planning process the hazards that pose a risk to the community are identified. Second, an assessment of the hazards is made that takes into account historic occurrence, the number of people impacted, the area of the jurisdictions affected, potential costs that the jurisdictions, individuals, and organization may incur, the likelihood of future occurrence, and the amount of warning time before an event occurs.

Once the assessment is completed, a list of current and historic mitigation efforts are evaluated. Through this discussion, areas that can be improved upon are identified and developed into “action steps”. Early in the planning process meeting attendees identify broad goals that briefly state what the plan should attempt to accomplish. Every action step should, if implemented, work toward one or more of the goals of the plan. An action step may suggest continuing a current mitigation effort or propose a new project altogether.

Finally, once the hazards have been assessed, mitigation steps have been identified, and action steps have been prioritized, the plan makes some suggestions for implementation and makes estimates as to the costs of implementation. Some proposed projects are small in scope and thus relatively low cost. However, other projects are broad in nature and would require more funding than the local community can reasonably provide. Therefore, the final piece of the plan suggests methods to implement the plan, how to keep the public involved, and what steps should be taken by local government to ensure that the concept of hazard mitigation is always a priority.

When implemented appropriately, mitigation projects can save lives, reduce property damage, save public monies, and protect the environment. Mitigation can reduce the enormous cost of disasters to property owners and all levels of government. In addition, mitigation can protect critical community facilities, reduce exposure to liability, and minimize community disruption.

4. The Planning Process

The Monroe County Local Emergency Planning Committee developed this Disaster Mitigation Plan in conjunction with professional services from Chariton Valley Planning and Development Council of Governments.

The committee met 7 times from August 2014 and March 2016. All meetings complied with the Iowa Open Meetings Law; this simply means all sessions are open to the public and appropriate notifications were present. The initial orientation disaster planning meeting took place September 9, 2014 in Albia. The attendees discussed what a Hazard Mitigation Plan contains, some reasons for having one, the basic process for updating the plan, and some initial brainstorming of information for the plan and people that should be involved. A brief survey was utilized to help spark conversation about the various types of hazards that might impact Monroe County. At the end of the orientation meeting, information was distributed to attendees with the request that they share them with others in their respective communities.

The second open meeting took place on October 21, 2014 the committee reviewed the existing mission statement and goals. Committee members proposed and approved keeping the same as the already approved plan. Members discussed the changes in the hazards in this update and voted to evaluate and assign a score to all 23 hazards. During the scoring process, members held discussion as to some hazards that have no effect on communities (I.E. river flooding if there were no rivers in the city limits). CVPD guided discussion to determine which could be eliminated for every jurisdiction (See Appendix 10 for meeting minute details).

A regional meeting was held October 29, 2014 at the ADLM office for all jurisdictions and residents in Appanoose, Lucas, and Monroe Counties in Iowa. The purpose for this meeting was to educate the region on the importance of Hazard Mitigation Planning. Chariton Valley Planning & Development (CVPD) Council of Governments has been contracted by the counties to develop this document. This meeting was an opportunity for CVPD & ADLM Emergency Management to share information about the planning process and for the community representatives to have a chance to express needs/desires of a jurisdiction.

In November, the planning committee reviewed the hazard scoring and rankings by each jurisdiction. The committee approved the rankings as presented. Committee members also spent time reviewing the list of “Critical Facilities” for each jurisdiction and noted additions/deletions. Each participant was provided with the list of mitigation strategies selected in the approved plan. They were to review and be prepared for discussion of accomplishments, recommended changes, etc. CVPD staff began to assemble the draft document by updating statistical information and inputting data from meetings held up to this point. This would take several months and CVPD will soon provide a draft copy of the updated Monroe County Multi-Jurisdictional Hazard Mitigation Plan to the committee and the state for review.

September 22, 2015 the Monroe County LEPC convened to continue progress of the HMP document. CVPD presented individual draft plans for each jurisdiction that will be included as an appendix for the comprehensive plan. The county hopes this strategy will produce a document that is more “user-friendly” for the smaller communities. Committee members

worked to create a comprehensive county hazard ranking for Monroe County. The second half of the meeting was spent evaluating mitigation strategies and what is currently available.

The last working session for the Monroe County committee occurred on October 13, 2015. Participating members again reviewed the existing mitigation strategies for each jurisdiction and the mitigations strategies that were previously selected for identified hazards. Recommendations were made to update services of Public Health, existing storm shelters, and available generators. The mitigation strategies previously chosen in the approved plan were primarily still accurate for the ranked hazards. Committee members elected to add the strategy to incorporate “Active Shooter” trainings for any public facility interested (especially schools and industries). There were minor terminology changes to three strategies to clarify the intent of the committee.

Chariton Valley Planning & Development presented the draft HMP document to the committee on March 15, 2016. There are a few small items clarified and corrected in the document. The committee approved the re-wording in the Goals & Objectives portion. It will be identified as the community’s priority hazards but not affect the overall ranking of the counties ranked hazards completed by the committee.

A complete draft of the plan will be completed and submitted to committee members. The Monroe Disaster Mitigation Plan was then sent to FEMA and the State for conditional approval prior to being subjected to the adoption process by each incorporated community and the Monroe County Board of Supervisors.

To insure the opportunity for participation public flyers were posted at Chariton Valley Planning & Development office in Centerville, Monroe County courthouse, and Albia City Hall. A joint informational meeting was held at the central location of ADLM Emergency Management for residents in Appanoose, Lucas and Monroe Counties because all three are updating plans during this time. Invitations to the orientation meeting were also sent to numerous individuals ranging from elected officials, local businesses, non-profit organizations, neighboring communities (Centerville, Chariton, Russell & Moravia) and jurisdictions and educational institution of Albia Public Schools.

5. Materials Reviewed

In the update of the Monroe County Multi-Jurisdictional Hazard Mitigation Plan, various materials were reviewed that provided information which informed the development of this plan. Important documents among these include various FEMA guidebooks, Iowa’s *Hazard Analysis and Risk Assessment: 2010 Local Guide*, and *Iowa Hazard Mitigation Plan: Iowa Comprehensive Emergency Plan September 2013* Other sources of information include: Iowa Department of Natural Resources, Iowa Department of Transportation, the U.S Census Bureau, the Environmental Protection Agency, United States Geological Survey, Federal Emergency Management Agency, ADLM Emergency Management Agency, National Weather Service, National Climatic Data Center (NCDC), Iowa Homeland Security and Emergency Management Division. Wikipedia, Sperling’s Best Places, and community websites were used along with past newspaper clippings for an overview of communities and their histories. Other materials were consulted and utilized in this plan as well, most of which indicated in the sections where they were used. Local community plans, ordinance books and/or polices were also reviewed throughout the process.

6. Evaluation & Monitoring in Future

This plan is, as all plans are, intended to be a living document to be used in decision making and in new projects within the community. This draft plan cannot anticipate all things that might happen eventually and so it will be necessary for the plan to be updated periodically. Updates to this plan shall be made no fewer than once every five years as is required by FEMA.

Much of the background data for the jurisdictions in Monroe County is from the 2010 Census. Newer information will be available using the U.S. Census Community Survey data for the next update.

Update and Review Cycle

In the suggested timeline below, the start and end times are given in number of months after the adoption date of this document. Annual reviews should include a narrative covering the tasks listed in Evaluating Mitigation Actions and Goals and any disasters that have occurred in the past year. If no action has progressed or there have been no disasters during this time, the narrative should still describe how the review took place and the fact that there have been no notable events or

actions completed. The purpose of this is to maintain a record to aid in future updates and to aid in updating and revising the plan as needed.

Since it may not be reasonable to assume that the planning team will remain the same from year to year, it should consist of at least one city representative (mayor, elected official, or city clerk), at least one emergency responder, at least one representative of the school district, and anyone else that is interested in participating. ADLM Emergency Management, Monroe County coordinator, will be responsible for reconvening the planning team for each required review.

Suggested monitoring timeline;

	Start	End	Action
Annual Review #1	11 months	12 months	Addendum added to Plan
Annual Review #2	23 months	24 months	Addendum added to Plan
Annual Review #3	35 months	36 months	Addendum added to Plan
Annual Review #4	47 months	48 months	Addendum added to Plan
Plan Update	52 months	57 months	Submit updated plan to State and FEMA for approval and Adopt plan as revised (adoption must take place by the end of the 60 th month to remain in compliance)

Plan Monitoring & Evaluation

For updates to this plan, the following tasks will need to be addressed by ADLM Emergency Management, Monroe County coordinator who are charged with implementing actions in conjunction with the planning team;

Procedures and Techniques

Task A. Evaluate the effectiveness of the planning process.

1. Reconvene 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

Task 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 actions which were slow to get started or not implemented.

Task 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.

Task D. Determine if there are Changes to Plan Contents.

1. Have there been any hazard events in the past year (for annual review)? In the past 5 years (for plan updates)?
2. Have there been any changes to maximum threat, vulnerability, or probability of hazards?
3. Have there been significant changes to the demographics of the county or any jurisdiction? Is there new Census information available?
4. Has there been new construction in any jurisdiction or unincorporated area? If so, is it in a potential hazard area?
5. Has there been any change to the number of repetitive loss properties in Monroe County?
6. Have there been any changes to maximum threat, vulnerability, or probability of hazards?
7. Should any hazards be added or removed?
8. Should any new mitigation actions be added?
9. Does any of the cities or county have any new ordinances or plans? How has the hazard mitigation plan been used to develop new ordinances or plans? How have new ordinances or plans been incorporated into the hazard mitigation plan (if relevant)?

Incorporation into Existing and Future Planning Mechanisms

The hazard mitigation planning team was created to develop the mitigation plan and guide the plan preparer in its writing. The planning team should not formally end with the approval of the plan. The planning team can evolve into one of a watch dog over the practices of land developers and public officials. Members can help remind public officials of that particular year’s mitigation strategy and possible funding options and can volunteer in the implementation process for certain actions. The team and local governments may participate in the process and engage regional organizations, state agencies, state universities, schools and church via memorandums of agreement.

Finally, the planning team is partly responsible to ensure that the public officials are incorporating mitigation actions into relevant plans and planning mechanisms, such as zoning, annexation plans, and bonding proposals. Communities should also include mitigation initiatives as regular line items in community capital or operational budgets to ensure ongoing funding for hazard mitigation initiatives. The following matrix shows the types of planning mechanisms available and how the plan should be incorporated into them.

Current Planning Mechanisms	Jurisdictions Currently in Place	Method of Incorporation	Who Responsible or Lead
Comprehensive Land Use plan	Albia, rural county	Review Each, develop in other jurisdictions	Zoning Commissions & staff, BOS
Capital improvement plan	None	Modernize each, develop plans if they are outdated	City councils
Economic Development plan	Albia, Regional plan	Add a mitigation section to annual regional plan	CVPD, City of Albia, Albia Economic Dev
Open space/ conservation plan	Rural County	Incorporate mitigation projects affecting open spaces into plans	Conservation board/staff, city parks
Watershed Protection plan	Limited at best	Address mitigation actions in watershed areas	Emergency management Coordinator
Zoning Ordinance	Albia	Review zoning code concerning applicable hazards	Zoning commissions & staff, BOS
Building Codes	Limited	Update building codes for fire & wind standards	City councils, BOS
Tree Maintenance Codes	Limited in all areas	Consult with utilities	City of Albia Utilities Dept, County Maintenance Dept
Soil erosion/ water control ordinance	Limited in all areas	Consult with RRWA	Emergency management coordinator
Solid/hazardous waste regulations	Limited	Review regulations as to what can be landfilled, add hazard maps	Landfill owner, Emergency Management Coordinator
Public Health Regulations	All of county is covered through Public Health Dept	Collaborate with PH agencies to incorporate new protocols	Emergency Management Coordinator, Public Health Board, & staff
Historic District Programs	Albia	Provide data to assist in protecting properties	Development of groups with state IEDA assistance
Long-Range Transportation Plan	Regional plan for entire county	Incorporate hazard maps & transportation improvement ideas	County engineer, CVPD-CVTPA, IDOT, BOS

Water source plan	All county through inter-government agreement	Include mitigation actions related to relevant hazards	RRWA
Storm water Management program	Albia	Include mitigation actions related to flash flooding	City Councils, Emergency Management coord,
Housing & Special Needs plan	Albia & Lovilia but limited in each	Consider mitigation recommendations in housing plans & funding requests for improvements	City Councils, CVPD, hospitals, Emergency Management Coord
Administrative Operations processes- departments & boards	All jurisdictions	Convene meetings where possible, realignment of tasks, new or improved tasks & processes, & board goals are updated.	Emergency Management Coord, elected officials, clerks & board chairs

Many of these documents provided critical information to the Hazard Mitigation Plan. Specifically Long Range Transportation Plan, the Public Health Regulations, some of the elements that were collecting during the drafting of the CEDS, and ESF10 Emergency Plan.

At this time, it is not recommended that any jurisdiction adopt a formal policy that requires each jurisdiction to include relevant parts of the plan in each planning mechanism. However, it is strongly recommended that staff and elected/appointed officials become aware of the mitigation strategy’s practical applications. An annual review of the local planning mechanisms is warranted, simply to give the local leaders the opportunity to think about how mitigation actions affect the local planning mechanisms and to ensure local plans are current.

Continued Public Involvement

Obtaining public participation for planning can be difficult in both rural areas and in larger urban areas, sometimes there is significant interest, but this is not always the case. Public participation for planning exercises is particularly difficult when the public is not interested in the plan or is not clear on what the plan means to them. An advantage in small communities though, is the capacity for word-of-mouth and informal discussion, especially with the community’s elected officials. We are hopeful that Monroe County will have a standing mitigation committee (comprised primarily of LEPC members) to answer community questions, reach out to the community, or to review proposed projects. The public shall be presented the opportunity to take part in plan reviews and updates.

The opportunity for the public to take part in updates and reviews of this plan will comply with Iowa’s Open Meeting Law (Iowa Code, Chapter 21). For each plan update (the five year period), the plan will be presented to the public for a 30 day comment and review period prior to being submitted to the State and FEMA. For each annual review, public notices should be announced as all city council meetings are in order to permit members of the public to attend planning team meetings. This document shall be available through City Halls and/or Chamber of Commerce offices to any party who requests to see it where and when practicable. However portions intended for internal use may be withheld for confidentiality purposes (such as where private individual information is disclosed) or where legitimate safety concerns are present (such as the exact location and contents of sensitive facilities, hazardous chemical storage and composition, or mine entrances are identified).

B. Jurisdiction Profiles

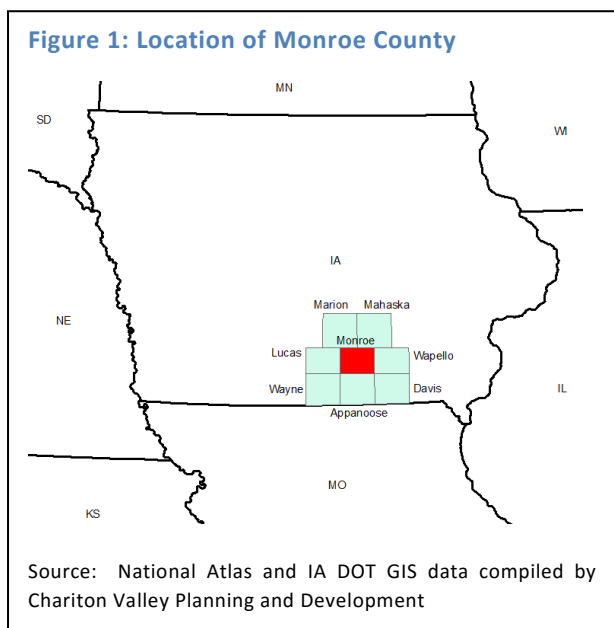
Each community in Monroe County and the county itself will be addressed separately in this section to ensure that the needs of each are adequately covered. The following profiles are divided into official jurisdictions; incorporated communities are lumped into Monroe County as the county is the most direct level of government for them. Some of the Census numbers may not be the same between tables due to statistical and sampling methods used and the originating table from the American Factfinder website.

1. Un-Incorporated Monroe County

MONROE COUNTY - UNINCORPORATED

General Information

Population: 3554 45%	Floodplain: Yes
	NFIP Participant: No
75 years & Older: 260 7.3%	Historic District: No
5 years & older in school: 700 20%	Comprehensive Plan: Yes
School buildings: 0	Zoning Ordinance: Yes
Places of Worship: 3	Subdivision Ordinance: Yes
Land Area: 433 Sq. miles	Building Permits required: Yes
Most Recent Codification: 2005	Fire Insurance Rating: 10



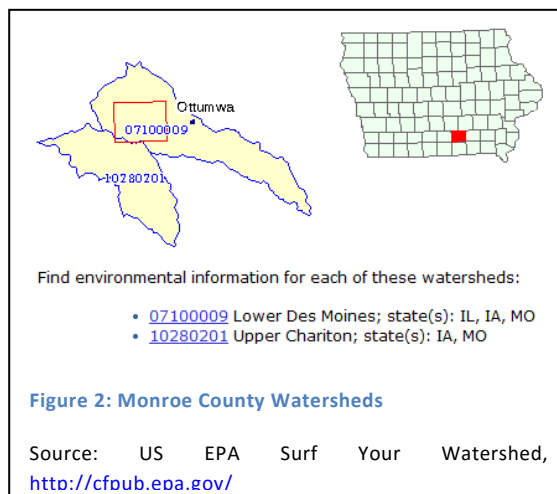
Geography

Monroe County is located in the southern tier of counties in Iowa one county from the Missouri border. There are twenty-three unincorporated communities in Monroe County and four incorporated cities. Eddyville has only about one acre of land in Monroe County and is covered under Wapello County's Hazard Mitigation Plan. For these reasons, Eddyville is not addressed in this plan.

Monroe County is located in the south-central sector of Iowa at coordinates 41° 1' 42" N, 92° 52' 12" W. The counties surrounding Monroe are as follows; Marion, Mahaska, Wapello, Davis, Appanoose, Wayne, and Lucas. Monroe County encompasses an area of 433 square miles with a population density of 18 people per square mile according to the 2010 Census.

Rathbun Lake is located primarily in Appanoose County, into Monroe County covering a total area of 12,040 acres counties. Rathbun Lake is the second largest water body Seven creeks cross through Monroe County, the most of which is Cedar Creek which stretches from south to of Albia (see Monroe County's terrain is predominantly undulating topography that characterizes hills of the Southern Iowa Drift Plain.

Monroe County is located in 2 different watersheds, all Mississippi Basin. The majority of Monroe County is the Lower Des Moines watershed.



but extends across four in Iowa. significant north, west the rolling within the located in

Population Data

As of the 2010 Census, the total population of Monroe County was 7970 with a total of 3,374 households. This is down 46 persons since the 2000 Census count of 8,016 people and down 152 households. According to Iowa State University’s Regional Capacity Analysis Program¹ (ReCAP), Monroe County has faced nearly a century of decline starting around 1910. The decline has been evening out in recent decades with the smallest amount of population loss between 1990 and 2000. The population of the unincorporated county is approximately 45% of the total population of the county.

Monroe County at risk groups are identified as young children, the elderly, those with disabilities, and those that are linguistically isolated. As of the 2010 Census, the census estimated that 10.4% people have a primary language that is other than English and would be considered linguistically isolated. There are approximately 189 (5% of total population) children under the age of five years. The population over the age of 75 years account for 7% (260 people) in Melrose.

The remaining “at risk” category would be individuals that have a disability. It is estimated that approximately 13% residents of Monroe County have a confirmed disability.

The combination of all these populations qualifies nearly 35.4% of the total population deemed “at risk”.

In the 2010 Census, median household income for Monroe County was \$45,266, up from \$34,877. Nearly one-quarter of the households in unincorporated Monroe County (26%) had incomes under \$35,000 annually. In 2010, 319 people in Monroe County were determined to be under the Federal Poverty Guidelines comprising about 13% of the unincorporated population.

TABLE 1: WOODS & POOLE POPULATION PROJECTION FOR MONROE COUNTY							
AREA	2000	2005	2010	2015	2020	2025	2030
MONROE	7,996	7,798	7,970	7,428	7,285	7,161	7,064
PERCENT CHANGE	-	-2.54%	-2.73%	-2.19%	-1.96%	-1.73%	-1.37%

SOURCE: IOWA STATE DATA CENTER, [HTTP://WWW.IOWADATACENTER.ORG](http://www.iowadatacenter.org)

Major Employers

Ten major employers are identified in Monroe County by the Location One Information System (LOIS) website.

AYM Inc.	Albia Public School
First Iowa State Bank	Hawkeye Molding Co
Hy-Vee	Albia Public School
Monroe Care Ctr	Monroe County Health Center
Oakwood Nursing & Rehab Ctr	Quicktron

Structures

More than one-third of the housing stock (35%) in Monroe County was constructed before 1940 suggesting that the structural integrity of the buildings likely does not meet newer building codes designed to ensure the safety of residents. These structures are likely the most vulnerable to various hazards due to their age and the changes in construction techniques which have improved in many ways since they were built. A larger proportion of the older housing stock is found in incorporated communities in Monroe County however. Median year built of the homes in Monroe County is 1948, meaning that half of the homes were built before and half after this year. The median age of housing is earlier for all three of the incorporated communities in this plan

Another potential concern is the prevalence of bottled fuels such as LP gas, kerosene, and oil used as heating fuel in the homes in unincorporated Monroe County; 34% of homes use LP gas as heating fuel. While LP tanks can be safe forms of fuel containment and transport, liquefied petroleum gas is flammable and can explode. LP gas is heavier than air and so it will sink to the lowest level possible; if inhaled it can cause asphyxiation through oxygen deprivation but is otherwise nontoxic. A further concern is that 90 homes (2.7%) in 2010 reported using wood as the primary heating fuel. This becomes a concern due to its potential fire hazard but also to carbon monoxide poisoning in the home if a chimney is blocked.

Approximately 26% of the owner-occupied homes in unincorporated Monroe County were valued at less than \$50,000 as of the 2010 Census. Over half of the homes in the unincorporated portion of Monroe County are valued less than \$100,000.

Below are valuations for the unincorporated county from the Monroe County Assessor’s office. The number of structures for exempt properties is not readily available and thus is omitted from the chart.

Type of Structure (Occupancy Class)	Number of Structures	Total Valuation	Average Valuation
Residential	1793	\$125,076,897	\$69,758
Commercial	63	\$5,287,024	\$83,921
Industrial	15	\$174,113,751	\$11,607,583
Agricultural	1070	\$79,256,638	\$74,071
Religious / Non-profit		\$10,000,000	
Government		\$5,000,000	
Education		\$0.00	
Utilities		\$17,680,081.00	

TABLE 2: NATIONAL REGISTER OF HISTORIC PLACES			
PROPERTY	ADDRESS	CITY	DATE LISTED
ALBIA SQUARE AND CENTRAL COMMERCIAL HISTORIC DISTRICT	ROUGHLY BOUNDED BY THE ALLEY OF S. AND N. CLINTON E. AND W. A AVE. N. AND S. 2ND STREET AND E. AND W. 2ND AVE	ALBIA	1/3/1985
BRICK GOTHIC HOUSE	1.25 MI. S. OF ALBIA 0.75 MI. E OF IA 5 0.5 MI W OF T35	ALBIA	4/14/1994
BUXTON HISTORIC TOWNSITE	ADDRESS RESTRICTED	LOVILIA	8/9/1983
CLARK ROUND BARN	CR T7H	TYRONE	6/30/1986
ELBERT-BATES HOUSE	106 2ND AVE. W.	ALBIA	6/27/1985
JENKINS DR. GEORGE A. HOUSE	223 S. C STREET	ALBIA	2/5/1987
MONROE COUNTY COURTHOUSE	MAIN STREET	ALBIA	7/2/1981
NOBLE-KENDALL HOUSE	209 E. BENTON AVE.	ALBIA	4/12/1984
PERRY T. B. HOUSE	212 BENTON AVE. W.	ALBIA	7/14/1983
SAINT PATRICK’S ROMAN CATHOLIC CHURCH	US 34 W OF ALBIA	ALBIA	5/6/1992
WHITE ARVINE AND ELIZABETH W. HOUSE	309 N. MAIN STREET	ALBIA	9/8/1994

SOURCE: [HTTP://WWW.NPS.GOV/HISTORY/NR/](http://www.nps.gov/history/nr/)

Community Assets

Lake Miami

Lake Miami is a 135 acre, man-made lake located 5 miles east of Lovilia on an 879 acre park. Lake Miami was constructed in 1967. The lake is governed by the Monroe County Conservation Board. Lake Miami offers full service facilities for camping. There are camp slots available for rent. Lake Miami also offers picnic areas, fishing, hunting, hiking, and outdoor recreations, as well as cabin rentals.

Green Acres

“Green Acres” is a mobile home complex includes approximately 108 structures near Lake Rathbun. There are some year round residents but the majority of the tenants are seasonal.

Lazy Daz Ranch

“Lazy Daz Ranch” is located just northwest of Lake Rathbun or just south of Melrose on Highway S-70 in Monroe, County. There are approximately 91 private homes that surround a small pond.



Iowa Bioprocessing Center

The Iowa Bioprocessing Center (IBC) located in South Central Iowa consists of 1600 acres where four international companies have clustered together, investing more than \$1.5 billion dollars in plants engaging in value-added agriculture. Ajinomoto Heartland LLC is a subsidiary of the Japanese food and amino acid company Ajinomoto Co., Inc. This is a part of the complex, which focuses on the manufacture of enzymes, amino acids, sweeteners, and other ingredients for human and animal products. Ajinomoto Heartland LLC manufactures and distributes cost effective feed-grade amino acids and is the frontrunner in amino acid nutritional research and technical expertise. Also located in Monroe County in this development are Cargill (Vitamin E), ITC Midwest, and Cargill Sweeteners.

Transportation

One US Highways crosses through Monroe County, highway 34 running east to west. Seven distinct county highways are located in the county, and two state highways (5 and 137) converge inside the Albia municipal boundaries. Three different railroad owners operate within Monroe County: Burlington Northern has several railroad tracks throughout the county and the City of Albia; Dakota, Minnesota & Eastern Railroad Company intersects the southeast corner of the county; Union Pacific has a few miles of track extending north in the northeastern corner of the county; and locally owned short line extends up the middle of the county into the southern edge of Albia city limits. Amtrak runs trains along the

Burlington Northern lines, through Albia.

Two natural gas pipelines enter the county, one from the north connecting to Lovilia and one from the south connecting to Albia. There are no pedestrian trails in rural Monroe County.

According to preliminary crash analysis released by the Iowa DOT, state highways 137 and 5 are considered “high crash horizontal curves.” The particular portion of Highway 137 of concern is about 1,000 feet southwest and about 750 feet northeast of 710th Avenue. For Highway 5, the area of concern is about 1,100 feet south of 139th Trail to 139th Trail.

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable	Economic Asset	Special Consideration	Historic/Other	Size of Bldg.	Replacement Value
Electrical Substations (4)	Scattered locations	X						\$1M/ea.
Landfill				X				
Lake Miami Campground	N Hwy 5		X					
Rural Water towers (3)	Scattered location	X						\$1M/ea.
IDOT roads maintenance shop	South Hwy 5			X				
Lake Miami dam	N Hwy 5				X			

Halley's Trailer Park (35 homes)	East Hwy 34		X				\$68,890 land \$90,041 bldgs
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X			\$80,026,460
Lazy-Daz Ranch (91 structures)	Melrose		X		X		\$2,058,658
Green Acres Mobile homes (108 structures)	Melrose		X		X		\$3,467,566
Monroe County Fairgrounds (land & structures)	North Hwy 5			X			\$310,613
Lazy Daz Ranch Estates (21 structures)	Melrose		X		X		\$758,831
Willow Park	Melrose		X		X		\$169,790
Wacker Chemical Corp	NE corner of county			X	X		\$5,114,095
Ajinomoto Heartland, LLC	1116 Hwy 137, Eddyville			X	X		\$29,733,719
Ajinomoto USA Inc/ Ajinomoto Food	1 Ajinomoto Dr, Eddyville			X	X		\$22,895,026
Agriland FS Inc	6281 160 th St. Albia				X		
Crop Production Services	2774 Hwy 5, Moravia				X		
Cargill Sweeteners	1 Cargill Dr, Eddyville				X		
Cargill - Vitamin E	1194 720 th Ave, Eddyville				X		
ITC Midwest	1 Cargill Drive, Eddyville				X		

Hazard Scoring & Ranking

Community representatives were responsible for scoring each hazard based on probability, severity, warning time, and duration of the event. The identified hazards of the plan were included for each jurisdiction to rate. The scoring guidelines were provided by Iowa Homeland Security and was utilized by the committee members. The comprehensive ranking is given on page 29. Denny Amoss, Monroe County Board of Supervisors, completed the comprehensive scoring chart for the county. The numbers were then added to achieve a weighted score that prioritized the hazards. Monroe County's unincorporated region is most concerned about a thunderstorm and lightning, hazardous materials Animal/Plant/Crop Disease, Radiological and Earthquakes in their region.

Existing Mitigation Strategies

- Monroe County Sheriff's office (in Albia) provides service to the entire county.
- Mobile communication trailer(s) located at Appanoose County Law Center; about 1-2 hours are needed to mobilize.
- 28E agreements in place (Updated in 2015) with surrounding jurisdictions for fire protection and hazardous materials containment.
- SIRG (Southern Iowa Recovery Group) is the designated hazardous materials clean-up agent; local fire fighters perform containment actions.
- County-wide Emergency Operations Plan (EOP) is in place and maintained by ADLM Emergency Management; a copy of the plan is present in the Monroe County Supervisors' office.
- Tree trimming or management is currently handled by utility services provided throughout the county.
- Local Fire Department volunteers receive a minimum of 24hrs of training per year.
- Immunizations are offered at the County Public Health on an ongoing basis.
- County-wide recycling is offered.

- Radon and Lead testing kits are available at County Public Health Department & ADLM.
- Railroad tie replacement occurred along the APNC railroad.
- County Courthouse, Law Center, and sewer systems have backup generators.
- Weather Service has launched educational public service announcements.
- “Safe Shed” (have capacity to shelter 16 people) are now located at Lake Miami campgrounds, IDOT Secondary Roads facilities (along major highway), and the Monroe County Public Health office.
- All Monroe County communities have evacuation plans cited in the ESF plan.
- Bridge repair or replacement occurred on multiple structures.
- Monroe County Communication Center is a newly constructed facility that will improve first responder’s communication abilities, house law enforcement units and is a jail.

Priority Mitigation Strategies

Appendix 14 provides information for mitigation strategies identified in the previous hazard mitigation plan and notes of progress. The county has prioritized the mitigation strategies of Public Education & outreach of warnings and self-protection; develop and emergency response team for post-disaster; Continuity of Operations Plan for post disaster; obtaining weather radios for residents; and maintain a current evacuation plan for public buildings, schools, and cities.

2. Albia

CITY OF ALBIA

General Information

Population: 3766	Floodplain: Yes
Median Age: 40	NFIP Participant: Yes, #190465
75 years & Older: 13.3% 426	Historic District: Yes
5 years & older in school: 20.1%	Comprehensive Plan: Yes 1990
School buildings: 6	Zoning Ordinance: Yes
Places of Worship: 6	Subdivision Ordinance: Yes
Land Area: 3.2 Sq Miles	Building Permits required: Yes
Most Recent Codification:	Fire Insurance Rating: 6

Geography

Albia is located slightly east of the center of the county at coordinates 41° 1’ 36” N, 92° 48’ 19” W. Albia encompasses an area of 3.2 square miles with a population density of 1,181 people per square mile according to the 2010 Census. The city has not seen enough growth that any boundaries or zoning were changed.

Population Data

As of the 2010 Census, the total population of Albia was 3766 with a total of 1,555 households. Between 2000 and 2010, Albia lost 130 people and 15 households in alignment with the unincorporated county’s loss in both population and households.

Monroe County at risk groups are identified as young children, the elderly, those with disabilities, and those that are linguistically isolated. As of the 2010 Census, the census estimated that 4.7% people have a primary language that is other than English and would be considered linguistically isolated. There are approximately 275 (7.3% of total population) children under the age of five years. The population over the age of 75 years account for 13.3% (336 people) in Albia.

The remaining “at risk” category would be individuals that have a disability. It is estimated that 546 residents of Albia have a confirmed disability. That accounts for approximately 14.4% of the population.

The combination of all these populations qualifies nearly 40% of the total population deemed “at risk”.

In the 2010 Census, median household income for Albia was \$43,250, up from \$31,728 in the 2000 Census. More than 47% of the households in Albia had incomes less than \$50,000 in 2010. About 13% of the population of Albia have incomes below the 2010 Federal Poverty Guidelines.

Major Employers

Ten major employers are identified in Monroe County by the Location One Information System (LOIS) website.

AYM Inc.	Albia Public School
First Iowa State Bank	Hawkeye Molding Co
Hy-Vee	Albia Public School
Monroe Care Ctr	Monroe County Hospital
Oakwood Nursing & Rehab Ctr	Quicktron

Structures

Nearly 39% of homes in Albia were built prior to 1940 though there was a spike in new homes built in the 1970’s with about 18% of the housing stock built during this decade. About 83% of homes in Albia are heated with bottled fuels and about 1.2% of homes (18 homes) were heated primarily by firewood in 2010.

Over 66% of the owner-occupied homes in Albia were valued at less than \$100,000. 93% of Albia homes are valued below \$200,000.

One government agency is located in Albia. The United States Department of Agriculture rents an office building in the southern portion of the community.

Below are valuations from the Monroe County Assessor’s office. The number of structures for exempt properties is not readily available and thus is omitted from the chart.

Type of Structure (Occupancy Class)	Number of Structures	Total Valuation	Average Valuation
Residential	1379	\$96,081,043	\$69,674
Commercial	166	\$16,085,504	\$36,660
Industrial	14	\$5,634,100	\$402,436
Agricultural	8	\$1,049,936	\$131,242.00
Religious / Non-profit			
Government	3		
Education	5	\$3,785,022	\$757,004
Utilities			

Community Assets

1. Albia Public School

Albia Public Schools is located in the county seat of Monroe County, Albia. It is located in the south-central sector of Iowa. Neighboring school districts for comparison include: Eddyville-Blakesburg-Fremont, Chariton, Centerville, Knoxville, Melcher-Dallas, Moravia, Moulton-Udell, Ottumwa, Seymour, Twin Cedars and Oskaloosa Schools.

District Facts:

<u>2012-2013 School Year</u>	<u>Albia Public School</u>	<u>Neighboring Districts</u>	<u>State of Iowa Average</u>
<i>Enrollment Size</i>	1,203	Median 1,179	Median 700
<i>Hispanic/Latino Enrollment</i>	47 3.96%	4.1%	9.3%
<i>Minority Group Enrollment (any other than white)</i>	91 7.6%	7.8%	20.2%
<i>Eligible for Free/Reduced Lunch</i>	524 43.6%	48.4%	40.3%
<i>Students with Limited English Proficiency</i>	16 1.3%	2.1%	4.8%

<i>Poverty Estimates for families with children 5-17yrs</i>	212 16.4%	18.7%	14.5-16.3%
<i>Number of children served with an IEP</i>			
<i># of Family Households in the district</i>	2,001 67.8%	67.1%	64.7%
<i>Total District Population</i>	7,304	--	--
<i>District Population under age of 5 years</i>			
<i>District Population under 18 years</i>	1,755 24%	23.4%	23.9%
<i>District Population over 65 years</i>	1,381 18.9%	17.8%	14.9%

Source: www.icip.iastate.edu/sites

General Information:

2. Monroe County Hospital

Monroe County Hospital and Clinics is a general medical and surgical hospital in Albia, IA, with 25 beds. Survey data for the latest year available shows that 3,355 patients visited the hospital's emergency room. The hospital had a total of 454 admissions. Its physicians performed 50 inpatient and 462 outpatient surgeries. (<http://health.usnews.com/best-hospitals/area/ia/monroe-county-hospital-6620019/details>)

Employed Staff:

****Full Time**

Physicians and dentists: 5

Registered nurses: 30

Licensed practical nurses: 5

Faculty Personnel: NA

****Part Time**

Physicians and dentists*: 0

Registered nurses: 13

Licensed practical nurses: 3

Transportation

US Highway 34, running east-west, and State Highway 5, running north-south, cross near the southern boundary of Albia and State Highway 137 joins Highway 5 in the northern third of the city. Several railroads cross through and join up in the city as well. A natural gas pipeline enters Albia from the south. There are about 40 miles of roadway within the municipal boundaries of Albia.

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							

Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		
Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrell gas	121 10 th St			X				\$15,933	
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern- Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					
Monroe County Professional Mang	15 A Ave				X				
House of Kids Daycare	304 S Main St		X						
King's Kids Preschool	1115 A Ave		X						
Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Daycare Preschool	100 N 2 nd St		X						
USDA Office	1709 S B St			X	X				
Private In-Home Daycare	1933 Hwy 137		X						
Private In-Home Daycare	6427 160 th St		X						
Private In-Home Daycare	703 A Ave W		X						
Private In-Home Daycare	120 Linden Lane		X						
Private In-Home Daycare	306 S Clinton Ave		X						
Private In-Home Daycare	11 Hickory Cr		X						
Private In-Home Daycare	216 S Clinton Ave		X						
Private In-Home Daycare	517 S 9 th St		X						
Private In-Home Daycare	1671 631 st Lane		X						
Private In-Home Daycare	806 F Ave E		X						
Private In-Home Daycare	403 Washington Ave E		X						

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the school’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the hospital’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Monroe Co Hospital	6580 165 th St	X	X	X	X				

Hazard Scoring & Ranking

Community representatives were responsible for scoring each hazard based on probability, severity, warning time, and duration of the event. The identified hazards of the plan were included for each jurisdiction to rate. The scoring guidelines were provided by Iowa Homeland Security and was utilized by the committee members. The comprehensive ranking is given on page 31. Tom Murphy, Mayor, completed the comprehensive scoring chart for the county. The numbers were then added to achieve a weighted score that prioritized the hazards. Albia is most concerned about a transportation incident, hazardous materials, human disease, thunderstorm and lightning and Infrastructure failure in their community.

Existing Mitigation Strategies

- Fire Station has a storm warning system
- Monroe County Sheriff’s office & City of Albia police Department has contact information for Monroe county firefighters.
- Mobile communication trailer(s) located at Appanoose County Law Center; about 1-2 hours are needed to mobilize.
- Sand or blade trucks are / can be used to clear paths for first responders in the event of road blockage (debris or heavy snow).
- Legion Hall, Churches, and Community Center can / have been utilized as temporary shelters and gathering places in the event of disasters
- There is a yard clean-up ordinance, but it is very difficult to enforce (affects tornado and high-wind debris hazards).
- Railroad works well and promptly with the City of Albia county on railroad incidents
- 28E agreements in place with surrounding jurisdictions for fire protection and hazardous materials containment.
- SIRG is the designated hazardous materials clean-up agent; local fire fighters perform containment actions
- The City participates in the National Flood Insurance Program (NFIP) with a Flood Insurance Rate Map dated 6/10/1980, however few residents have purchased flood insurance
- The City requires mobile home tie-downs
- Tree trimming or management is currently handled to an extent by utility services in Monroe County.
- County-wide Emergency Operations Plan (EOP) is in place and maintained by ADLM Emergency Management; a copy of the plan is present in the Monroe County Supervisors’ office.

- Fire Department volunteers receive a minimum of 24hrs of training per year.
- Immunizations are offered at the County Public Health on an ongoing basis.
- Countywide recycling is offered.
- Radon and Lead testing kits are available at County Public Health Department & ADLM.
- Railroad bridge replacement & tie replacement occurred on the south section of town along the APNC railroad.
- City street improvement occurred along the edge of the golf course and 13th Street.
- County Courthouse, Law Center, and sewer systems have backup generators.
- Weather Service has launched educational public service announcements.
- “Safe Shed” (have capacity to shelter 16 people) are now located at Lake Miami campgrounds, IDOT Secondary Roads facilities (along major highway), and the Monroe County Public Health office.
- All Monroe County communities have evacuation plans cited in the ESF plan.
- Albia Public School hosted an Active Shooter training.
- Sanitary Sewer improvements occurred in 2014-15.

Priority Mitigation Strategies

Appendix 14 provides information for mitigation strategies identified in the previous hazard mitigation plan and notes of progress. The county has prioritized the mitigation strategies of Public Education & outreach of warnings and self-protection; develop and emergency response team for post-disaster; Continuity of Operations Plan for post disaster; obtaining weather radios for residents; and maintain a current evacuation plan for public buildings, schools, and cities. In this updated plan, the community of Albia has selected the following strategies as a priority for them: additional storm warning sirens & repairing existing, developing a community response team and additional search and rescue training for first responders.

3. Lovilia

CITY OF LOVILIA

General Information

Population: 538	Floodplain: No
Median Age: 34 yrs	NFIP Participant: No
75 years & Older: 6.5% 35	Historic District: No
5 years & older in school: 23.8%	Comprehensive Plan: February 1998
School buildings: 0	Zoning Ordinance: January 1999
Places of Worship: 1	Subdivision Ordinance: No
Land Area: 319 Acres	Building Permits required: Yes
Most Recent Codification: October 2015	Fire Insurance Rating: 8

Geography

Lovilia is the northern-most incorporated community in Monroe County, excluding Eddyville, at coordinates 41° 7' 57" N, 92° 54' 22" W. The city encompasses an area of 319 acres with a population density of 1,076 people per square mile according to the 2010 Census.

Population Data

As of the 2010 Census, the total population of Lovilia was 538 with a total of 250 households. Between 2000 and 2010, Lovilia lost 39 people and gained 22 households in accordance with the County’s loss in both population and households.

Monroe County at risk groups are identified as young children, the elderly, those with disabilities, and those that are linguistically isolated. As of the 2010 Census, the census estimated that .7% people have a primary language that is other than English and would be considered linguistically isolated. There are approximately 51 (9.5% of total population) children under the age of five years. The population over the age of 75 years account for 6.5% (35 people) in Lovilia.

The remaining “at risk” category would be individuals that have a disability. It is estimated that 91 residents of Lovilia have a confirmed disability. That accounts for approximately 17% of the population.

The combination of all these populations qualifies nearly 33.7% of the total population deemed “at risk”.

In the 2010 Census, median household income for Lovilia was \$36,429, up from \$35,577 in the 2000 Census. About 67% of the households in Lovilia had incomes less than \$50,000 in 2000. About 18% of the population of Lovilia have incomes below the 2010 Federal Poverty Guidelines

Major Employers

Ten major employers are identified in Monroe County by the Location One Information System (LOIS) website.

AYM Inc.	Albia Public School
First Iowa State Bank	Hawkeye Molding Co
Hy-Vee	Lincoln Middle School
Monroe Care Ctr	Monroe County Hospital Home
Oakwood Nursing & Rehab Ctr	Quicktron

Structures

Approximately 31.5% of homes in Lovilia were built prior to 1940 though there was a spike in new homes built in the 1970’s and 1980’s with about 35% of the housing stock built during this decade. About 82% of homes in Lovilia are heated by utility gas.

All but two of the owner-occupied homes in Lovilia were valued at less than \$200,000 in 2010. About half of the homes were valued at less than \$50,000 as of the 2010 Census

Below are valuations for the Lovilia from the Monroe County Assessor’s office. The number of structures for exempt properties is not readily available and thus is omitted from the chart.

Type of Structure (Occupancy Class)	Number of Structures	Total Valuation	Average Valuation
Residential	217	\$9,760,486	\$44,979
Commercial	27	\$759,126	\$28,116
Industrial	0	0	0
Agricultural	8	\$1,049,936.00	\$131,242.00
Religious / Non-profit			
Government	2		
Education			
Utilities			

Transportation

State Highway 5 intersects the city the entire length north to south. The Burlington Northern Santa Fe railroad runs parallel to Highway 5 the distance of the city. The community is approximately 20 city blocks by 10 city blocks in dimension.

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	125,537	257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	68,840	97,500
Community Bldg	608 W 17 th St				X				
Water plant	606 W 17 th St	X					1088 sq ft	43,700	49,070
Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
Water tower	606 W 17 th St	X					--	285,600	--

City Maintenance/ Storage	1611 E Ave So				X		1239 sq ft	54,838	22,000
Lagoon	6057 115 th Trail	X					375 sq ft	132,490	--
Casey's	1807 Highway 5			X			1962sq ft	\$102,125	
Lovilia Head Start	302 S H Ave			X					

Hazard Scoring & Ranking

Community representatives were responsible for scoring each hazard based on probability, severity, warning time, and duration of the event. The identified hazards of the plan were included for each jurisdiction to rate. The scoring guidelines were provided by Iowa Homeland Security and was utilized by the committee members. The comprehensive ranking is given on page 31. Zach Randall, Lovilia Fire Department, completed the comprehensive scoring chart for the community. The numbers were then added to achieve a weighted score that prioritized the hazards. Lovilia is most concerned about a hailstorm, severe, winter storms, windstorms, tornadoes, and thunderstorm and lightning in their community.

Existing Mitigation Strategies

- Fire Station has a storm warning system.
- Mobile communication trailer(s) located at Appanoose County Law Center; about 1-2 hours are needed to mobilize.
- 28E agreements in place (Updated in 2015) with surrounding jurisdictions for fire protection and hazardous materials containment.
- SIRG, based in Des Moines, is the designated hazardous materials clean-up agent; local fire fighters perform containment actions.
- County-wide Emergency Operations Plan (EOP) is in place and maintained by ADLM Emergency Management; a copy of the plan is present in the Monroe County Supervisors' office.
- Tree trimming or management is currently handled by utility services
- Fire Department volunteers receive a minimum of 24hrs of training per year.
- Immunizations are offered at the County Public Health on an ongoing basis.
- Countywide recycling is offered.
- Radon and Lead testing kits are available at County Public Health Department & ADLM.

Priority Mitigation Strategies

Appendix 14 provides information for mitigation strategies identified in the previous hazard mitigation plan and notes of progress. The county has prioritized the mitigation strategies of Public Education & outreach of warnings and self-protection; develop and emergency response team for post-disaster; Continuity of Operations Plan for post disaster; obtaining weather radios for residents; and maintain a current evacuation plan for public buildings, schools, and cities. In this updated plan, the community of Lovilia has selected the following strategies as a priority for them: installation of generators at storm shelter site.

CITY OF MELROSE

General Information

Population: 112	Floodplain: Yes
Median Age: 54 yrs	NFIP Participant: Yes #190465
75 years & Older: 9.9% 11	Historic District: No
5 years & older in school: 11.6%	Comprehensive Plan: No
School buildings: 0	Zoning Ordinance: No
Places of Worship: 1	Subdivision Ordinance: No
Land Area: 1.0 Square Mile	Building Permits required: No
Most Recent Codification: 2013	Fire Insurance Rating: 8

Geography

Melrose is the western-most incorporated community in Monroe County at coordinates 40° 58' 31" N, 93° 3' 0" W. The city encompasses an area of 1 square mile with a population density of 111 people per square mile according to the 2010 Census.

Population Data

As of the 2010 Census, the total population of Melrose was 112 with a total of 51 households. Between 2000 and 2010, Melrose lost 16 people and lost 6 households in alignment with the County’s loss in both population and households.

Monroe County at risk groups are identified as young children, the elderly, those with disabilities, and those that are linguistically isolated. As of the 2010 Census, the census estimated that 10.4% people have a primary language that is other than English and would be considered linguistically isolated. There are approximately 6 (5.4% of total population) children under the age of five years. The population over the age of 75 years account for 9.9% (11 people) in Melrose.

The remaining “at risk” category would be individuals that have a disability. It is estimated that 10 residents of Melrose have a confirmed disability. That accounts for approximately 9% of the population.

The combination of all these populations qualifies nearly 34.7% of the total population deemed “at risk”.

In the 2010 Census, median household income for Melrose was \$30,833, down from \$34,583 in the 2000 Census. About 69% of the households in Melrose had incomes less than \$50,000 in 2000. Over 22% of the population of Melrose have incomes below the 2010 Federal Poverty Guidelines.

Major Employers

Ten major employers are identified in Monroe County by the Location One Information System (LOIS) website.

AYM Inc.	Albia Public School
First Iowa State Bank	Hawkeye Molding Co
Hy-Vee	Albia Public Schools
Monroe Care Ctr	Monroe County Health Center
Oakwood Nursing & Rehab Ctr	Quicktron

Structures

More than two-thirds (63.2%) of homes in Melrose were built prior to 1940 though there was a spike in new homes built in the 1960’s with nearly 16% of the housing stock built during this decade. More than three-quarters of homes (41 homes) in Melrose are heated with bottled fuels/gas and 8 homes were heated primarily by firewood in 2010.

About 36% of the owner-occupied homes in Melrose were valued at less than \$50,000; no homes were valued above \$200,000 in the 2010 Census.

Below are valuations from the Monroe County Assessor’s office. The number of structures for exempt properties is not readily available and thus is omitted from the chart.

Type of Structure (Occupancy Class)	Number of Structures	Total Valuation	Average Valuation
Residential	58	\$2,007,801	\$34,617
Commercial	8	\$120,915	\$15,114
Industrial	1	\$141,977	\$141,977
Religious / Non-profit	2		
Government	2		
Education	0		
Utilities			

Transportation

County highway S70 intersects the heart of the city from north to south. This roadway passes onto the Main Street of the city near the post office, city hall, community center and church. The Burlington Northern Santa Fe railroad enters into the community on the southern edge.

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Sewer Lift Station		X							
Quality Ag	502 Erin Ave			X				\$141,977	
Melrose Market	115 Erin St								

Hazard Scoring & Ranking

Community representatives were responsible for scoring each hazard based on probability, severity, warning time, and duration of the event. The identified hazards of the plan were included for each jurisdiction to rate. The scoring guidelines were provided by Iowa Homeland Security and was utilized by the committee members. The comprehensive ranking is given on page 31. Linda Heller, Melrose City Clerk, completed the comprehensive scoring chart for the county. The numbers were then added to achieve a weighted score that prioritized the hazards. Melrose is most concerned about a transportation incident, tornadoes, flash flooding, hailstorms and windstorms in their community.

Existing Mitigation Strategies

- Fire Station has a storm warning system.
- Monroe County police patrol in the city limits.
- Mobile communication trailer(s) located at Appanoose County Law Center; about 1-2 hours are needed to mobilize
- 28E agreements in place (Updated 2015) with surrounding jurisdictions for fire protection and hazardous materials containment.
- SIRG is the designated hazardous materials clean-up agent; local fire fighters perform containment actions.
- County-wide Emergency Operations Plan (EOP) is in place and maintained by ADLM Emergency Management; a copy of the plan is present in the Monroe county Supervisors’ office.
- The City participates in the National Flood Insurance Program (NFIP) with a Flood Insurance Rate Map dated 7/2/1987
- Tree trimming or management is currently handled by utility services
- Fire Department volunteers receive a minimum of 24hrs of training per year.
- Immunizations are offered at the County Public Health on an ongoing basis.
- Countywide recycling is offered.

- Radon and Lead testing kits are available at County Public Health Department.
- Sewer systems have backup generators.
- Weather Service has launched educational public service announcements.
- All Monroe County communities have evacuation plans cited in the ESF plan.

Priority Mitigation Strategies

Appendix 14 provides information for mitigation strategies identified in the previous hazard mitigation plan and notes of progress. The county has prioritized the mitigation strategies of Public Education & outreach of warnings and self-protection; develop and emergency response team for post-disaster; Continuity of Operations Plan for post disaster; obtaining weather radios for residents; and maintain a current evacuation plan for public buildings, schools, and cities. In this updated plan, the community of Melrose has selected the following strategies as a priority for them: purchasing a generator to use at critical facilities/emergency shelter site.

C. Identifying Hazards

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

The hazards addressed in this plan were identified by taking the list of hazards from the Iowa Hazard Mitigation Plan (Figure 2) which were evaluated in relation to local conditions. Descriptions of the hazards and preliminary data on the impacts and the vulnerable populations and structures were taken largely from the State Plan supplemented with local knowledge during the meeting where the hazards were selected initially. There were hazards that clearly apply to the cities of Albia, Melrose or Lovilia, some that may or may not, and a few that clearly do not apply. The ones that do not apply were removed from the list of hazards that were detailed in the hazard profiles.

Figure 2: Hazards Identified in State Plan

<u>Natural Hazards</u>	
Flash Flooding	Tornadoes
Windstorms	Extreme Heat Hailstorms
Sinkholes	River Flooding
Severe Winter Storms	
Drought	Earthquake
Landslide	Expansive Soils
Thunderstorm & Lightning	Grass/Wild Fire
Dam Failure	Levee Failure
<u>Human Caused / Combination Hazards</u>	
Human Disease	
Hazardous Materials Transportation Incident	
Infrastructure Failure	
Terrorism	
Radiological	
Animal/Plant/Crop Disease	

1. Hazard Definitions

Natural Hazards

Dam Failure – The uncontrolled release of impounded water resulting in downstream flooding, which can affect life and property. There are 3 categories of dams: High Hazard (in an area that would cause serious threat of loss of life or serious damage to properties/businesses), Significant Hazard (damage would be limited to isolated homes, buildings, businesses or moderately traveled roads and no loss of human life), Low Hazard (damage would be limited to loss of dam, loss of livestock, agricultural land, low maintenance roads and loss of life unlikely).

Significant Risk Dam – 3 Appanoose County, 3 Lucas County, 1 Monroe County

Drought – prolonged lack of precipitation that produces severe dry conditions. There are 3 types of drought relevant to this area: Metrological drought (lack of precipitation), hydrological drought (dwindling surface and groundwater supplies) and agricultural drought (lack of soil moisture).

Earthquake – is the rapid shaking of the earth caused by the sudden release of energy from the breaking and shifting of rock beneath the earth's surface. There are three general classes tectonic, volcanic, and artificially produced.

Expansive Soils – soils and soft rock that tend to swell or shrink excessively due to changes in moisture content.

Extreme Heat – defined as temperatures (including heat index) in excess of 100 degrees Fahrenheit or 3 consecutive days of 90+degrees Fahrenheit. Heat advisories are issued when temperatures reach 105 degrees Fahrenheit and a heat warning is issued when temperatures reach 115 degrees Fahrenheit.

Flash Flooding – an event where water levels rise at an extremely fast rate with little or no warning. Flash Flooding can be the result of intense rainfall in a short time, rapid snowmelt, and release of an ice jam, frozen or saturated soils, or a combination of these conditions.

Grass or Wild land Fire – an uncontrolled fire that threatens life and property in either a rural or 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.

Hailstorm – created when a severe thunderstorm produces pellets or irregularly shaped balls of ice greater than one inch in diameter, which then fall to the earth with rain.

Landslide – is the downward and outward movement of slope-forming materials reacting to gravity. Masses of rock, soil, and/or debris can break loose and move down a slope.

Levee Failure – the loss of structural integrity of a levee wall, dike, berm, or adjacent soil by erosion, seepage, or soil saturation.

River Flooding – the rising or overflowing of a river, tributary, or body of water to the adjacent lands not usually covered by water. Heavy spring rains, intense thunderstorms, snowmelt, levee or dam failure, or waterway obstructions can cause river flooding. Often flooding is the result of a combination of conditions.

Severe Winter Storm – severe winter conditions that affect day-to-day activities which can include blizzard conditions, heavy snow, blowing snow, freezing rain, heavy sleet, and extreme cold.

Sinkholes – the loss of surface elevation due to the removal of subsurface support. They can range from broad, regional lowering of the land surface to localized collapse. The primary cause of most subsidence are human activities such as underground mining of coal, groundwater or petroleum withdraw, and drainage of organic soils.

Thunderstorms & Lightning – Thunderstorms usually produce thunder, lightning, and rain but may also develop tornadoes and straight-line winds, micro-bursts, hail, and/or flooding. Lightning is an electrical discharge that results from the buildup of positive and negative charges in a thunderstorm.

Tornado – a violent whirling wind characteristically accompanied by a funnel shaped cloud extending down from a cumulonimbus cloud that progress in a narrow, erratic path. They are known for being extremely destructive and are usually visible due to water vapor from clouds and debris from the ground.

Windstorm – extreme winds associated with severe winter storms, severe thunderstorms, downbursts and very steep pressure gradients. It may or may not be accompanied by rain or snow. It is difficult to separate windstorms and tornado damage when winds get above 64 knots.

Human Caused/Combination Hazards

Human Disease – an incident that is a medical, health or sanitation threat to the general public such as contamination, epidemics, plagues, insect infestations, and pandemics.

Infrastructure Failure – an incident that has extended interruption of critical services, widespread breakdown, or collapse (part or all) of any public or private infrastructure that threatens life and property. This includes communication failure (including 911 & emergency personnel), energy failure (electric, gas or natural gas), structural failure (collapse of any public or private roads, bridges, towers & buildings), and structural fire (uncontrolled fire in populated areas that threaten life & property).

Animal/Crop/Plant 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 resulting in potential production loss in crops and/or environmental damage.

Hazardous Materials – this encompasses fixed hazardous materials (accidental release of chemical substance or mixtures that present a danger to public health and safety), pipeline transportation (occurs when a break in a pipeline for risk of explosion or leak), and transportation of hazardous materials. This includes the accidental release of flammable or combustible, explosive, toxic, noxious, corrosive, oxidizable, an irritant or radioactive substances or mixtures that can pose a risk to life, health, or property possibly requiring evacuation.

Transportation Incident – a transportation accident involving any mode of transportation that directly threatens life and which results in property damage and/or death/injury and/or adversely impacts a community’s capabilities to provide emergency services. This includes air transportation, highway transportation, railway transportation, and waterway incident.

Terrorism – the use of multiple outlets to demonstrate unlawful force, violence, and/or threat against persons or property causing intentional harm for purposes of intimidation, coercion or ransom in violation of the criminal laws of the United States. These actions may cause massive destruction and/or extensive casualties. This does include enemy attack, biological terrorism, agro-terrorism, chemical terrorism, conventional terrorism, cyber terrorism, radiological terrorism, and public disorder.

Radiological – an incident resulting in a release of radiological material in transport or at a fixed facility to include power plants, hospitals, laboratories, and the like. This does include fixed radiological incidents and transportation radiological incident. (Potential transportation radiological incident is along the BNSF rail line traveling through Monroe and Lucas Counties. This railroad is responsible for shipment of some nuclear waste materials.)

2. State and FEMA Recognized Hazards not detailed

The State of Iowa and FEMA recognize a certain list of hazards that all hazard mitigation plans are to address initially. However, not all hazards impact all areas, this brief section indicates what hazards are not addressed and why. Likewise, not all hazards were determined by the Monroe Planning Committee to be significant enough to include in this plan.

Levees – There are no levees in Monroe County as of the writing of this plan.

3. Risk Assessment

The risk assessment identifies how people, properties, and structures will be damaged by the event. If the hazard can harm people or damage their homes and other structures, they are vulnerable. The scoring criteria used was the same hazard scoring Iowa Homeland Security utilized.

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

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 a possibility of its occurrence.

2 -Occasional

Between 11%-20% probability in any given year (up to 1 in 5 chance of occurring), history of events is greater than 11% but less than 20% or the event could “possibly occur”.

3 -Likely

Between 21%-33% probability in any given year (up to 1 in 3 chance of occurring) history of events if greater than 21% but less than 33% or the event is “likely to occur”.

4 - High Likelihood

More than 34% probability in any given year (event has up to a 1 in 1 chance of occurring), history of events is greater than 34% likely or the event is “highly likely” to occur.

SEVERITY/MAGNITUDE: Assessment of severity in terms of injuries and fatalities, personal property, and infrastructure and the degree and extent with which the hazard affects the area.

1-Negligible

Less than 10% of property severely damaged, shutdown of facilities and services for less than 24 hours and/or injuries/illness treatable with first aid.

2-Limited

11%-25% of property severely damaged, shutdown of facilities and services for more than a week, and/or injuries/illness that do not result in permanent disability.

3-Critical

26%-50% of property severely damaged, shutdown of facilities and services for at least 2 weeks, and/or injury/illnesses that result in permanent disability.

4-Catastrophic

More than 51% of property severely damaged, shutdown of facilities and services for more than 30 days, and/ multiple deaths.

WARNING TIME: Rating of the potential amount of warning time that is available before the hazard occurs.

- 1 More than 24 hours warning time
- 2 13-24 hours warning time
- 3 6-12 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 area including the recovery period.

- 1 Less than 6 hours
- 2 Less than 1 day
- 3 Less than 1 week
- 4 More than 1 week

4. Hazard Prioritization

Once the Monroe County Hazard Mitigation Committee had identified the hazards, they examined each hazard in relation to the risk that hazard presented to each community. A representative from each community assigned a ranking to hazards and then an overall comprehensive ranking was given for the entire region of Monroe County. The comprehensive ranking hazards are listed below:

<i>Comprehensive Ranking</i>	<i>Hazard</i>	<i>Comprehensive score</i>
1	Hazardous Materials	13.25
2	Transportation Incident	13
3	Thunderstorm & Lightning	12.75
4	Hailstorm	12.75
5	Severe Winter Storms	12.25
6	Radiological	12
7	Infrastructure Failure	12
8	Human Disease	12
9	Tornadoes	11.5
10	Windstorm	11.5
11	River Flooding	11.5
12	Animal/Plant/ Crop Disease	11.5
13	Earthquake	11.5
14	Terrorism	11.25
15	Flash Flooding	11
16	Drought	11
17	Extreme Heat	10.25
18	Grass or Wild Land Fire	10.25
19	Expansive Soils	10
20	Landslide	10
21	Dam Failure	9.5
22	Sinkholes	9.5

5. Fire Insurance Rating

The fire insurance rating is measured on a scale of 1 to 10 with 1 representing exemplary public protection. A rating of 10 indicates that a community's fire suppression program does not meet minimum requirements of ISO. ISO is an organization that provides data, analysis, and decision-making support for various professions about risk.

Community	Fire Dept. (Y/N)	Rating 1 - 10
Monroe County	Y	10
Albia	Y	6
Lovilia	Y	8
Melrose	Y	8

6. National Flood Insurance Program (NFIP) Participation

The following table organizes information provided by the Iowa DNR's flood plain coordinator for Monroe County and its communities.

Community	Participates? (Y / N)	NFIP #	Mapped? (Y / N)	Map Date	Repetitive Properties	Loss
Monroe County	N	-	-	-	-	-
Albia	Y	190541	NSFHA	06/10/80	0	
Lovilia	N	-	-	-	-	-
Melrose	Y	190465	Y	07/02/87	0	

Both communities enrolled in NFIP plan to continue their participation. Albia and Melrose have been actively involved with Iowa Flood Center and Iowa DNR for the updated flood mapping that is currently in process. The draft flood hazard maps show the one-percent annual (100-year) flood boundary and 0.2-percent annual (500-year) floodplain boundaries. The communities also promote and educate residents in the importance of NFIP in the community.

D. Goals, Objectives & Strategies

1. Protect critical facilities, infrastructure, services and other community assets from the impacts of hazards.

Objective 1.1 Seek mitigation projects that provide the highest degree of hazard protection at the least cost.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Public Education & Outreach of Warnings – self protection
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Local Hazardous Materials Capabilities
- Strategy 1.E: Hazardous Materials Protection for Storm Shelters
- Strategy 1.F: Maintain Current Evacuation Plans
- Strategy 1.G: Search & Rescue Training for First Responders
- Strategy 1.H: Digging Hotline/Pipeline Safety Regulations
- Strategy 1.I: Temporary Debris Disposal Plan
- Strategy 1.J: Expanded Hazard Area Mapping & Mine Location
- Strategy 1.K: Mass Casualty Preparation
- Strategy 1.L: Replace or Install New Storm Warning System
- Strategy 1.M: Weather Radios for Citizens
- Strategy 1.N: Surge Protection/Lightning Protection
- Strategy 1.O: Burying Power Lines
- Strategy 1.P: Participation in Community Rating System for Flooding
- Strategy 1.Q: Flood Proofing of Properties
- Strategy 1.R: Storm Water Management
- Strategy 1.S: Generators for Storm Shelters
- Strategy 1.T: New Storm Shelter/ Cooling & Heating Shelter Location
- Strategy 1.U: Snow Fences/Barriers – Natural & Artificial
- Strategy 1.V: Maintenance of Heating & Cooling Systems
- Strategy 1.W: Tree Management/Trimming
- Strategy 1.X: Collection & Protection of Vital Records
- Strategy 1.Y: Acquisition or Relocation of Buildings in Floodplain
- Strategy 1.Z: Hazardous Material Disposal Program
- Strategy 1.AA: Safe Room in School, Mobile Home Parks, Campgrounds, Fairgrounds, etc.
- Strategy 1.BB: Secure Funding for removal of Vacant/ Collapsed Buildings
- Strategy 1.CC: Review Floodplain Management for Effectiveness
- Strategy 1.DD: Flood Insurance by Homeowners
- Strategy 1.EE: Rehabilitate Older Buildings
- Strategy 1.FF: Water Storage Saving Plan – Reduce Usage
- Strategy 1.GG: Evaluate/Maintain/Repair Area Dams
- Strategy 1.HH: Encourage Smoke/Fire/ Carbon Monoxide Detectors & sprinkler systems
- Strategy 1.II: Immunization plans – Emergency & Scheduled
- Strategy 1.JJ: Pest Management – through Property Regulations
- Strategy 1.KK: Radon/Lead Mitigation
- Strategy 1.LL: Critical Infrastructure Protection from Terrorism
- Strategy 1.MM: Assessment Risk for Terrorism
- Strategy 1.NN: Manufactured Home Tie-Down Regulation/Ordinance
- Strategy 1.OO: Building Code Enforcement
- Strategy 1.PP: NFIP Participation
- Strategy 1.QQ: Establish Burning Restrictions
- Strategy 1.RR: Fireplace Maintenance
- Strategy 1.SS: Waste Disposal Enforcement
- Strategy 1.TT: Hazard Occurrence Data Collection & Reporting System

Objective 1.2 Strengthen partnerships and collaboration of jurisdictions, as well as, invite corporate partners, education systems, agencies and faith based representatives to participate in emergency planning and recovery.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Public Education & Outreach of Warnings – self protection
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Hazardous Materials Protection for Storm Shelters

- Strategy 1.E: Maintain Current Evacuation Plans
- Strategy 1.F: Mass Casualty Preparation
- Strategy 1.G: Weather Radios for Citizens
- Strategy 1.H: Surge Protection/Lightning Protection
- Strategy 1.I: Generators for Storm Shelters
- Strategy 1.J: Safe Room in School, Mobile Home Parks, Campgrounds, Fairgrounds, etc.

Objective 1.3 Utilize public funds/grant opportunities to protect critical facilities, public services & transportation entities.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Local Hazardous Materials Capabilities
- Strategy 1.C: Search & Rescue Training for First Responders
- Strategy 1.D: Replace or Install New Storm Warning System
- Strategy 1.E: Weather Radios for Citizens
- Strategy 1.F: Surge Protection/Lightning Protection
- Strategy 1.G: Burying Power Lines
- Strategy 1.H: Storm Water Management
- Strategy 1.I: Generators for Storm Shelters
- Strategy 1.J: New Storm Shelter/ Cooling & Heating Shelter Location
- Strategy 1.K: Snow Fences/Barriers – Natural & Artificial
- Strategy 1.L: Acquisition or Relocation of Buildings in Floodplain
- Strategy 1.M: Safe Room in School, Mobile Home Parks, Campgrounds, Fairgrounds, etc.
- Strategy 1.N: Secure Funding for removal of Vacant/ Collapsed Buildings
- Strategy 1.O: Rehabilitate Older Buildings
- Strategy 1.P: Evaluate/Maintain/Repair Area Dams
- Strategy 1.Q: Encourage Smoke/Fire/ Carbon Monoxide Detectors & sprinkler systems
- Strategy 1.R: Radon/Lead Mitigation
- Strategy 1.S: Critical Infrastructure Protection from Terrorism

2. Protect the health, safety & quality of life for Monroe County residents by minimizing the vulnerability of people and property in Monroe County

Objective 2.1 Ensure that property owners can maintain & improve their properties.

- Strategy 1.A: Weather Radios for Citizens
- Strategy 1.B: Surge Protection/Lightning Protection
- Strategy 1.C: Flood Proofing of Properties
- Strategy 1.D: Maintenance of Heating & Cooling Systems
- Strategy 1.E: Tree Management/Trimming
- Strategy 1.F: Flood Insurance by Homeowners
- Strategy 1.G: Rehabilitate Older Buildings
- Strategy 1.H: Encourage Smoke/Fire/ Carbon Monoxide Detectors & sprinkler systems
- Strategy 1.I: Pest Management – through Property Regulations
- Strategy 1.J: Radon/Lead Mitigation
- Strategy 1.K: Manufactured Home Tie-Down Regulation/Ordinance
- Strategy 1.L: Building Code Enforcement
- Strategy 1.M: Establish Burning Restrictions
- Strategy 1.N: Fireplace Maintenance
- Strategy 1.O: Waste Disposal Enforcement
- Strategy 1.P: Hazardous Material Disposal Program

Objective 2.2 Ensure that disaster recovery can proceed promptly following a disaster.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Public Education & Outreach of Warnings – self protection
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Local Hazardous Materials Capabilities
- Strategy 1.E: Hazardous Materials Protection for Storm Shelters
- Strategy 1.F: Maintain Current Evacuation Plans
- Strategy 1.G: Search & Rescue Training for First Responders
- Strategy 1.H: Mass Casualty Preparation
- Strategy 1.I: Temporary Debris Disposal Plan
- Strategy 1.J: Generators for Storm Shelters

Strategy 1.K: Collection & Protection of Vital Records
 Strategy 1.L: New Storm Shelter/ Cooling & Heating Shelter Location
 Strategy 1.M: Water Storage Saving Plan – Reduce Usage
 Strategy 1.N: Immunization plans – Emergency & Scheduled
 Strategy 1.O: Waste Disposal Enforcement
 Strategy 1.P: Hazardous Material Disposal Program

Objective 2.3 Provide back-up energy supplies in all vital assets identified in this plan.

Strategy 1.A: Continuity of Operations Plan – Post Disaster
 Strategy 1.B: Search & Rescue Training for First Responders
 Strategy 1.C: Community Emergency Response Team
 Strategy 1.D: Local Hazardous Materials Capabilities
 Strategy 1.E: Surge Protection/Lightning Protection
 Strategy 1.F: Generators for Storm Shelters
 Strategy 1.G: New Storm Shelter/ Cooling & Heating Shelter Location
 Strategy 1.H: Tree Management/Trimming
 Strategy 1.I: Water Storage Saving Plan – Reduce Usage

Objective 2.4 Promote improving zoning codes, building codes, nuisance abatement, and health codes, especially in relation to areas with older buildings.

Strategy 1.A: Digging Hotline/Pipeline Safety Regulations
 Strategy 1.B: Flood Proofing of Properties
 Strategy 1.C: Storm Water Management
 Strategy 1.D: Tree Management/Trimming
 Strategy 1.E: Acquisition or Relocation of Buildings in Floodplain
 Strategy 1.F: Secure Funding for removal of Vacant/ Collapsed Buildings
 Strategy 1.G: Rehabilitate Older Buildings
 Strategy 1.H: Water Storage Saving Plan – Reduce Usage
 Strategy 1.I: Pest Management – through Property Regulations
 Strategy 1.J: Radon/Lead Mitigation
 Strategy 1.K: Manufactured Home Tie-Down Regulation/Ordinance
 Strategy 1.L: Building Code Enforcement
 Strategy 1.M: Establish Burning Restrictions
 Strategy 1.N: Waste Disposal Enforcement
 Strategy 1.O: Hazardous Material Disposal Program

Objective 2.5 Improve protection of residents & structures from the effects of flooding

Strategy 1.A: Participation in Community Rating System for Flooding
 Strategy 1.B: Flood Proofing of Properties
 Strategy 1.C: Storm Water Management
 Strategy 1.D: Acquisition or Relocation of Buildings in Floodplain
 Strategy 1.E: Review Floodplain Management for Effectiveness
 Strategy 1.F: Maintain Current Evacuation Plans
 Strategy 1.G: Search & Rescue Training for First Responders
 Strategy 1.H: Flood Insurance by Homeowners
 Strategy 1.I: Temporary Debris Disposal Plan
 Strategy 1.J: Evaluate/Maintain/Repair Area Dams
 Strategy 1.K: NFIP Participation
 Strategy 1.L: Weather Radios for Citizens

3. Reduce losses due to natural and man-made hazards

Objective 3.1 Educate members of the county about hazards, how to be prepared, & shelter locations.

Strategy 1.A: Continuity of Operations Plan – Post Disaster
 Strategy 1.B: Public Education & Outreach of Warnings – self protection
 Strategy 1.C: Community Emergency Response Team
 Strategy 1.D: Search & Rescue Training for First Responders
 Strategy 1.E: Hazardous Materials Protection for Storm Shelters
 Strategy 1.F: Digging Hotline/Pipeline Safety Regulations

- Strategy 1.G: Search & Rescue Training for First Responders
- Strategy 1.H: Replace or Install New Storm Warning System
- Strategy 1.I: Weather Radios for Citizens
- Strategy 1.J: Surge Protection/Lightning Protection
- Strategy 1.K: Snow Fences/Barriers – Natural & Artificial
- Strategy 1.L: Collection & Protection of Vital Records
- Strategy 1.M: Safe Room in School, Mobile Home Parks, Campgrounds, Fairgrounds, etc.
- Strategy 1.N: Encourage Smoke/Fire/ Carbon Monoxide Detectors & sprinkler systems
- Strategy 1.O: Radon/Lead Mitigation
- Strategy 1.P: Establish Burning Restrictions
- Strategy 1.Q: Hazard Occurrence Data Collection & Reporting System

Objective 3.2 Review & upgrade warning systems and communications for sufficient coverage.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Public Education & Outreach of Warnings – self protection
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Replace or Install New Storm Warning System
- Strategy 1.E: Weather Radios for Citizens

Objective 3.3 Provide certified shelters/safe rooms

- Strategy 1.A: Hazardous Materials Protection for Storm Shelters
- Strategy 1.B: Search & Rescue Training for First Responders
- Strategy 1.C: Generators for Storm Shelters
- Strategy 1.D: New Storm Shelter/ Cooling & Heating Shelter Location
- Strategy 1.E: Safe Room in School, Mobile Home Parks, Campgrounds, Fairgrounds, etc.

Objective 3.4 Provide adequate training, equipment and exercises to train responding emergency personnel.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Search & Rescue Training for First Responders
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Local Hazardous Materials Capabilities
- Strategy 1.E: Mass Casualty Preparation
- Strategy 1.F: Immunization plans – Emergency & Scheduled
- Strategy 1.G: Critical Infrastructure Protection from Terrorism
- Strategy 1.H: Hazard Occurrence Data Collection & Reporting System

Objective 3.5 Maintain current & create new planning and exercises related to any terrorism event.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Search & Rescue Training for First Responders
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Mass Casualty Preparation
- Strategy 1.E: Critical Infrastructure Protection from Terrorism
- Strategy 1.F: Assessment Risk for Terrorism

Objective 3.6 Identify and map the greatest risk potential of hazards in order to determine locations where improvements could be made.

- Strategy 1.A: Digging Hotline/Pipeline Safety Regulations
- Strategy 1.B: Expanded Hazard Area Mapping & Mine Location
- Strategy 1.C: Participation in Community Rating System for Flooding
- Strategy 1.D: Acquisition or Relocation of Buildings in Floodplain
- Strategy 1.E: Secure Funding for removal of Vacant/ Collapsed Buildings
- Strategy 1.F: Review Floodplain Management for Effectiveness
- Strategy 1.G: Rehabilitate Older Buildings
- Strategy 1.H: Evaluate/Maintain/Repair Area Dams
- Strategy 1.I: Pest Management – through Property Regulations

E. Hazard Profiles, Vulnerability, & Mitigation Strategies

1. Hazard Profile – Hazardous Materials

The hazard encompasses the following consolidated hazards from the 2007 mitigation plan: fixed hazardous materials, pipeline transportation, and transportation hazardous materials. This includes 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. Description.

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

PIPELINE INCIDENT – a pipeline incident occurs when a break in a pipeline creates the potential for an explosion or leak of a dangerous substance (oil, gas, etc.) possibly requiring evacuation. An underground pipeline incident can be caused by 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 the pipelines.

TRANSPORTATION OF HAZARDOUS MATERIALS – This hazard constitutes an accidental release of chemical substances or mixtures that presents a danger to public health or safety during transportation. A hazardous substance is one that may cause damage to person(s), property, or the environment when released to soil, water, or air.

B. Past Occurrences.

During the period 2000-2010, fixed facilities experienced 4,972 incidents according to the Iowa Department Natural Resources (DNR). Fixed facility releases accounted for 57.6% of total releases. (Note: the number of trips to drug related operations has risen sharply in the state.) There are 4,057 sites in Iowa that because of the volume or toxicity of the materials on site are designated as Tier Two facilities under the Superfund Amendments and Reauthorization Act.

Thirteen hazardous materials releases on file with the DNR between 2010 and August 2015. The manufacturing plants, automobile repair, and gas stations are potential sites for hazardous materials incidents in Monroe County.

Spill Date	Town
7/23/15	Eddyville
6/18/15	Eddyville
2/12/15	Batavia
8/28/14	Eddyville
7/23/14	Eddyville
4/16/14	Lovilia
6/3/11	Rural County
5/18/11	Albia
3/3/2011	Eddyville
2/22/11	Eddyville
10/14/10	Albia
7/30/10	Eddyville
3/19/10	Eddyville

According to the Iowa Utilities Board (IUB) and the United States Department of Transportation Pipeline and Hazardous Materials Safety Administration, 43 pipeline accidents, incidents, or service outages were reported from 2000-2009 resulting in a total of six (6) injuries. The vast majority of incidents that occur are caused by third party damage to the pipeline, often due to construction or some other activity that involves trenching or digging. With development occurring at an unprecedented rate and the ground becoming more and more congested with utilities, the probability of an underground pipeline incident is significant. Petroleum and natural gas pipeline accidents occur with some regularity, but they usually have a limited impact and are quickly and adequately handled by pipeline company emergency crews and local and state responders. Pipeline operators are required to coordinate all safety preparedness and response activities with the communities. Continuing to plan, train, and exercise emergency procedures help to limit the occurrence and severity of incidents. According to the National Transportation Safety Board (NTSB), there have been no pipeline incidents in Monroe County since 1969. However, there have been pipeline explosions and fires in Iowa during this time period.

C. Vulnerable Locations/Buildings.

FIXED HAZARDOUS MATERIALS – The table below summarizes the maximum threat to residents and structures that can be affected by fixed hazardous materials. The manufacturing plants, automobile repair, gas stations, and farm yards are potential sites for hazardous materials incidents in Monroe County. There are nine gas and farm stores located in Albia.

Two large industries are located in the far Northeast corner of Monroe County. The physical addresses place both of them near the City of Eddyville but on right on the edge of the Monroe County line. The Cargill plant offers employment to more than 550 residents from a large area. The Cargill plant is a processing plant that produces pet food and various other products for human consumption. Ajinomoto Heartland is global leaders of feed-grade amino acid manufacturing. Representing Ajinomoto Animal Nutrition in North America, Ajinomoto Heartland LLC manufactures and distributes cost effective feed-grade amino acids and is the frontrunner in amino acid nutritional research and technical expertise. This industry employs approximately 75 employees. Ajinomoto Food Ingredients produces supplemental food ingredients for human consumption. This division employs about 100 individuals. Each of these sites has a personnel member that has HAZMAT training and certification. Each site offers a safety protocol and evacuation plan for its employees. The emergency procedures are held confidential at each location and both were reluctant to give any information. Local emergency personnel have been working to build a relationship with the site managers so that they could better support the facility in the event of an emergency. This has been a lengthy and difficult process but there are discussions of hosting a joint meeting with intentions of establishing a better support system for each location.

The table below summarizes the maximum threat to residents and structures that can be affected by fixed hazardous materials. The manufacturing plants, automobile repair, gas stations, and farm yards are potential sites for hazardous materials incidents in Monroe County. There are nine gas and farm stores located in Albia, two in Lovilia, and one in Melrose that are at a higher rate for possible incident.

Chemical spills can occur anytime there is a traffic accident as oil, gasoline, and other fluids used in vehicles are released. Dumping of household cleaners, paints, and old oil can happen at any time and are more likely in areas where people do not understand hazardous materials laws.

A low number of homes (1%) in Albia use LP Gas for heating fuel. Liquid petroleum is not by nature toxic, but can cause asphyxiation through oxygen deprivation. LP Gas is heavier than air so it will sink to the lowest places possible and is flammable. Stores of anhydrous ammonia in the county pose health and safety threats to potentially large areas of the county and are potential targets for meth producers as a source of raw materials.

The manufacturing plants, automobile repair, and gas stations are potential sites for hazardous materials incidents in Monroe County. There are approximately 9 locations in Albia that contain fixed hazardous materials available for purchase. This does include gas stations and farm supply businesses that are scattered throughout the community. Albia hosts an industrial site that is home to such businesses as RELCO, A.Y.M, Chicago Rivet &

Machine, Superior Machine, Quiktron, L & S Tools, Iowa Aluminum, Hawkeye Molding, Walker Chemical Corp and Kness Manufacturing. These industries combined employment to 550 individuals in this area.

See Appendix 13 to view the vulnerable zone around the fixed hazardous locations in the county. Specific locations of concerns include private in-home daycares, who would have the vulnerable population of young children. One agri-business facility places two private, in-home daycare at a greater potential risk. The industries in the Iowa Bioprocessing Center doesn't affect any vulnerable populations.

ALBIA – exposure due to Fixed Hazardous Materials

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	1379	69	5%	\$96,081,043	\$4,804,052	5%	3766	188	5%
Commercial	166	8	5%	\$16,085,504	\$804,275	5%			
Industrial	14	1	5%	\$5,634,100	\$281,705	5%	-	-	-
Agricultural		-	-				-	-	-
Religious / Non-profit									
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		
Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	

Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrellgas	121 10 th St			X				\$15,933	
USDA Office	1709 S B St			X	X				
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					
Monroe County Professional Mang	15 A Ave								
Private In-Home Daycare	6427 160 th St		X						
Private In-Home Daycare	1671 631 st Lane		X						

LOVILIA – exposure due to Fixed Hazardous Materials

The table below summarizes the maximum threat to residents and structures that can be affected by fixed hazardous materials. The manufacturing plants, automobile repair, gas stations, and farm yards are potential sites for hazardous materials incidents in Monroe County. There are two facilities in Lovilia that are at a higher rate for possible incident.

A low number of homes (2.3%) in Lovilia use LP Gas for heating fuel. Liquid petroleum is not by nature toxic, but can cause asphyxiation through oxygen deprivation. LP Gas is heavier than air so it will sink to the lowest places possible and is flammable. Stores of anhydrous ammonia in the county pose health and safety threats to potentially large areas of the county and are potential targets for meth producers as a source of raw materials.

The manufacturing plants, automobile repair, and gas stations are potential sites for hazardous materials incidents in Monroe County. There are two fuel stations along State Highway 5 that are located in the center of the community. An additional site that may contain hazardous materials would be a farm supply and grain store on the north edge of the community along Highway 5.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	217	22	10%	\$9,760,486	\$976,049	10%	538	54	10%
Commercial	27	3	10%	\$759,126	\$75,913	10%			
Industrial	0		0%	0		0%	-	-	-
Agricultural	8	1	10%	\$1,049,936.00-		-	-	-	-
Religious / Non-profit	1		100%						
Government	3								
Education									
Utilities	-	-	-	-	-	-	-	-	-

Lovilia’s critical asset that can be affected by fixed hazardous materials:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
Casey’s	1807 Highway 5						1962sq ft	\$102,125	

MELROSE – exposure due to Fixed Hazardous Materials

FIXED HAZARDOUS MATERIALS - The table below summarizes the maximum threat to residents and structures that can be affected by fixed hazardous materials. The manufacturing plants, automobile repair, gas stations, and farm yards are potential sites for hazardous materials incidents in Monroe County. The farm store located in Melrose would be at a higher rate for possible incident. A particular area of concern in Melrose is the land that is owned by Farm Services. The business stores numerous tanks of hazardous farm chemicals next to the railroad property and rail line.

Chemical spills can occur anytime there is a traffic accident as oil, gasoline, and other fluids used in vehicles are released. Dumping of household cleaners, paints, and old oil can happen at any time and are more likely in areas where people do not understand hazardous materials laws.

A large number of homes (61.8%) in Melrose use LP Gas for heating fuel. Liquid petroleum is not by nature toxic, but can cause asphyxiation through oxygen deprivation. LP Gas is heavier than air so it will sink to the lowest places possible and is flammable. Stores of anhydrous ammonia in the county pose health and safety threats to potentially large areas of the county and are potential targets for meth producers as a source of raw materials.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	58	6	10%	\$2,007,801	\$200,780	10%	112	11	10%
Commercial	8	1	10%	\$120,915	\$12,091	10%			
Industrial	1	1	100%	\$141,977	\$141,977	100%	-	-	-
Agricultural	-		-			-	-	-	-
Religious / Non-profit	1		100%						
Government	2								
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by Fixed Hazardous Materials:

***Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office*

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
Quality Ag	502 Erin Ave			X				\$141,977	

UNINCORPORATED COUNTY AREA – exposure due to Fixed Hazardous Materials

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in region	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in region	# in Hazard Area	% in Hazard Area
Residential	1,379	138	10%	\$125,076,897	\$12,507,689	10%	3554	355	10%
Commercial	63	6	10%	\$5,287,024	\$528,702	10%			10%
Industrial	15	2	10%	\$174,113,751	\$17,411,375	10%	-	-	-
Agricultural	905	90	10%	\$57,938,330	\$5,793,833	10%	-	-	-
Religious / Non-profit	4	1	10%						

Unincorporated County Structural Inventory

***Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office*

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Total Replacement Value
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X				\$80,026,460
Wacker Chemical Corp	NE corner of county			X	X			\$5,114,095
Ajinomoto Heartland, LLC	NE corner of county			X	X			\$29,733,719
Ajinomoto USA Inc/ Ajinomoto Food	NE corner of the county			X	X			\$22,895,026
Agriland FS Inc					X			
Crop Production Services					X			

According to <http://www.iowabiocenter.com/products/index.php>

Products

The Iowa Bioprocessing Center produces a variety of products. Whether high fructose corn syrup that is found in many of today's food products or lysine that feeds livestock or ethanol that powers our automobiles, the Iowa Bioprocessing Center manufactures products that are our part of our everyday life.

The foundation for these products is Cargill's corn wet milling process that helps to supply a variety of co-products made at the Iowa Bioprocessing Center. Some of these products include:

Cargill

Corn Milling

- High Fructose Corn Syrup
- Corn Syrup
- Dextrose
- Crude Corn Oil
- Corn Gluten Meal
- Sweet Bran®

Acidulants

- Citric Acid
- Anhydrous Citric Acid
- Liquid Citric Acid

- Sodium Citrate
- Potassium Citrate
- Glucosamine

Health & Food Technologies

- Natural Vitamin E
- D-Alpha Tocopheryl Acetate
- Mixed Tocopherols
- Phytosterols
- FFA
- FAME

Other

- Ethanol

Ajinomoto Food Ingredients LLC

- Monosodium Glutamate

Ajinomoto Heartland

- Feed Grade Threonine
- Feed Grade Lysine

Wacker

- Cyclodextrins



Pipeline Incident:

PIPELINE INCIDENT - There are no pipelines in Melrose.

ALBIA – exposure due to Pipeline Incident

PIPELINE INCIDENT – About 5 interstate pipelines operate in the state under federal pipeline jurisdiction. There are many high-pressure gas mains throughout the state which supply residential and industrial users. People and property with pipelines on their land or nearby are the most at risk. People excavating earth near a pipeline are also at risk. Whether the greater hazard is posed to those upwind or downwind from a site depends on the product spilled, for example - natural gas is lighter than air. Private homes and business served by natural gas have smaller diameter pipelines connected to their structure.

The underground pipelines cross public streets, roads, and highways as well as streams. Iowa’s natural environment is also vulnerable to contamination from an underground pipeline incident. One natural gas pipeline runs parallel to Highway 5 and enters the south edge of the City of Albia. This line extends approximately 10 miles from the south edge of the county into Albia. Another natural gas line enters the county from the north (adjacent to Highway 5) for 2 miles in order to provide service to the city of Lovilia.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	1379	69	5%	\$96,081,043	\$4,804,052	5%	3766	188	5%
Commercial	166	8	5%	\$16,085,504	\$804,275	5%			
Industrial	14	1	5%	\$5,634,100	\$281,705	5%	-	-	-
Agricultural		-	-				-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-	-	-	-	-	-	-

Critical Facilities: *Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office*

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic / Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff’s office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic / Other	Size of Bldg In Square feet	Replacement Value	Content Value
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		
Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrellgas	121 10 th St			X				\$15,933	
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
USDA Office	1709 S B St			X	X				
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					

ALBIA PUBLIC SCHOOL BUILDINGS

***Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office. Insured value is according to the school's insurance policy.*

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the hospital’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Monroe Co Hospital	6580 165 th St	X	X	X	X				

LOVILIA – exposure due to Pipeline Incident

PIPELINE INCIDENT - About 5 interstate pipelines operate in the state under federal pipeline jurisdiction. There are many high-pressure gas mains throughout the state which supply residential and industrial users. People and property with pipelines on their land or nearby are the most at risk. People excavating earth near a pipeline are also at risk. Whether the greater hazard is posed to those upwind or downwind from a site depends on the product spilled, for example - natural gas is lighter than air. Private homes and business served by natural gas have smaller diameter pipelines connected to their structure. The underground pipelines cross public streets, roads, and highways as well as streams. Iowa’s natural environment is also vulnerable to contamination from an underground pipeline incident. A natural gas line enters the county from the north (adjacent to Highway 5) for 2 miles in order to provide service to the city of Lovilia.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	217	11	5%	\$9,760,486	\$488,024	5%	538	27	5%
Commercial	27	1	5%	\$759,126	37,956	5%			
Industrial	0	0	0%	0		0%	-	-	-
Agricultural	8	0	0%			-	-	-	-
Religious / Non-profit	1	1	100%						
Government	3	3	100%						
Education									
Utilities	-	-	-	-	-	-	-	-	-

Lovilia’s critical asset that can be affected by pipeline incident:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	125,537	257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	68,840	97,500
Community Bldg	608 W 17 th St				X				
Water plant	606 W 17 th St	X					1088 sq ft	43,700	49,070
Water tower	606 W 17 th St	X					--	285,600	--
City Maintenance/ Storage	1611 E Ave So				X		1239 sq ft	54,838	22,000
Casey’s	1807 Highway 5						1962sq ft	\$102,125	

UNINCORPORATED COUNTY AREA – exposure due to Pipeline Incident

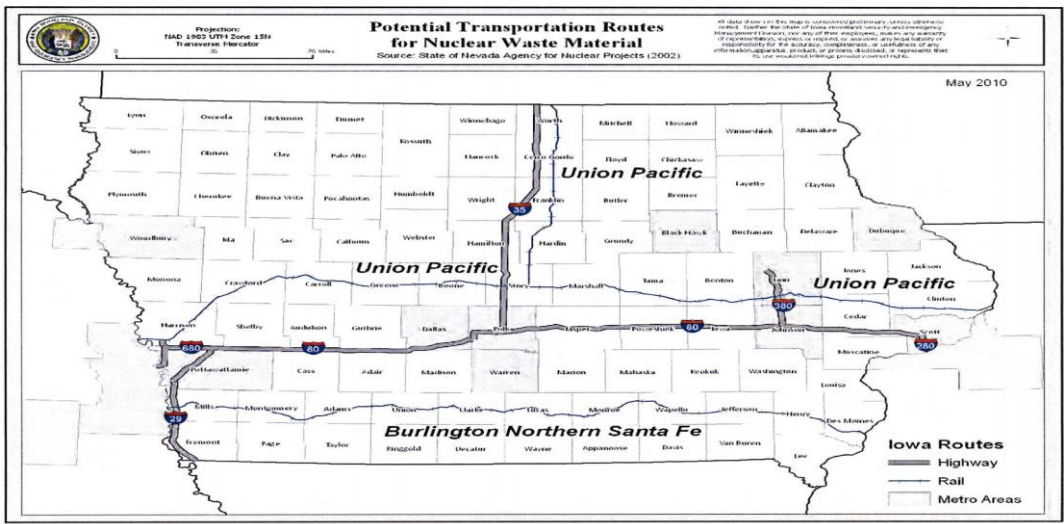
The underground pipelines cross public streets, roads, and highways as well as streams. Iowa’s natural environment is also vulnerable to contamination from an underground pipeline incident. One natural gas pipeline runs parallel to Highway 5 and enters the south edge of the City of Albia. This line extends approximately 10 miles from the south edge of the county into

Albia. Another natural gas line enters the county from the north (adjacent to Highway 5) for 2 miles in order to provide service to the city of Lovilia.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in region	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in region	# in Hazard Area	% in Hazard Area
Residential	1,379	138	10%	\$125,076,897	\$12,507,689	10%	3554	355	10%
Commercial	63	6	10%	\$5,287,024	\$528,702	10%			10%
Industrial	15	2	10%	\$174,113,751	\$17,411,375	10%	-	-	-
Agricultural	905	90	10%	\$57,938,330	\$5,793,833	10%	-	-	-
Religious / Non-profit	4	1	10%						

Unincorporated County Structural InventoryEstimates of Square footage and Replacement Value provided by Monroe County Assessor's Office**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
IDOT roads maintenance shop	South Hwy 5			X				
Monroe County Fairgrounds (land & structures)	North Hwy 5			X				\$310,613



ALBIA – exposure due to Transportation of Hazardous Materials

TRANSPORTATION OF HAZARDOUS MATERIALS – summarized in the table below that depicts the maximum threat to the population and building exposures. Iowa State Highway 5 and US Highway 34 offers an increased potential for a transportation of Hazardous materials incident. As well as, semis frequently transport along this roadway in addition to local farmers that commonly transport Anhydrous Ammonia tanks. Iowa State Highway 5 and US Highway 34 pass through (and intersect) in Albia’s City limits to offer an increased potential for a transportation of Hazardous materials incident. Semis frequently transport along this roadway in addition to local farmers that commonly transport Anhydrous Ammonia tanks. State Highway 5 intersects the City of Albia from north to south and is adjacent to Grant Elementary near the heart of the City of Albia.

There are three railroad companies that operate lines in Monroe County: BNSF, APNC, and IMRL. APNC's rail line enters the county from the south and runs parallel to highway 5 into the City of Albia. BNSF hosts the highest miles of rail line throughout Monroe County. There are 5 rail lines that exit the RELCO rail yard in Albia. One BNSF line parallels highway 5 to the northern boundary of the Monroe County line through the communities of Lovilia and Hagerty. The remaining BNSF rail line directs west from Albia to the south edge of Melrose and exits parallel to highway 34 at the west limit of Monroe/Lucas county line. The BNSF line that operates east and west (and passes through Albia) is a designated route for the transport of Biodiesel Ethanol fuel. The unincorporated communities Halpin, Tower Station, and Tyrone are also affected by this line. There are numerous crossings present the opportunity for train-vehicle or pedestrian accidents. Derailments are also possible, while major derailments are less likely.

See Appendix 13 to view the vulnerable zone around the fixed hazardous locations in the county. The transport of such materials to the facilities also places these child care locations at risk. Specific locations of concerns include private in-home daycares, who would have the vulnerable population of young children. One agri-business facility places two private, in-home daycare at a greater potential risk. The industries in the Iowa Bioprocessing Center doesn't affect any vulnerable populations.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	1379	345	25%	\$96,081,043	\$24,020,261	25%	3766	942	25%
Commercial	166	25	15%	\$16,085,504	\$2,412,826	15%			
Industrial	14	1	10%	\$5,634,100	\$563,410	10%	-	-	-
Agricultural			-				-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-						

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic / Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		

Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrellgas	121 10 th St			X				\$15,933	
USDA Office	1709 S B St			X	X				
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					
Monroe County Professional Mang	15 A Ave								
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X				\$80,026,460	
Wacker Chemical Corp	NE corner of county			X	X			\$5,114,095	
Ajinomoto Heartland, LLC	NE corner of county			X	X			\$29,733,719	
Ajinomoto USA Inc/ Ajinomoto Food	NE corner of the county			X	X			\$22,895,026	
AgriLand FS Inc					X				
Crop Production Services					X				

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the school’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the hospital’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Monroe Co Hospital	6580 165 th St	X	X	X	X				

LOVILIA – exposure due to Transportation of Hazardous Material

TRANSPORTATION OF HAZARDOUS MATERIALS – summarized in the table below that depicts the maximum threat to the population and building exposures. Iowa State Highways 5 and 34 offers an increased potential for a transportation of Hazardous materials incident. As well as, semis frequently transport along this roadway in addition to local farmers that commonly transport Anhydrous Ammonia tanks.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	217	98	45%	\$9,760,486	\$4,392,219	45%	538	242	45%
Commercial	27	11	40%	\$759,126	\$303,650	40%			
Industrial	0		0%	0		0%	-	-	-
Agricultural	8	4	50%	\$1,049,9360	\$524,968	50%	-	-	-
Religious / Non-profit	1		100%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Lovilia’s critical asset that can be affected by transportation of hazardous materials:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	125,537	257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	68,840	97,500
Community Bldg	608 W 17 th St				X				

Water plant	606 W 17 th St	X					1088 sq ft	43,700	49,070
Water tower	606 W 17 th St	X					--	285,600	--
City Maintenance/Storage	1611 E Ave So				X		1239 sq ft	54,838	22,000
Lagoon	6057 115 th Trail	X					375 sq ft	132,490	--
Casey's	1807 Highway 5						1962sq ft	\$102,125	

MELROSE – exposure due to Transportation Hazardous Materials

TRANSPORATION OF HAZARDOUS MATERIALS -- summarized in the table below that depicts the maximum threat to the population and building exposures. Iowa State Highway 5 and US Highway 34 offers an increased potential for a transportation of Hazardous materials incident. As well as, semis frequently transport along this roadway in addition to local farmers that commonly transport Anhydrous Ammonia tanks. In Melrose, a potential could occur along county highway S70 that passes through town or along the BNSF railroad line in the southern third of the community.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	58	15	25%	\$2,007,801	\$501,950	25%	112	17	15%
Commercial	8	2	25%	\$120,915	\$30,229	25%			
Industrial	1	1	100%	\$141,977	\$141,977	100%	-	-	-
Agricultural	-	-	-		-	-	-	-	-
Religious / Non-profit	1	1	100%						
Government	2								
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose's critical asset that can be affected by Transportation Hazardous Materials:

***Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office*

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Sewer Lift Station		X							
Quality Ag	502 Erin Ave			X				\$141,977	
Melrose Market	115 Erin St								

UNINCORPORATED COUNTY AREA – exposure due to Transportation of Hazardous Materials

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in region	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in region	# in Hazard Area	% in Hazard Area
Residential	1,379	414	30%	\$125,076,897	\$37,523,069	30%	3554	1422	30%
Commercial	63	19	30%	\$5,287,024	\$1,586,107	30%			
Industrial	15	5	30%	\$174,113,751	\$52,234,125	30%	-	-	-
Agricultural	905	272	30%	\$57,938,330	\$17,381,499	30%	-	-	-
Religious / Non-profit	4	1	30%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
Rural Water towers (3)	Scattered location	X						\$1M/ea
IDOT roads maintenance shop	South Hwy 5			X				
Halley's Trailer Park (35 homes)	East Hwy 34		X					\$68,890 land \$90,041 bldgs
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X				\$80,026,460
Monroe County Fairgrounds (land & structures)	North Hwy 5			X				\$310,613
Wacker Chemical Corp	NE corner of county			X	X			\$5,114,095
Ajinomoto Heartland, LLC	NE corner of county			X	X			\$29,733,719
Ajinomoto USA Inc/ Ajinomoto Food	NE corner of the county			X	X			\$22,895,026
Private In-Home Daycare	6427 160 th St		X					
Private In-Home Daycare	1671 631 st Lane		X					

D. Loss Estimates.

Estimated loss numbers would vary by occurrence and location. Fixed Hazardous Materials could place more than \$7.3 Million of property at risk. Pipeline Incident could potentially damage beyond \$16 Million in property. Transportation of Hazardous Materials includes areas along Burlington Northern Railroad and potentially Highways 5 and 34. The estimates place more than \$50 Million in property at risk of a potential loss.

E. Hazard Scoring & Ranking. – See also page 31 or Appendix 17

<i>HAZARD SCORE CALCULATION</i>				
PROBABILITY	MAGNITUDE/SEVERITY	WARNING TIME	DURATION	WEIGHTED SCORE
4	4	4	4	16

EVALUATION CRITERIA	DESCRIPTION	SCORE
PROBABILITY	<p>THE SHMT ANALYSIS EVALUATED THE PROBABILITY THAT A HIGH IMPACT OCCURRENCE OF A FIXED HAZARDOUS MATERIALS INCIDENT HAS A 10-20% PROBABILITY TO OCCUR IN ANY GIVEN YEAR FOR THE STATE. THE LOCAL HMP COMMITTEE CONCURS WITH THIS ASSESSMENT FOR MONROE COUNTY ALSO. THE GREATEST PROBABILITY WOULD OCCUR AT THE BIOPROCESSING CENTER IN THE NORTHEAST CORNER OF THE COUNTY. A HIGH IMPACT OCCURRENCE IS ONE DEFINED AS AN ENVIRONMENTAL EMERGENCY BY THE ENVIRONMENTAL PROTECTION AGENCY. 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 OIL, RADIOACTIVE MATERIALS OR HAZARDOUS CHEMICALS INTO THE AIR, LAND, OR WATER.</p> <p>THIS HAZARD CONSTITUTES AN ACCIDENTAL RELEASE OF CHEMICAL SUBSTANCES OR MIXTURES THAT PRESENTS A DANGER TO PUBLIC HEALTH OR SAFETY DURING TRANSPORTATION. A HAZARDOUS SUBSTANCE IS ONE THAT MAY CAUSE DAMAGE TO PERSON(S), PROPERTY, OR THE ENVIRONMENT WHEN RELEASED TO SOIL, WATER, OR AIR. THE LOCAL COMMITTEE BELIEVES THAT THERE IS MODERATE PROBABILITY THIS COULD HAPPEN GIVEN THE AMOUNT OF TRAFFIC TO/FROM THE BIOPROCESSING CENTER, THE HAZARDOUS MATERIALS TRANSPORTED ON THE BNSF RAILROAD AND THE HIGH NUMBER OF FARMERS TRANSPORTING CHEMICALS.</p>	4
MAGNITUDE/ SEVERITY	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	4

	<p>SUBSTANCES ARE AT HIGHER RISK. POPULATIONS DOWNSTREAM, DOWNWIND, AND DOWNHILL OF A RELEASE 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 OFFSITE CONSEQUENCE PLAN THAT ADDRESSES THE POPULATION OF THE SURROUNDING AREA. RESPONDING PERSONNEL ARE REQUIRED TO BE TRAINED HAZMAT OPERATIONS LEVEL TO RESPOND TO THE SCENE, AND THOSE PERSONNEL THAT COME INTO DIRECT 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>THE RELEASE OF SOME TOXIC GASES CAUSE IMMEDIATE DEATH, DISABLEMENT, OR SICKNESS IF ABSORBED THROUGH THE SKIN, INJECTED, OR INHALED. SOME CHEMICALS MAY CAUSE PAINFUL AND DAMAGING BURNS TO SKIN IF THEY COME IN DIRECT CONTACT WITH YOUR BODY. 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>	
WARNING TIME	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 WITHOUT MUCH 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 AREAS 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.	4
DURATION	RESPONSE TO A HAZARDOUS MATERIALS INCIDENT 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.	4
	WEIGHTED SCORE	16

F. Mitigation.

CONTINUITY OF OPERATIONS PLANNING	
PROGRAM/PROJECT DESCRIPTION	CITY AND CITY DEPARTMENTS WORK TO DEVELOP PROCEDURES OF WHAT DO WHEN HAZARDS OCCUR INCLUDING WHO HAS KEYS TO SHELTERS, CONTACT LIST FOR CITY AND EMERGENCY RESPONSE PERSONNEL, PRIORITIES FOR WHAT FACILITIES TO RESTORE FOLLOWING DISASTERS, HOW TO DIRECT MONROE COUNTY RESIDENTS TO MINIMIZE INJURIES, AS WELL AS (OFF-SITE) BACKUPS OF IMPORTANT CITY DOCUMENTS AND FILES
ANTICIPATED COST	MINIMAL
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE AGENCY	ADLM (EMERGENCY MANAGEMENT) ALBIA FIRST RESPONDERS, CITY COUNCILS OF ALBIA, LOVILIA & MELROSE
MITIGATION CATEGORY	PROPERTY PROTECTION
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.2, 2.3, 2.4, 3.2, 3.4, 3.5 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES - FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS INCIDENT, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT, RIVER FLOODING, TORNADO, HAILSTORM, DAM FAILURE, SINK HOLE, HUMAN DISEASE INCIDENT, EARTHQUAKE,
JURISDICTION	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

PUBLIC EDUCATION AND OUTREACH	
DESCRIPTION	DEVELOP HAZARD EDUCATION AND OUTREACH PROGRAM TO HELP MONROE COUNTY RESIDENTS UNDERSTAND MEANING OF HAZARD WARNINGS AND SELF-PROTECTION MEASURES
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ADLM (EMERGENCY MANAGEMENT), ALBIA, LOVILIA, & MELROSE FIRST RESPONDERS,
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES - FLASH FLOOD, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS INCIDENT, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT, RIVER FLOODING, TORNADO, HAILSTORM, DAM FAILURE, SINK HOLE, HUMAN DISEASE INCIDENT, EARTHQUAKE,
JURISDICTION	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

COMMUNITY EMERGENCY RESPONSE TEAM	
DESCRIPTION	ENCOURAGE AND SUPPORT DEVELOPMENT OF VOLUNTEER COMMUNITY EMERGENCY RESPONSE TEAM OF RESIDENTS WHO HAVE ACCESS TO EQUIPMENT AND TRAINING TO RESPOND IF EMERGENCY SERVICES ARE UNABLE TO MEET ALL OF THE IMMEDIATE NEEDS FOLLOWING DISASTERS AS WELL AS CHECKING IN ON ELDERLY OR DISABLED RESIDENTS TO ENSURE THEIR SAFETY
ESTIMATED COST	VOLUNTEER
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	ADLM- EMERGENCY MANAGEMENT, ALBIA, LOVILIA & MELROSE FIRST RESPONDERS,
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS, EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.4, 3.5- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES -FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS INCIDENT, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT , GRASS / WILDFIRE, RIVER FLOODING, TORNADO, HAILSTORM, DAM FAILURE, SINK HOLE, EXTREME HEAT, HUMAN DISEASE INCIDENT, EARTHQUAKE, DROUGHT
JURISDICTION	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

LOCAL HAZARDOUS MATERIALS CAPABILITIES	
DESCRIPTION	ENCOURAGE ESTABLISHMENT OF LOCAL HAZARDOUS MATERIALS TEAM AND / OR SUPPORT TRAINING FOR LOCAL FIRST RESPONDERS
ESTIMATED COST	MODERATE TO HIGH
TIMELINE/SCHEDULE	MEDIUM TO LONG TERM (5+YRS)
RESPONSIBLE ENTITY	ADLM EMERGENCY MANAGEMENT, ALBIA, LOVILIA & MELROSE FIRE DEPARTMENT (IN PARTNERSHIP WITH ADLM AND / OR COUNTY)
MITIGATION CATEGORY	EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.5- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- HAZARDOUS MATERIALS, TRANSPORTATION INCIDENT, INFRASTRUCTURE FAILURE, HUMAN DISEASE INCIDENT
JURISDICTION	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

HAZARDOUS MATERIALS PROTECTION FOR STORM SHELTERS	
DESCRIPTION	DEVELOP HAMA POLICIES (SHUTTING OFF AIR CONDITIONING, CLOSING WINDOWS, ETC.), PREPARE KITS FOR SEALING OFF ROOMS INCLUDING DUCT TAPE AND PLASTIC SHEETING (SEE FEMA GUIDANCE; HTTP://WWW.FEMA.GOV/HAZARD/HAZMAT/HZ_DURING.SHTM)
ESTIMATED COST	MINIMAL OR VOLUNTARY
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	PROPERTY OWNERS, ALBIA/LOVILIA/MELROSE FIRST RESPONDERS
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS, EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.3, 3.4- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- HAZARDOUS MATERIALS, TRANSPORTATION INCIDENT, INFRASTRUCTURE FAILURE, HUMAN DISEASE INCIDENT
JURISDICTION	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

EVACUATION PLANS	
DESCRIPTION	DEVELOP EVACUATION PLANS FOR SCHOOL, COMMUNITY BUILDINGS, AND FOR TOWN
ESTIMATED COST	MINIMAL TO MODERATE
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ADLM-EMERGENCY MANAGEMENT, ALBIA, LOVILIA,& MELROSE FIRE DEPARTMENT, ALBIA COMMUNITY SCHOOLS,
MITIGATION CATEGORY	PREVENTION, EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.4, 3.5, 3.6 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES-FLASH FLOODING, INFRASTRUCTURE FAILURE, HAZARDOUS MATERIALS INCIDENT, TRANSPORTATION INCIDENT, FIRE, RIVER FLOODING, DAM FAILURE, SINK HOLES
JURISDICTION	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

SEARCH AND RESCUE TRAINING FOR FIRST RESPONDERS	
DESCRIPTION	TRAINING FIREFIGHTERS AND OTHER LOCAL EMERGENCY RESPONDERS BEST PRACTICES IN SEARCH AND RESCUE OPERATIONS
ESTIMATED COST	MINIMAL TO MODERATE
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ALBIA, LOVILIA, & MELROSE FIRE DEPARTMENT& FIRST RESPONDERS,
MITIGATION CATEGORY	EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.2, 2.3, 3.1, 3.4, 3.5, 3.6 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS INCIDENT, TRANSPORTATION INCIDENT, RIVER FLOODING, TORNADO, WINDSTORM/HIGH WIND EVENT, DAM FAILURE, SINK HOLES, EARTHQUAKE, LANDSLIDE
JURISDICTION	ALBIA, LOVILIA, MELROSE

DIGGING HOTLINE/PIPELINE SAFETY REGULATIONS OF PIPELINES	
DESCRIPTION	COMMUNITIES MUST INSURE THAT THEY ARE IN COMPLIANCE WITH INDUSTRY SAFETY REGULATIONS AND STANDARDS. ONE COMPONENT THAT IS TO BE WELL ADVERTISED IS THE DIGGING HOTLINE FOR RESIDENTS TO CALL BEFORE DIGGING ON THEIR PROPERTY.
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	COUNTY BOS, ADLM EMERGENCY MANAGEMENT, PRIVATE PIPELINE OWNERS
MITIGATION CATEGORY	PREVENTION, PUBLIC EDUCATION AND AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.1, 2.2, 2.4, 3.4 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, TORNADO, SINKHOLES, PIPELINE,
JURISDICTION	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

Hazardous Material Disposal	
Description	Develop hazardous materials disposal program incorporating public education, community clean-up days, and household hazardous waste exchange
Estimated Cost	Minimal to moderate
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	ADLM emergency management, Albia Maintenance Dept.
Address High Risk Hazards?	Yes
Mitigation Category	Prevention, Natural Resource Protection, Public Education and Awareness
Related Goals/Objectives	1.1, 1.3, 2.2, 2.3, 2.4 2.5, 3.5, 3.6 - See also page 31 or Appendix 17
Addresses High Risk Hazards?	Hazardous Materials, Infrastructure failure, Human Disease Incident
Related Jurisdiction (s)	Albia

2. Hazard Profile – Transportation Incident

This hazard encompasses the following consolidated hazards from the 2007 mitigation plan: air transportation, 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.

A. Description.

AIR TRANSPORTATION INCIDENT- an air transportation incident may involve a military, commercial, or private aircraft. Air transportation is playing a more prominent role in transportation as a whole; airplanes, helicopters, and other modes of air transportation are used to transport passengers for business and recreation as well as thousands of tons of cargo. 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 air craft is on the ground.

HIGHWAY TRANSPORTATION INCIDENT – can be a single or multi-vehicle incident that requires 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, highways, an interstates in the state. If the designated capacity of the roadway is exceeded, the potential for a major highway incident increases. Weather conditions play a major factor in the ability of traffic to flow safely in and through the state as does the time of day (rush hour) and day of the week. Incidents involving buses and other high-occupancy vehicles could trigger a response that exceeds the normal day-to-day capabilities of response agencies.

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 materials 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.

WATERWAY INCIDENT - 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.

B. Past Occurrences.

Since 1960, there have been 1,999 air transportation incidents/accidents in Iowa (Iowa National Transportation Safety Board). Of these incidents, 237 were fatal to at least one person, totaling 530 fatalities. This figure does include the 111 fatalities in the crash of United Flight 232 in Sioux City, Iowa in 1989. According to the National Transportation Safety Board (NTSB), there have been no aviation accidents or incidents in Monroe County in the last ten years. Only a few major accidents have impacted Iowa since 1935 but numerous less severe accidents have occurred around the state in both large and small cities.

Numerous major and minor traffic accidents occur daily in Iowa and result in property damage and injury, major accidents involving multiple vehicles and serious injury are not uncommon. According to the Iowa Department of Motor Vehicles, in the 77-year-period that Iowa has tracked crash statistics from 1932-2008, there were 4,295,017 traffic accidents resulting in 1,856,643 injuries and 44,036 deaths. As the volume of traffic on Iowa streets, highways, and interstates increase, the number of traffic accidents will increase. The combination of large number of people on the road, unpredictable weather conditions, potential mechanical problems, and human error create the potential for transportation accidents. The Department of Transportation does not make accident data available for cities under 5,000 residents online so obtaining an accurate number of traffic accidents is difficult for some communities. Approximately 4% of traffic accidents in Monroe County are serious defined as involving a fatality or a major injury.

HIGHWAY/ROADWAY INCIDENTS (2007-2011)			
NAME	TOTAL	FATAL	MAJOR INJURY
COUNTY TOTAL	706	8	20

From 1975 to April 2010, there have been 7,087 documented rail incidents in Iowa. These incidents range from minor “rail jumps” to passenger train derailments. With reported data from 1995 to April 2010 there have been 2,203 injuries and 161 deaths related to these incidents. According to the National Transportation Safety Board, there have been eight railway accidents in Iowa since 1967. None of them have occurred within Monroe County.

There have been no disasters causing waterway incidents in Iowa. There have been numerous search and rescue events involving a single person or small boats with only a few people on board. Small-scale incidents on the state’s lakes and rivers have resulted in the loss of life from commercial purposes in Iowa are the Mississippi and Missouri Rivers. No events have occurred in Monroe County.

C. Vulnerable Locations/Buildings.

AIR TRANSPORTATION INCIDENT – Albia’s municipal airport is located approximately five miles southeast of Albia in the unincorporated region of the county. An event is unlikely, but due to local of the airport the southeast section of Albia may be at a slightly larger risk than the rest of the community.

Albia – exposure due to Air Transportation Incident

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	1379	345	25%	\$96,081,043	\$24,020,261	25%	3766	942	25%
Commercial	166	25	10%	\$16,085,504	\$1,608,550	10%			

Industrial	14	1	10%	\$5,634,100	\$563,410	10%	-	-	-
Agricultural			-				-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-						

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		
Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
USDA Office	1709 S B St			X	X				
Casey's	122 N Main St			X			1920 sq ft	\$124,832	

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic / Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrellgas	121 10 th St			X				\$15,933	
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					
Monroe County Professional Mang	15 A Ave								
House of Kids Daycare	304 S Main St		X						
King's Kids Preschool	1115 A Ave		X						
Albia Daycare Preschool	100 N 2 nd St		X						
Private In-Home Daycare	1933 Hwy 137		X						
Private In-Home Daycare	6427 160 th St		X						
Private In-Home Daycare	703 A Ave W		X						
Private In-Home Daycare	120 Linden Lane		X						
Private In-Home Daycare	306 S Clinton Ave		X						
Private In-Home Daycare	11 Hickory Cr		X						
Private In-Home Daycare	216 S Clinton Ave		X						
Private In-Home Daycare	517 S 9 th St		X						
Private In-Home Daycare	1671 631 st Lane		X						
Private In-Home Daycare	806 F Ave E		X						
Private In-Home Daycare	403 Washington Ave E		X						
Wacker Chemical Corp	NE corner of county			X	X				\$5,114,095

Ajinomoto Heartland, LLC	1116 Hwy 137, Eddyville			X	X					\$29,733,719
Ajinomoto USA Inc/ Ajinomoto Food	1 Ajinomoto Dr, Eddyville			X	X					\$22,895,026
AgriLand FS Inc	6281 160 th St. Albia				X					
Crop Production Services	2774 Hwy 5, Moravia				X					
Cargill Sweeteners	1 Cargill Dr, Eddyville				X					
Cargill –Vitamin E	1194 720 th Ave, Eddyville				X					
ITC Midwest	1 Cargill Drive, Eddyville				X					

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the school’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the hospital’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value	Occupancy or capacity
Monroe Co Hospital	6580 165 th St	X	X	X	X					

Lovilia – exposure due to Air Transportation

AIR TRANSPORTATION INCIDENT – Lovilia is approximately 16 miles northwest of Albia’s municipal airport and 45 miles southeast of Knoxville’s regional airport. Due to the distance, there are no particular areas of vulnerability in the community.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	217			\$9,760,486			538		
Commercial	27			\$759,126					
Industrial	0			0			-	-	-
Agricultural	8			\$1,049,9360			-	-	-
Religious / Non-profit	1								
Government									

Lovilia’s critical asset that can be affected by air transportation incident:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	125,537	257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	68,840	97,500
Community Bldg	608 W 17 th St				X				
Water plant	606 W 17 th St	X					1088 sq ft	43,700	49,070
Water tower	606 W 17 th St	X					--	285,600	--
Casey’s	1807 Highway 5						1962sq ft	\$102,125	

MELROSE – exposure due to Air Transportation Incident

AIR TRANSPORTATION INCIDENT – Melrose is approximately 20 miles southwest of the nearest airport, Albia Municipal Airport. Because of the distance to the nearest airport, none of the community is vulnerable to this event.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	58	8	15%	\$2,007,801	\$301,170	15%	112	17	15%
Commercial	8	1	10%	\$120,915	\$120,915	10%			
Industrial	1	0	0%	\$141,977	0	50%	-	-	-
Agricultural	-	-	-		-	-	-	-	-
Religious / Non-profit	1	1	100%						
Government	2								
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by Air Transportation Incident:

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Sewer Lift Station		X							
Quality Ag	502 Erin Ave			X				\$141,977	
Melrose Market	115 Erin St								

UNINCORPORATED COUNTY AREA – exposure due to Air Transportation Incident

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in region	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in region	# in Hazard Area	% in Hazard Area
Residential	843	42	5%	\$44,598,400.00	\$2,229,920	5%	3597	180	5%
Commercial	99	5	5%	\$40,018,241.00	\$2,000,912	5%			
Industrial	120	6	5%	\$131,308,228.00	\$6,565,411	5%	-	-	-
Agricultural	905	45	5%	\$57,938,330.00	\$2,896,917	5%	-	-	-
Religious / Non-profit	4	1	5%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
Electrical Substations (4)	Scattered locations	X						\$1M/ea
Rural Water towers (3)	Scattered location	X						\$1M/ea
Halley's Trailer Park (35 homes)	East Hwy 34		X					\$68,890 land \$90,041 bldgs

ALBIA – exposure due to Highway Transportation Incident

HIGHWAY TRANSPORTATION INCIDENT – Given the reliance on private vehicles and trucking in rural Iowa, the probability of an accident on any given roadway is relatively high. The county has two state highways and one US highway that are identified in the county. State Highway 5 transports traffic north and south across the county and US Highway 34 extends east and west through Monroe County. State Highway 137 branches off of highway 5 on the north edge of Albia and continues northeasterly to the city of Eddyville.

The probability of highway transportation incidents is often higher on heavily used roads. Albia has one of the busiest intersections in the County on the south edge of the city limits. Iowa State Highways 5 and 34 pass through (and intersect) to offer an increased potential for an incident, although an accident can happen anywhere. Other locations of higher potential incident would include highway 5 passing on the east portion of the Albia square and at the point where Highway 5 and 137 split on the north end of Albia.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	1379	345	25%	\$96,081,043	\$24,020,261	25%	3766	942	25%
Commercial	166	25	15%	\$16,085,504	\$2,412,826	15%			
Industrial	14	1	10%	\$5,634,100	\$563,410	10%	-	-	-
Agricultural			-				-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-						-

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		
Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrellgas	121 10 th St			X				\$15,933	
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					
Monroe County Professional Mang	15 A Ave								
House of Kids Daycare	304 S Main St		X						
King's Kids Preschool	1115 A Ave		X						
Albia Daycare Preschool	100 N 2 nd St		X						
Private In-Home Daycare	1933 Hwy 137		X						
Private In-Home Daycare	6427 160 th St		X						

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Private In-Home Daycare	703 A Ave W		X						
Private In-Home Daycare	120 Linden Lane		X						
USDA Office	1709 S B St			X	X				
Private In-Home Daycare	306 S Clinton Ave		X						
Private In-Home Daycare	11 Hickory Cr		X						
Private In-Home Daycare	216 S Clinton Ave		X						
Private In-Home Daycare	517 S 9 th St		X						
Private In-Home Daycare	1671 631 st Lane		X						
Private In-Home Daycare	806 F Ave E		X						
Private In-Home Daycare	403 Washington Ave E		X						

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the school’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the hospital’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Monroe Co Hospital	6580 165 th St	X	X	X	X				

LOVILIA – exposure due to Highway Transportation Incident

HIGHWAY TRANSPORTATION INCIDENT – Given the reliance on private vehicles and trucking in rural Iowa, the probability of an accident on any given roadway is relatively high. The county has three state highways that are identified in the county. Highway 5 transports traffic north and south across the county and travels through the heart of Lovilia. This places almost half of the residents and structures at risk. The community developed along the rail line so it is long and not very wide to offer close proximity to the railway.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	217	98	45%	\$9,760,486	\$4,392,219	45%	538	242	45%
Commercial	27	11	40%	\$759,126	\$303,650	40%			
Industrial	0		0%	0		0%	-	-	-
Agricultural	8	4	50%	\$1,049,9360	\$524,968	50%	-	-	-
Religious / Non-profit	1		100%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Lovilia’s critical asset that can be affected by highway transportation incident:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	125,537	257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	68,840	97,500
Community Bldg	608 W 17 th St				X				
Water plant	606 W 17 th St	X					1088 sq ft	43,700	49,070
Water tower	606 W 17 th St	X					--	285,600	--
Casey’s	1807 Highway 5						1962sq ft	\$102,125	

MELROSE – exposure due to Highway Transportation Incident

HIGHWAY TRANSPORTATION INCIDENT - Given the reliance on private vehicles and trucking in rural Iowa, the probability of an accident on any given roadway is relatively high. The county has one state highway, one US highway, and seven county highways that are identified in the county. County highway S70 intersects the heart of the city from north to south. This roadway passes onto the Main Street of the city near the post office, city hall, community center and church.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	58	8	15%	\$2,007,801	\$301,170	15%	112	17	15%
Commercial	8	1	10%	\$120,915	\$120,915	10%			
Industrial	1	0	0%	\$141,977	0	50%	-	-	-
Agricultural	-	-	-		-	-	-	-	-
Religious / Non-profit	1	1	100%						
Government	2	2	100%						
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by Highway Transportation Incident:

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
City Hall	117 Shamrock				X			
Fire Hall	100 Shamrock				X			
Sewer Lift Station		X						
Quality Ag	502 Erin Ave			X				\$141,977
Melrose Market	115 Erin St							

UNINCORPORATED COUNTY AREA – exposure due to Highway Transportation Incident

HIGHWAY TRANSPORTATION INCIDENT – The chart displays the number of structures that are located within 50 yards of a highway and could potentially be affected by a Highway Transportation Incident. Given the reliance on private vehicles and trucking in rural Iowa, the probability of an accident on any given roadway is relatively high. The county has two state highways and one US highway that are identified in the county. State Highway 5 transports traffic north and south across the county and US Highway 34 extends east and west through Monroe County. State Highway 137 branches off of highway 5 on the north edge of Albia and continues northeasterly to the city of Eddyville.

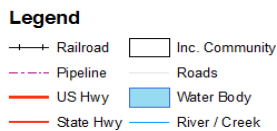
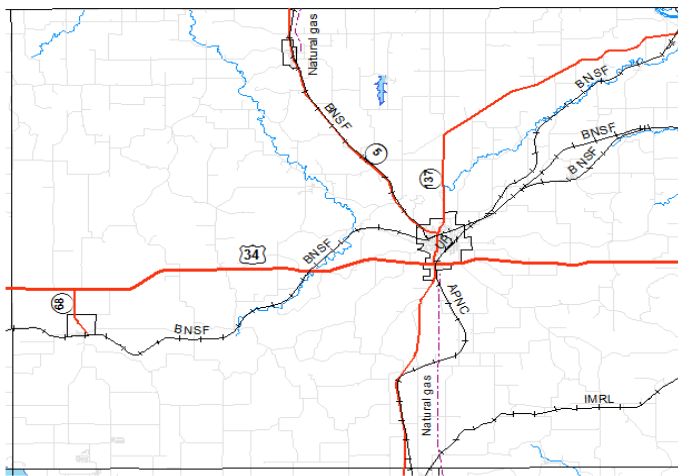
Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in region	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in region	# in Hazard Area	% in Hazard Area
Residential	1,379	414	30%	\$125,076,897	\$37,523,069	30%	3554	1422	30%
Commercial	63	19	30%	\$5,287,024	\$1,586,107	30%			
Industrial	15	5	30%	\$174,113,751	\$52,234,125	30%	-	-	-
Agricultural	905	272	30%	\$57,938,330	\$17,381,499	30%	-	-	-
Religious / Non-profit	4	1	30%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
Rural Water towers (3)	Scattered location	X						\$1M/ea
IDOT roads maintenance shop	South Hwy 5			X				
Halley's Trailer Park (35 homes)	East Hwy 34		X					\$68,890 land \$90,041 bldgs
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X				\$80,026,460
Monroe County Fairgrounds (land & structures)	North Hwy 5			X				\$310,613
Wacker Chemical Corp	NE corner of county			X	X			\$5,114,095
Ajinomoto Heartland, LLC	NE corner of county			X	X			\$29,733,719
Ajinomoto USA Inc/ Ajinomoto Food	NE corner of the county			X	X			\$22,895,026

Figure 3: Railroad Route through Monroe County



Source: IA DNR and IDOT GIS data compiled by Chariton Valley Planning and Development

Albia – exposure due to Railroad Transportation Incident

RAILROAD TRANSPORTATION INCIDENT – Maximum Population and building exposure for rail transportation incident is displayed below. Multiple rail lines in the unincorporated region of Monroe County place many at risk in the event of a rail transportation incident and the maximum population and building exposures are show in the table below. There are three railroad companies that operate lines in Monroe County: BNSF, APNC, and IMRL. APNC’s rail line enters the county from the south and runs parallel to Highway 5 into the City of Albia. BNSF hosts the highest miles of rail line throughout Monroe County. There are 5 rail lines that exit the RELCO rail yard in Albia. Three BNSF lines extend to the northeast region of the county to affect the unincorporated communities Maxon, Avery, Lockman, and Frederic. One BNSF line parallels highway 5 to the northern boundary of the Monroe County line through the communities of Lovilia and Hagerty. The remaining BNSF rail line directs west through Albia to the south edge of Melrose and exits parallel to highway 34 at the west limit of Monroe/Lucas county line. There are numerous crossings present the opportunity for train-vehicle or pedestrian accidents. The BNSF line that operates east and west (and passes through Albia) is a designated route for the transport of Biodiesel Ethanol fuel. Derailments are also possible, while major derailments are less likely.

The community of Albia is at a greater risk of experiencing a rail incident just due to the number of rail lines that intersect the city. There are five sets of tracks that travel through the city limits of Albia. Along the miles of those rail lines lie numerous houses and a few businesses. This places approximately 35% of residential structures at risk and 10% of businesses. One rail line is within two city blocks of Kendall Elementary and the Jr. High section of the Jr/Sr High School building.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	1379	345	25%	\$96,081,043	\$24,020,261	25%	3766	942	25%
Commercial	166	25	10%	\$16,085,504	\$1,608,550	10%			
Industrial	14	1	10%	\$5,634,100	\$563,410	10%	-	-	-
Agricultural			-				-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-	-	-	-	-	-	-

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		
Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
USDA Office	1709 S B St			X	X				
Ferrellgas	121 10 th St			X				\$15,933	
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	

Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					
Monroe County Professional Mang	15 A Ave								
House of Kids Daycare	304 S Main St		X						
King's Kids Preschool	1115 A Ave		X						
Albia Daycare Preschool	100 N 2 nd St		X						
Private In-Home Daycare	1933 Hwy 137		X						
Private In-Home Daycare	6427 160 th St		X						
Private In-Home Daycare	703 A Ave W		X						
Private In-Home Daycare	120 Linden Lane		X						
Private In-Home Daycare	306 S Clinton Ave		X						
Private In-Home Daycare	11 Hickory Cr		X						
Private In-Home Daycare	216 S Clinton Ave		X						
Private In-Home Daycare	517 S 9 th St		X						
Private In-Home Daycare	1671 631 st Lane		X						
Private In-Home Daycare	806 F Ave E		X						
Private In-Home Daycare	403 Washington Ave E		X						

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office. Insured value is according to the school's insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the hospital’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value	Occupancy or capacity
Monroe Co Hospital	6580 165 th St	X	X	X	X					

LOVILIA – exposure due to Rail Transportation Incident

RAILROAD TRANSPORTATION INCIDENT – Maximum Population and building exposure for rail transportation incident is displayed below. One BNSF line parallels highway 5 to the northern boundary of the Monroe County line through the communities of Lovilia and Hagerty. There are numerous crossings present the opportunity for train-vehicle or pedestrian accidents. Derailments are also possible, while major derailments are less likely. Lovilia also has a rail line that extends through the community from north to south. It runs parallel to state highway 5 and within 30 yards of it. This places travelers at risk, approximately 40% of businesses, and 45% of homes.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	217	98	45%	\$9,760,486	\$4,392,219	45%	538	242	45%
Commercial	27	11	40%	\$759,126	\$303,650	40%			
Industrial	0		0%	0		0%	-	-	-
Agricultural	8	4	50%	\$1,049,9360	\$524,968	50%	-	-	-
Religious / Non-profit	1		100%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Lovilia’s critical asset that can be affected by railroad transportation incident:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	125,537	257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	68,840	97,500
Community Bldg	608 W 17 th St				X				
Water plant	606 W 17 th St	X					1088 sq ft	43,700	49,070
Water tower	606 W 17 th St	X					--	285,600	--
Casey’s	1807 Highway 5						1962sq ft	\$102,125	
Lovilia Head Start	302 S H Ave			X					

MELROSE – exposure due to Railroad Transportation Incident

RAILROAD TRANSPORTATION INCIDENT - Maximum Population and building exposure for rail transportation incident is displayed below. Multiple rail lines in the unincorporated region of Monroe County place many at risk in the event of a rail transportation incident and the maximum population and building exposures are show in the table below. There are three railroad companies that operate lines in Monroe County: BNSF, APNC, and IMRL. APNC’s rail line enters the county from the south and runs parallel to highway 5 into the City of Albia. BNSF hosts the highest miles of rail line throughout Monroe County. One BNSF rail line directs west from Albia to the south edge of Melrose. A particular area of concern in Melrose is the land that is owned by Farm Services. The business stores numerous tanks of hazardous farm chemicals next

to the railroad property and rail line. This places approximately 10% of commercial properties and 15% of residential structures.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	58	8	15%	\$2,007,801	\$301,170	15%	112	17	15%
Commercial	8	1	10%	\$120,915	\$120,915	10%			
Industrial	1	0	0%	\$141,977	0	50%	-	-	-
Agricultural	-	-	-		-	-	-	-	-
Religious / Non-profit	1	1	100%						
Government	2	2	100%						
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by Rail Transportation Incident:

***Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office*

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Sewer Lift Station		X							
Quality Ag	502 Erin Ave			X				\$141,977	
Melrose Market	115 Erin St								

UNINCORPORATED COUNTY AREA - exposure due to Rail Transportation Incident

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in region	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in region	# in Hazard Area	% in Hazard Area
Residential	1,379	414	30%	\$125,076,897	\$37,523,069	30%	3554	1422	30%
Commercial	63	19	30%	\$5,287,024	\$1,586,107	30%			
Industrial	15	5	30%	\$174,113,751	\$52,234,125	30%	-	-	-
Agricultural	905	272	30%	\$57,938,330	\$17,381,499	30%	-	-	-
Religious / Non-profit	4	1	30%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

***Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office*

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Total Replacement Value
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X				\$80,026,460
Monroe County Fairgrounds (land & structures)	North Hwy 5			X				\$310,613
Wacker Chemical Corp	NE corner of county			X	X			\$5,114,095
Ajinomoto Heartland, LLC	NE corner of county			X	X			\$29,733,719
Ajinomoto USA Inc/ Ajinomoto Food	NE corner of the county			X	X			\$22,895,026

WATERWAY INCIDENT – There are no public bodies of water in the city limits of Albia, Lovilia, or Melrose. One private pond is located in the northeast tip of the Albia City Limits.

Risk of a waterway incident can occur in many locations throughout the un-incorporated region of Monroe County and the following chart displays the maximum population at risk (Source 2010 US Census). There are numerous farm ponds, seven creeks, Lake Miami, and near-by Lake Rathbun that has tail waters extending into Monroe County. A drowning or contamination spill has the potential of occurring at any of these. The seasonal residents of Lazy Daz Ranch and Green Acres could be affected by a waterway incident because the proximity to tributaries and tail waters of Lake Rathbun.

Monroe County (Unincorporated) Maximum Population & Building Exposure Waterway Incident 2010 US Census				
Total Population	Population 65yrs & older	Population 19 years & younger	Population living below poverty guidelines	Residents living with a diagnosed disability
3554	731	889	130	181

D. Loss Estimates.

Loss estimates can vary by incident and severity. Insurance Research Council indicates that the average Highway transportation incident claim \$3,231 in damages per event. It is estimated that more than \$31 Million in property at risk of damage during a Rail Transportation Incident. The severity and loss estimate would be dependent about the size of the event and the cargo transported.

E. Hazard Scoring & Ranking.

HAZARD SCORE CALCULATION				
PROBABILITY	MAGNITUDE/SEVERITY	WARNING TIME	DURATION	WEIGHTED SCORE
4	4	4	4	16

EVALUATION CRITERIA	DESCRIPTION	SCORE
PROBABILITY	<p>SINCE 1960, THERE HAVE BEEN 1,999 AIR TRANSPORTATION INCIDENTS/ACCIDENTS IN IOWA (IOWA NATIONAL TRANSPORTATION SAFETY BOARD). OF THESE INCIDENTS, 237 WERE FATAL TO AT LEAST ONE PERSON, TOTALING 530 FATALITIES. THIS FIGURE DOES INCLUDE THE 111 FATALITIES IN THE CRASH OF UNITED FLIGHT 232 IN SIOUX CITY, IOWA IN 1989. IOWA HAS EIGHT (8) COMMERCIAL AIRPORTS, ONE (1) RELIEVER AIRPORT, EIGHT (8) PRIVATE OWNED FOR PUBLIC USE AIRPORTS, 101 PUBLIC OWNED FOR GENERAL USE AIRPORTS, AND 129 HELIPOINTS. ANYWHERE IN IOWA COULD EXPERIENCE A SIGNIFICANT AIR TRANSPORTATION INCIDENT; THE MOST LIKELY SCENARIOS EXIST NEAR AIRPORTS. THE PROBABILITY OF AN AIR TRANSPORTATION INCIDENT IS INCREASED WITH THE GREATER NUMBER OF LANDINGS AND TAKEOFFS, THE GREATER THE PROBABILITY OF A CRASH AND AN ACCIDENT COULD OCCUR. 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. THE SHMT AND THE LOCAL HMP COMMITTEE EVALUATED THE PROBABILITY OF A SERIOUS TRANSPORTATION INCIDENT (CRASH OF A MAJOR AIRLINER) IS UNLIKELY ANY GIVEN YEAR.</p> <p>NUMEROUS MAJOR AND MINOR TRAFFIC ACCIDENTS OCCUR DAILY IN IOWA AND RESULT IN PROPERTY DAMAGE AND INJURY, MAJOR ACCIDENTS INVOLVING MULTIPLE VEHICLES AND SERIOUS INJURY ARE NOT UNCOMMON. ACCORDING TO THE IOWA DEPARTMENT OF MOTOR VEHICLES, IN THE 77-YEAR-PERIOD THAT IOWA HAS TRACKED CRASH STATISTICS FROM 1932-2008, THERE WERE 4,295,017 TRAFFIC ACCIDENTS RESULTING IN 1,856,643 INJURIES AND 44,036 DEATHS. ALTHOUGH TRAFFIC ENGINEERING, INSPECTION OF TRAFFIC FACILITIES, LAND USE MANAGEMENT OF AREAS ADJACENT TO ROADS AND HIGHWAYS, AND THE READINESS OF LOCAL RESPONSE AGENCIES HAVE INCREASED, HIGHWAY INCIDENTS</p>	4

	<p>CONTINUE TO OCCUR. AS THE VOLUME OF TRAFFIC ON THE STATE’S STREETS, HIGHWAY, AND INTERSTATES INCREASES, THE NUMBER OF TRAFFIC ACCIDENTS WILL LIKELY ALSO INCREASE. THE COMBINATION OF LARGE NUMBERS OF PEOPLE ON THE ROAD, WILDLIFE, UNPREDICTABLE WEATHER CONDITIONS, POTENTIAL MECHANICAL PROBLEMS, AND HUMAN ERROR ALWAYS LEAVES OPEN THE POTENTIAL FOR A TRANSPORTATION ACCIDENT. THE LOCAL HMP COMMITTEE HAS EVALUATED THE PROBABILITY THAT A SERIOUS HIGHWAY TRANSPORTATION INCIDENT OCCURRING IN IOWA IS VERY LIKELY TO OCCUR ANY GIVEN YEAR. MONROE COUNTY PLANS TO JOIN EFFORTS WITH IOWA DOT TO PERFORM A HIGHWAY SAFETY AUDIT TO IDENTIFY LOCATIONS THAT HAVE A GREATER PROBABILITY OF INCIDENT.</p> <p>FROM 1975 TO APRIL 2010, THERE HAVE BEEN 7,087 DOCUMENTED RAIL INCIDENTS IN IOWA. THESE INCIDENTS RANGE FROM MINOR “RAIL JUMPS” TO PASSENGER TRAIN DERAILMENTS. WITH REPORTED DATA FROM 1995 TO APRIL 2010 THERE HAVE BEEN 2,203 INJURIES AND 161 DEATHS RELATED TO THESE INCIDENTS. DERAILMENTS ARE ALSO POSSIBLE, WHILE A MAJOR DERAILMENT WOULD OCCUR LESS FREQUENTLY. THE LOCAL HMP COMMITTEE BELIEVE THE PROBABILITY OF A SEVERE RAILROAD ACCIDENT (CAUSING LOSS OF LIFE AND/OR RELEASE OF HAZARDOUS MATERIALS) TO BE LIKELY TO OCCUR TO OCCUR IN ANY GIVEN YEAR.</p> <p>THERE HAVE BEEN FEW SIGNIFICANT WATERWAY INCIDENTS IN IOWA. THERE HAVE BEEN NUMEROUS SEARCH AND RESCUE EVENTS INVOLVING A SINGLE PERSON OR SMALL BOATS WITH ONLY A COUPLE PEOPLE ON BOARD. SMALL SCALE INCIDENTS ON THE STATE’S LAKES AND RIVERS HAVE RESULTED IN LOSS OF LIFE FROM PLEASURE CRAFT COLLISIONS AND FALLS FROM VESSELS. THE LOCAL HMP COMMITTEE HAS EVALUATED THE PROBABILITY A SERIOUS WATERWAY INCIDENT TO BE UNLIKELY IN ANY GIVEN YEAR.</p>	
<p><i>MAGNITUDE/ SEVERITY</i></p>	<p>PEOPLE ABOARD AIRPLANES ARE MOST VULNERABLE. STATISTICS FROM THE NATIONAL TRANSPORTATION SAFETY BOARD AND THE AIRLINE INDUSTRY SHOW THAT THE MAJORITY OF AIRPLANE CRASHES AND ACCIDENTS OCCUR DURING THE TAKEOFF OR LANDING PHASES OF THE 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 VALUABLE. AS 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 IMPACT WOULD BE FELT WOULD DEPEND ON THE MATERIALS INVOLVED. THE LARGEST SHARE OF ACCIDENTS WOULD LIKELY ONLY AFFECT A FEW CITY BLOCKS.</p> <p>THOSE WHO USE THE SURFACE TRANSPORTATION SYSTEMS ARE MOST VULNERABLE. TRAVELERS, TRUCKERS, DELIVERY PERSONNEL, AND COMMUTERS ARE AT RISK AT ALL TIMES THEY ARE ON THE ROAD. DURING RUSH HOURS AND HOLIDAYS THE NUMBER OF PEOPLE ON THE ROAD IN IOWA IS SIGNIFICANTLY HIGHER. THIS IS ALSO TRUE BEFORE AND AFTER MAJOR GATHERINGS SUCH AS SPORTING EVENTS, CONCERTS, AND CONVENTIONS. PEDESTRIANS AND CITIZENS OF THE COMMUNITY ARE LESS VULNERABLE BUT STILL NOT IMMUNE FROM THE IMPACTS OF A HIGHWAY INCIDENT. IOWA IS CRISSCROSSED BY THOUSANDS OF MILES OF ROADS, HIGHWAYS, AND INTERSTATES. HIGHWAY INCIDENTS ARE USUALLY CONTAINED TO AREAS ON THE ROADWAY OR DIRECTLY ADJACENT TO THE ROADWAY. VERY FEW HIGHWAY INCIDENTS AFFECT AREAS OUTSIDE THE TRAVEL PORTION OF THE ROAD AND THE RIGHT-OF-WAY. EXTENSIVE SEGMENTS OF THE TRANSPORTATION SYSTEMS CAN BE IMPACTED DURING SIGNIFICANT WEATHER EVENTS. THE AREA OF IMPACT CAN EXTEND BEYOND THE LOCALIZED AREA IF THE VEHICLE(S) INVOLVED TRANSPORTING HAZARDOUS MATERIALS.</p> <p>PEOPLE AND PROPERTY IN CLOSE PROXIMITY TO THE RAILWAY LINES, CROSSING, SIDINGS, SWITCHING STATIONS, AND LOADING/UNLOADING POINTS ARE MOST AT RISK. THOSE AWAY FROM RAILROAD TRACKS AND FACILITIES ARE VULNERABLE ONLY TO LARGE-SCALE INCIDENTS INCLUDING THOSE IN WHICH HAZARDOUS MATERIALS ARE INVOLVED. NUMEROUS RAILWAYS CRISSCROSS IOWA ALSO. VEHICLE/TRAIN ACCIDENTS ARE USUALLY LIMITED TO AREAS IN AND NEAR INTERSECTIONS. RARELY, THE INCIDENT WILL RESULT IN WIDESPREAD EFFECTS. THE DIRECT AREA OF IMPACT IS USUALLY QUITE SMALL, BUT DEPENDING ON THE PRODUCTS AND MATERIALS INVOLVED, THE EFFECTS COULD REACH AREAS UP TO 1.5 MILES FROM THE SCENE. HARMFUL PRODUCTS MAY CONTAMINATE STREAMS, RIVERS, WATER DISTRIBUTION SYSTEMS, AND STORM WATER SYSTEMS. IF THIS OCCURS, A LARGE PORTION OF THE COMMUNITY WOULD BE AFFECTED. THE ABILITY OF</p>	<p>4</p>

	<p>RESPONSE AGENCIES TO CONTAIN THE PRODUCT ON-SCENE USUALLY LIMITS THE AREA AFFECTED.</p> <p>PASSENGERS OF PLEASURE CRAFT AND RIVERBOAT CASINOS ARE VULNERABLE TO A WATERWAY INCIDENT. THE MAXIMUM EXTENT OF A WATERWAY INCIDENT WOULD BE LIMITED. IMPACTS WOULD NOT EXTEND BEYOND THE IMMEDIATE INCIDENT SCENE. THE ONLY EXCEPTION WOULD INCLUDE A SEARCH AND RESCUE EVENT THAT COULD EXPAND DOWNSTREAM. IN THE CASE OF HAZARDOUS MATERIAL BEING RELEASED TO THE WATERWAY, THE IMPACT COULD EXPAND CONSIDERABLY.</p>	
<i>WARNING TIME</i>	<p>THE AMOUNT OF WARNING TIME PRIOR TO AN AIRCRAFT ACCIDENT COULD VARY FROM TENS OF MINUTES TO A MATTER OF SECONDS. CREW ABOARD A TROUBLED AIRCRAFT CAN RADIO TO GROUND CREWS TO PREPARE FOR THE INCIDENT, BUT LITTLE CAN BE DONE TO LESSEN THE DIRECT EFFECTS OF THE IMPACT. RARELY IS THERE ADEQUATE TIME TO DO MORE THAN POSITION ON-SITE PERSONNEL AND ALERT MASS CASUALTY CARE PROVIDERS OF THE POSSIBLE EVENT.</p> <p>THERE IS USUALLY NO WARNING OF HIGHWAY INCIDENTS. DURING SNOWSTORMS AND OTHER WEATHER EVENTS THAT MAY IMPEDE TRAVEL, TRAVELERS AND RESPONSE AGENCIES CAN BE NOTIFIED OF HAZARDOUS TRAVEL CONDITIONS.</p> <p>LIKE TRANSPORTATION INCIDENTS, A RAILWAY INCIDENT WOULD OCCUR WITH NO WARNING. THERE MAY BE A LIMITED AMOUNT OF TIME TO WARN THOSE IN THE PATHWAY OF HARMFUL EFFECTS.</p> <p>LEADING CAUSES OF WATERWAY INCIDENTS ARE INCLEMENT WEATHER AND OPERATOR ERROR AND INCIDENTS WOULD OCCUR WITH LITTLE TO NO WARNING. WEATHER FORECASTS ARE USUALLY AVAILABLE DAYS IN ADVANCE AND WOULD GIVE AMPLE TIME TO TAKE SHELTER OFF THE WATER.</p>	4
<i>DURATION</i>	<p>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.</p>	4
	WEIGHTED SCORE	16

F. Mitigation.

CONTINUITY OF OPERATIONS PLANNING	
PROGRAM/PROJECT DESCRIPTION	CITY AND CITY DEPARTMENTS WORK TO DEVELOP PROCEDURES OF WHAT DO WHEN HAZARDS OCCUR INCLUDING WHO HAS KEYS TO SHELTERS, CONTACT LIST FOR CITY AND EMERGENCY RESPONSE PERSONNEL, PRIORITIES FOR WHAT FACILITIES TO RESTORE FOLLOWING DISASTERS, HOW TO DIRECT MONROE COUNTY RESIDENTS TO MINIMIZE INJURIES, AS WELL AS (OFF-SITE) BACKUPS OF IMPORTANT CITY DOCUMENTS AND FILES
ANTICIPATED COST	MINIMAL
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE AGENCY	ADLM (EMERGENCY MANAGEMENT) ALBIA, LOVILIA & MELROSE FIRST RESPONDERS
MITIGATION CATEGORY	PROPERTY PROTECTION
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.2, 2.3, 2.4, 3.2, 3.4, 3.5 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES - FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT / HIGH WIND EVENT, RIVER FLOODING, TORNADO, HAILSTORM, DAM FAILURE, SINK HOLE, HUMAN DISEASE INCIDENT, EARTHQUAKE,
JURISDICTION	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

PUBLIC EDUCATION AND OUTREACH	
DESCRIPTION	DEVELOP HAZARD EDUCATION AND OUTREACH PROGRAM TO HELP MONROE COUNTY RESIDENTS UNDERSTAND MEANING OF HAZARD WARNINGS AND SELF-PROTECTION MEASURES
ESTIMATED COST	MINIMAL

TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ADLM (EMERGENCY MANAGEMENT), ALBIA, LOVILIA & MELROSE FIRST RESPONDERS,
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES-FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, , SEVERE WINTER STORM, HAZARDOUS MATERIALS INCIDENT, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT / HIGH WIND EVENT, GRASS / WILDFIRE, RIVER FLOODING, TORNADO, HAILSTORM, DAM FAILURE, SINK HOLE, EXTREME HEAT, HUMAN DISEASE INCIDENT, EARTHQUAKE, DROUGHT
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

COMMUNITY EMERGENCY RESPONSE TEAM	
DESCRIPTION	ENCOURAGE AND SUPPORT DEVELOPMENT OF VOLUNTEER COMMUNITY EMERGENCY RESPONSE TEAM OF RESIDENTS WHO HAVE ACCESS TO EQUIPMENT AND TRAINING TO RESPOND IF EMERGENCY SERVICES ARE UNABLE TO MEET ALL OF THE IMMEDIATE NEEDS FOLLOWING DISASTERS AS WELL AS CHECKING IN ON ELDERLY OR DISABLED RESIDENTS TO ENSURE THEIR SAFETY
ESTIMATED COST	VOLUNTEER
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	ADLM- EMERGENCY MANAGEMENT, ALBIA, LOVILIA, & MELROSE FIRST RESPONDERS,
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS, EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.4, 3.5 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES -FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, , SEVERE WINTER STORM, HAZARDOUS MATERIALS, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT, GRASS / WILDFIRE, , RIVER FLOODING, TORNADO, HAILSTORM, DAM FAILURE, SINK HOLE, EXTREME HEAT, HUMAN DISEASE INCIDENT, EARTHQUAKE, DROUGHT
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

TEMPORARY DEBRIS DISPOSAL PLAN	
DESCRIPTION	DEVELOP POLICY FOR TEMPORARY DEBRIS DISPOSAL FOR CITY AND PRIVATE PROPERTY OWNERS FOR POST-DISASTER CLEAN-UP
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	CITY OF ALBIA, LOVILIA, & MELROSE CITY COUNCILS
MITIGATION CATEGORY	EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 2.2, 2.3, 2.4, 3.1, 3.6 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES -FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT / HIGH WINDSTORM/, RIVER FLOODING, TORNADO, DAM FAILURE, SINK HOLES, EARTHQUAKE, LANDSLIDE
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

EXPANDED HAZARD AREA MAPPING AND MINE EVALUATION	
DESCRIPTION	RECORD AREAS WHERE HAZARDS OCCUR TO AID IN HAZARD MAPPING, ENCOURAGE DETAILED EVALUATION OF THE STRUCTURAL INTEGRITY OF MINES UNDER EACH COMMUNITY, ENCOURAGE DETAILED FLOODPLAIN MAPPING, SEEK FUNDS TO DEVELOP MORE DETAILED MULTI-HAZARD AREA MAPS
ESTIMATED COST	MINIMAL TO MODERATE
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS) (HAZARD RECORDING) TO LONG TERM (5+YRS) (MINE EVALUATION)
RESPONSIBLE ENTITY	ALBIA CITY COUNCIL, COUNTY BOS; ALBIA, LOVILIA, & MELROSE FIRST RESPONDERS

MITIGATION CATEGORY	PREVENTION
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.2, 2.3, 2.4, 3.1, 3.6 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, HAZARDOUS MATERIALS , TRANSPORTATION INCIDENT, GRASS / WILDFIRES, RIVER FLOODING, DAM FAILURE, SINK HOLES
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

EVACUATION PLANS	
DESCRIPTION	DEVELOP EVACUATION PLANS FOR SCHOOL, COMMUNITY BUILDINGS, AND FOR TOWN
ESTIMATED COST	MINIMAL TO MODERATE
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ADLM-EMERGENCY MANAGEMENT, ALBIA, LOVILIA & MELROSE FIRE DEPARTMENT, ALBIA COMMUNITY SCHOOLS,
MITIGATION CATEGORY	PREVENTION, EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.4, 3.5, 3.6 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, INFRASTRUCTUE FAILURE, HAZARDOUS MATERIALS INCIDENT, TRANSPORTATION INCIDENT, , RIVER FLOODING, DAM FAILURE, SINK HOLES
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

SEARCH AND RESCUE TRAINING FOR FIRST RESPONDERS	
DESCRIPTION	TRAINING FIREFIGHTERS AND OTHER LOCAL EMERGENCY RESPONDERS BEST PRACTICES IN SEARCH AND RESCUE OPERATIONS
ESTIMATED COST	MINIMAL TO MODERATE
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ALBIA, LOVILIA & MELROSE FIRE DEPARTMENT& FIRST RESPONDERS
MITIGATION CATEGORY	EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.2, 2.3, 3.1, 3.4, 3.5, 3.6 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, STRUCTURAL FAILURE, SEVERE WINTER STORM, TRANSPORTATION OF HAZARDOUS MATERIALS INCIDENT, RAIL TRANSPORTATION INCIDENT, STRUCTURAL FIRE, FIXED HAZARDOUS MATERIALS INCIDENT, RIVER FLOODING, TORNADO, WINDSTORM/HIGH WIND EVENT / HIGH WIND EVENTS, AIR TRANSPORTATION INCIDENT, DAM FAILURE, SINK HOLES, EARTHQUAKE, LANDSLIDE
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

MASS CASUALTY PREPARATION	
DESCRIPTION	DEVELOP PLAN FOR HOW TO HANDLE MASS CASUALTIES RESULTING FROM HAZARD EVENTS IN AND NEAR EACH JURISDICTION
ESTIMATED COST	MINIMAL TO MODERATE
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ALBIA FIRST RESPONDERS, ADLM-EMERGENCY MANAGEMENT
MITIGATION CATEGORY	EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.2, 3.5 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS INCIDENT, TRANSPORTATION INCIDENT, RIVER FLOODING, TORNADO, HUMAN DISEASE INCIDENT, DAM FAILURE, SINK HOLES, EARTHQUAKE
JURISDICTIONS	ALBIA

3. Hazard Profile – Thunderstorm & Lightning

THUNDERSTORM: A thunderstorm is formed from a combination of moisture, rapidly rising warm air and a force capable of lifting air such as a warm and cold front, a sea breeze or a mountain. All thunderstorms contain lightning. Thunderstorms may occur singly, in clusters or in lines. Thus, it is possible for several thunderstorms to affect one location in the course of a few hours. Some of the most severe weather occurs when a single thunderstorm affects one location for an extended time.

LIGHTNING: 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 a temperature approaching 50,000 degrees Fahrenheit in a split second. The rapid heating and cooling of air near the lightning causes thunder.

A. Description.

Thunderstorms are common in Iowa and can occur singly, in clusters, or in lines. They are formed from a combination of moisture, rapidly raising warm air, and a lifting mechanism such as clashing warm and cold air masses. Most thunderstorms produce only thunder, lightning, and rain. Severe storms however, can produce tornadoes, high straight-line winds above 58 mph, microburst's, lightning, hailstorms, and flooding. The NWS considers a thunderstorm severe if it produces hail at least 3/4-inch in diameter, wind 58 mph or higher, or tornadoes. High straight-line winds, which can often exceed 60 mph, are common occurrences and are often mistaken for tornadoes. Lightning is an electrical discharge that results from the buildup of positive and negative charges within a thunderstorm. When the buildup becomes strong enough, lightning appears as a "bolt." This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning reaches temperatures approaching 50,000 degrees Fahrenheit in a split second. This rapid heating, expansion, and cooling of air near the lightning bolt creates thunder.

Lightning associated with thunderstorms is itself a major hazard. In the United States, from 75 to 100 Americans are hit and killed each year by lightning. The power of lightning's electrical charge and intense heat can electrocute on contact, split trees, ignite fires and cause electrical failures.

B. Past Occurrences.

Between 1955 and March of 2010, at least 10,090 severe thunderstorm events have impacted Iowa. Because thunderstorms may occur singly, in clusters, or in lines, it is possible that several thunderstorms may affect an area in the course of a few hours. It is likely that more than 10,090 individual severe storm systems occurred in the state, one system may spawn multiple events.

There have been 13 Presidential Declarations for Major Disaster since 1990 related to severe storms. All of these disasters resulted from severe storm system that produced tornados, river flooding, and/or flash flooding.

November 2005 the Governor signed a Proclamation of Disaster Emergency due to a strong line of thunderstorms that moved across portions of Iowa, these storms spawned high winds, hail and tornadoes, causing injury and a fatality, damages to private and public property including residences, businesses, infrastructure and agriculture. The severe line of storms occurred in mostly 2 counties in Iowa. A similar event occurred in Iowa in July 2009 due to strong thunderstorms across Iowa mainly affecting Black Hawk County and triggering a Presidential Declaration in August of 2009.

There have been no NOAA documented Lightning events during the past five years in Monroe County nor it's jurisdictions.

Since 1950, 30 thunderstorms have caused nearly \$46 million in property damage, \$546 thousand in crop damage, 1 death and 11 injuries. The following are NOAA documented thunderstorms in the past five years in:

Albia:

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
ALBIA	MONROE CO.	IA	06/20/2011	00:15	CST-6	Thunderstorm Wind	57 kts. EG	0	0	75.00K	0.00K
ALBIA	MONROE CO.	IA	06/20/2011	00:17	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
ALBIA	MONROE CO.	IA	08/06/2011	22:55	CST-6	Thunderstorm Wind	61 kts. EG	0	0	25.00K	10.00K
ALBIA	MONROE CO.	IA	08/06/2011	23:04	CST-6	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
ALBIA	MONROE CO.	IA	05/19/2013	20:25	CST-6	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
ALBIA	MONROE CO.	IA	04/12/2014	22:37	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K

Lovilia:

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
LOVILIA	MONROE CO.	IA	06/26/2011	21:52	CST-6	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
LOVILIA	MONROE CO.	IA	04/27/2014	14:00	CST-6	Thunderstorm Wind	70 kts. EG	0	0	50.00K	0.00K
County Totals:								0	0	98.00K	0.00K

None in Melrose in past five years.

Unincorporated County:

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
AVERY	MONROE CO.	IA	06/01/2010	18:06	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
HITEMAN	MONROE CO.	IA	06/19/2014	18:05	CST-6	Thunderstorm Wind	61 kts. EG	0	0	25.00K	0.00K

C. Vulnerable locations/buildings.

Thunderstorms and Lightning could potentially affect all structures, land and/or people. So the following charts display community wide data.

Exposure in Albia due to Thunderstorm & Lightning:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	1379	1379	100%	\$96,081,043	\$96,081,043	100%	3766	3766	100%
Commercial	166	166	100%	\$16,085,504	\$16,085,504	100%			100%
Industrial	14	14	100%	\$5,634,100	\$5,634,100	100%	-	-	-
Agricultural			-			100%	-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-	-	-	-	-	-	-

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		
Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
USDA Office	1709 S B St			X	X				
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrellgas	121 10 th St			X				\$15,933	
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					
Monroe County Professional Mang	15 A Ave								
House of Kids Daycare	304 S Main St		X						
King's Kids Preschool	1115 A Ave		X						
Albia Daycare Preschool	100 N 2 nd St		X						
Private In-Home Daycare	1933 Hwy 137		X						
Private In-Home Daycare	6427 160 th St		X						
Private In-Home Daycare	703 A Ave W		X						
Private In-Home Daycare	120 Linden Lane		X						
Private In-Home Daycare	306 S Clinton Ave		X						
Private In-Home Daycare	11 Hickory Cr		X						
Private In-Home Daycare	216 S Clinton Ave		X						
Private In-Home Daycare	517 S 9 th St		X						
Private In-Home Daycare	1671 631 st Lane		X						
Private In-Home Daycare	806 F Ave E		X						
Private In-Home Daycare	403 Washington Ave E		X						

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office. Insured value is according to the school's insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the hospital’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value	Occupancy or capacity
Monroe Co Hospital	6580 165 th St	X	X	X	X					

Exposure in Lovilia due Thunderstorm & Lightning:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	217	217	100%	\$9,760,486	\$9,760,486	100%	538	538	100%
Commercial	27	27	100%	\$759,126	\$759,126	100%			100%
Industrial	0	0	100%	0	0	100%	-	-	-
Agricultural	8	8	-	\$1,049,936.00-	\$1,049,936.00-	-	-	-	-
Religious / Non-profit	1	1	100%						
Government	3								
Education									
Utilities	-	-	-	-	-	-	-	-	-

Lovilia’s critical asset that can be affected by Thunderstorm & Lightning:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	\$ 125,537	\$257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	\$ 68,840	\$ 97,500
Community Bldg	608 W 17 th St				X				
Water plant	606 W 17 th St	X					1088 sq ft	\$ 43,700	\$ 49,070
Water tower	606 W 17 th St	X					--	\$ 285,600	--
City Maintenance/ Storage	1611 E Ave So				X		1239 sq ft	\$ 54,838	\$ 22,000
Lagoon	6057 115 th Trail	X					375 sq ft	\$ 132,490	--
Casey’s	1807 Highway 5						1962sq ft	\$102,125	
Lovilia Head Start	302 S H Ave			X					

MELROSE – exposure due to Thunderstorm & Lightning

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	58	58	100%	\$2,007,801	\$2,007,801	100%	112	112	100%
Commercial	8	8	100%	\$120,915	\$120,915	100%			100%
Industrial	1	1	100%	\$141,977	\$141,977	-	-	-	-
Agricultural	-	-	-			-	-	-	-
Religious / Non-profit	1	1	100%						
Government	2	2	100%						
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by Thunderstorm & Lightning:

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Sewer Lift Station		X							
Quality Ag	502 Erin Ave			X				\$141,977	
Melrose Market	115 Erin St								

UNINCORPORATED COUNTY AREA – Exposure in unincorporated area due to Thunderstorm & Lightning:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in Unicorp	# in Plannin g Area	% in Plannin g Area	\$ in Unicorp area	\$ in Planning Area	% in Planning Area	# in Unicorp	# in Plannin g Area	% in Planning Area
Residential	1,379	1397	100%	\$125,076,897	\$125,076,897	100%	3554	3554	100%
Commercial	63	63	100%	\$5,287,024	\$5,287,024	100%			
Industrial	15	15	100%	\$174,113,751	\$174,113,751	100%	-	-	-
Agricultural	905	905	100%	\$57,938,330.00	\$57,938,330.00	100%	-	-	-
Religious / Non-profit	4	4	100%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
Electrical Substations (4)	Scattered locations	X						\$1M/ea
Landfill				X				
Lake Miami Campground	N Hwy 5		X					
Rural Water towers (3)	Scattered location	X						\$1M/ea
IDOT roads maintenance shop	South Hwy 5			X				
Lake Miami dam	N Hwy 5				X			
Halley’s Trailer Park (35 homes)	East Hwy 34		X					\$68,890 land \$90,041 bldgs
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X				\$80,026,460
Lazy-Daz Ranch (91 structures)	Melrose		X		X			\$2,058,658
Green Acres Mobile homes (108 structures)	Melrose		X		X			\$3,467,566
Monroe County Fairgrounds (land & structures)	North Hwy 5			X				\$310,613
Lazy Daz Ranch Estates(21 structures)	Melrose		X		X			\$758,831

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Willow Park	Melrose		X		X			\$169,790	
Wacker Chemical Corp	NE corner of county			X	X			\$5,114,095	
Ajinomoto Heartland, LLC	NE corner of county			X	X			\$29,733,719	
Ajinomoto USA Inc/ Ajinomoto Food	NE corner of the county			X	X			\$22,895,026	

D. Loss Estimation

County-wide damage was established from the NCDC data base from the past 65 years and are shown in Appendix 12. The most recent five years events are listed in “Past Occurrence”. Loss factors were developed specific to the attributes of Thunderstorm & Lightning throughout the region. These factors were able to provide an annual damage estimate by dividing the total loss by number of years of data. Per event damage calculated by dividing total loss by number of events. Over 65 years of data regarding lightning incidents, there has been no recorded loss of property as recorded by NCDC. The past 59 have produced 43 Thunderstorm events with \$744,000 in property damage. This indicates a loss estimate of \$12,610. During this same period, \$210.0K of crop damage occurred to produce an annual crop loss of \$209,941.

E. Hazard Scoring & Ranking.

<i>Hazard Score Calculation</i>				
Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
4	3	3	4	14

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	Iowa experiences between 30 and 50 thunderstorm days per year on average. With Iowa's location in the interior of the U.S., there is a very high likelihood that a few of these summer storms will become severe and cause damage. Because of the humid continental climate that Iowa experiences, ingredients of a severe thunderstorms are usually available (moisture to form clouds and rain, relatively warm and unstable air that can rise rapidly, and weather fronts and convective systems that lift air masses). The local HMP Committee evaluated the probability that thunderstorms and lightning affect Iowa as highly likely in any given year.	4
<i>MAGNITUDE / SEVERITY</i>	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 U.S. with nearly 100 deaths and 500 injuries each year following flooding and Flash Flooding. 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. Like tornadoes, thunderstorms and lightning can cause death, serious injury, and substantial property damage. The power of lightning's electrical charge and intense heat can electrocute people and livestock on contact, split trees, ignite fires, and cause electrical failures. Thunderstorms can also bring large hail that can damage homes and businesses, break glass, destroy vehicles, and cause bodily injury to people, pets, and livestock. Response personnel are exposed to the same risk as the general public when caught in the storm without shelter. Work on ladders and other apparatus during lightning can expose responders to higher risk situations. Continuity of operations would be affected through indirect impacts such as loss of critical services.	3

	<p>High winds can damage trees, homes (especially mobile homes), and businesses and can knock vehicles off of the road. Straight-line winds are responsible for most thunderstorm damage.</p> <p>One or more severe thunderstorms occurring over a short period (especially on saturated ground) can lead to flooding and cause extensive power and communication outages as well as agricultural damage.</p> <p>Thunderstorms and lightning can damage trees, but this is a naturally occurring hazard and the environment proves to be resilient following these and other natural hazards.</p> <p>Thunderstorms and lightning occur rapidly and do not persist. The aftermath may cause moderate economic impacts, but most will be related to cascading hazards such as flooding. Timely and adequate response will stave off any negative reputation that the jurisdiction could be exposed to. Clean up procedures should be established including a debris removal and disposal plan</p>	
<i>WARNING TIME</i>	Some thunderstorms can be seen approaching, while others hit without warning. The National Weather Service issues severe thunderstorm watches and warnings as well as statements about severe weather and localized storms. These messages are broadcast over NOAA Weather Alert Radios and area 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 National Weather Service usually provide residents and visitors alike adequate time to prepare. Isolated problems arise when warnings are ignored.	3
<i>DURATION</i>	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.	4
	WEIGHTED SCORE	14

F. Mitigation.

CONTINUITY OF OPERATIONS PLANNING	
PROGRAM/PROJECT DESCRIPTION	CITY AND CITY DEPARTMENTS WORK TO DEVELOP PROCEDURES OF WHAT DO WHEN HAZARDS OCCUR INCLUDING WHO HAS KEYS TO SHELTERS, CONTACT LIST FOR CITY AND EMERGENCY RESPONSE PERSONNEL, PRIORITIES FOR WHAT FACILITIES TO RESTORE FOLLOWING DISASTERS, HOW TO DIRECT MONROE COUNTY RESIDENTS TO MINIMIZE INJURIES, AS WELL AS (OFF-SITE) BACKUPS OF IMPORTANT CITY DOCUMENTS AND FILES
ANTICIPATED COST	MINIMAL
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE AGENCY	ADLM (EMERGENCY MANAGEMENT) ALBIA, LOVILIA & MELROSE FIRST RESPONDERS
MITIGATION CATEGORY	PROPERTY PROTECTION
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.2, 2.3, 2.4, 3.2, 3.4, 3.5 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES - FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT / HIGH WIND EVENT, RIVER FLOODING, TORNADO, HAILSTORM, DAM FAILURE, SINK HOLE, HUMAN DISEASE INCIDENT, EARTHQUAKE,
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

PUBLIC EDUCATION AND OUTREACH	
DESCRIPTION	DEVELOP HAZARD EDUCATION AND OUTREACH PROGRAM TO HELP MONROE COUNTY RESIDENTS UNDERSTAND MEANING OF HAZARD WARNINGS AND SELF-PROTECTION MEASURES
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ADLM (EMERGENCY MANAGEMENT), ALBIA, LOVILIA & MELROSE FIRST RESPONDERS,
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS

RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES -FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS , TRANSPORTATION INCIDENT, , WINDSTORM/HIGH WIND EVENT /, GRASS / WILDFIRE, RIVER FLOODING, TORNADO, HAILSTORM, DAM FAILURE, SINK HOLE, EXTREME HEAT, HUMAN DISEASE INCIDENT, EARTHQUAKE, DROUGHT
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

COMMUNITY EMERGENCY RESPONSE TEAM	
DESCRIPTION	ENCOURAGE AND SUPPORT DEVELOPMENT OF VOLUNTEER COMMUNITY EMERGENCY RESPONSE TEAM OF RESIDENTS WHO HAVE ACCESS TO EQUIPMENT AND TRAINING TO RESPOND IF EMERGENCY SERVICES ARE UNABLE TO MEET ALL OF THE IMMEDIATE NEEDS FOLLOWING DISASTERS AS WELL AS CHECKING IN ON ELDERLY OR DISABLED RESIDENTS TO ENSURE THEIR SAFETY
ESTIMATED COST	VOLUNTEER
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	ADLM- EMERGENCY MANAGEMENT, ALBIA, LOVILIA & MELROSE FIRST RESPONDERS,
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS, EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.4, 3.5 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES-FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, , SEVERE WINTER STORM, HAZARDOUS MATERIALS, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT / HIGH WIND EVENT, GRASS / WILDFIRE, RIVER FLOODING, TORNADO, HAILSTORM, DAM FAILURE, SINK HOLE, EXTREME HEAT, HUMAN DISEASE INCIDENT, EARTHQUAKE, DROUGHT
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

STORM WARNING SYSTEM	
DESCRIPTION	ACQUISITION AND INSTALLATION OF COMMUNITY EARLY WARNING SYSTEM TO COMPLIMENT SYSTEM AT FIRE STATION
ESTIMATED COST	MODERATE TO HIGH
TIMELINE/SCHEDULE	LONG TERM (5+YRS)
RESPONSIBLE ENTITY	ALBIA CITY COUNCIL
MITIGATION CATEGORY	STRUCTURAL PROJECT
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.2, 2.3, 3.2- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, THUNDERSTORM / LIGHTNING, SEVERE WINTER STORM, WINDSTORM/HIGH WIND EVENT / HIGH WIND EVENT, RIVER FLOODING, TORNADO, HAILSTORM, MAY ADDRESS OTHER HAZARDS AS WELL
JURISDICTIONS	ALBIA

WEATHER RADIOS	
DESCRIPTION	ENCOURAGEMENT OF RESIDENTS AND BUSINESSES TO OBTAIN NOAA WEATHER RADIOS
ESTIMATED COST	VOLUNTARY PROGRAM; APPROXIMATELY \$30 PER RADIO
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	RESIDENTS, ALL FIRST RESPONDERS
MITIGATION CATEGORY	PREVENTION AND PUBLIC AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.2, 3.1, 3.2, 3.3, 3.4 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, THUNDERSTORM / LIGHTNING, SEVERE WINTER STORM, WINDSTORM/HIGH WIND EVENT / HIGH WIND EVENT, RIVER FLOODING, TORNADO, HAILSTORM, EXTREME HEAT, MAY ADDRESS OTHER HAZARDS AS WELL
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

SURGE PROTECTION / LIGHTNING PROTECTION	
DESCRIPTION	ENCOURAGE PROPERTY OWNERS TO USE SURGE PROTECTORS TO PROTECT COMPUTERS AND OTHER SENSITIVE ELECTRICAL APPLIANCES FROM LIGHTNING STRIKES AND POWER SURGES; PURCHASE, USE, AND MAINTENANCE OF SURGE PROTECTORS FOR CITY FACILITIES AS NEEDED
ESTIMATED COST	MINIMAL , VOLUNTARY
TIMELINE/SCHEDULE	ONGOING / SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	ALBIA, LOVILIA, MELROSE CITY COUNCILS, WORKERS
MITIGATION CATEGORY	PREVENTION, PUBLIC EDUCATION AND AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.1, 2.2, 2.3, 2.4, 3.1 - SEE ALSO PAGE 31 OR APPENDIX 17

ADDRESSES HIGH RISK HAZARDS?	YES- THUNDERSTORM / LIGHTNING, COMMUNICATIONS FAILURE, INFRASTRUCTURE FAILURE
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

BURYING POWER LINES	
DESCRIPTION	ENCOURAGE BURYING OF POWER LINES TO NEW CONSTRUCTION AND UPON SIGNIFICANT MAINTENANCE OR UPGRADES OF EXISTING POWER SUPPLY
ESTIMATED COST	MINIMAL (FOR CITY), MODERATE TO HIGH (FOR POWER COMPANIES)
TIMELINE/SCHEDULE	LONG TERM (5+YRS)
RESPONSIBLE ENTITY	ALBIA, LOVILIA, MELROSE CITY COUNCIL, POWER COMPANIES
MITIGATION CATEGORY	PROPERTY PROTECTION, STRUCTURAL PROJECTS
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.3 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, HAZARDOUS MATERIALS, TRANSPORTATION INCIDENT,
JURISDICTIONS	ALBIA

TEMPORARY DEBRIS DISPOSAL PLAN	
DESCRIPTION	DEVELOP POLICY FOR TEMPORARY DEBRIS DISPOSAL FOR CITY AND PRIVATE PROPERTY OWNERS FOR POST-DISASTER CLEAN-UP
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ALBIA, LOVILIA, MELROSE CITY COUNCILS
MITIGATION CATEGORY	EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 2.2, 2.3, 2.4, 3.1, 3.6 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES-FLASH FLOODING, THUNDERSTORM / LIGHTNING, STRUCTURAL FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT / HIGH WINDSTORM, RIVER FLOODING, TORNADO, DAM FAILURE, SINK HOLES, EARTHQUAKE, LANDSLIDE
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

SAFE ROOMS	
DESCRIPTION	Risk to lives can be improved through construction and use of concrete safe rooms in homes and shelter areas of mobile home parks, fairgrounds, shopping malls, & other vulnerable public areas.
ESTIMATED COST	Moderate to high – grant dependent
TIMELINE/SCHEDULE	Long Term (5+yrs)
RESPONSIBLE ENTITY	Albia Community School Board, Monroe BOS
MITIGATION CATEGORY	Structural project
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.2, 3.1, 3.3 - See also page 31 or Appendix 17
ADDRESSES HIGH RISK HAZARD?	Yes - Flash Flooding, thunderstorm / lightning, Infrastructure failure, severe winter storm, hazardous materials, Windstorm/High Wind Event / high wind event, tornado, hailstorm, sink hole, earthquake
JURISDICTIONS	Albia Community School, Unincorporated County

4. Hazard Profile – Hailstorm

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

A. Description.

Hail is frozen water droplets formed inside a thunderstorm cloud. They are formed during the strong updrafts of warm air and downdrafts of cold air, when the water droplets are carried well above the freezing level to temperatures below 32 degrees Fahrenheit, and then the frozen droplet begins to fall, carried by cold downdrafts, and may begin to thaw as it moves into warmer air toward the bottom of the thunderstorm. This movement up and down inside the cloud, through cold then warmer temperatures, causes the droplet to add layers of ice and can become quite large, sometimes round or oval shaped and sometimes irregularly shaped, before it finally falls to the ground as hail.

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. Hailstorms impact an area about 15 miles in diameter on average. See Appendix 6: TORRO Hailstorm Intensity for further information regarding potential impact.

B. Past Occurrences.

Since 1961 there have been 34 recorded hail storms in Monroe County. The largest noted hailstorm occurred in Hiteman during May 2008. The storm produced 3.25 inch hail stones that created \$100,000 damage in personal property damage, as well as \$25,000 in crop damage. The cumulative damage of these events on property amounted to \$297 thousand and \$150 thousand in crop losses.

The following chart displays hail events in Monroe County during the past five years:

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Ini</u>	<u>PrD</u>	<u>CrD</u>
WELLER	MONROE CO.	IA	04/30/2010	09:46	CST-6	Hail	0.88 in.	0	0	1.00K	0.00K
LOVILIA	MONROE CO.	IA	06/18/2010	17:46	CST-6	Hail	1.00 in.	0	0	2.00K	5.00K
ALBIA	MONROE CO.	IA	10/23/2010	16:23	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
ALBIA	MONROE CO.	IA	10/23/2010	16:24	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
LOVILIA	MONROE CO.	IA	04/14/2012	19:55	CST-6	Hail	1.00 in.	0	0	5.00K	0.00K
AVERY	MONROE CO.	IA	04/14/2012	20:00	CST-6	Hail	2.50 in.	0	0	25.00K	0.00K
HITEMAN	MONROE CO.	IA	04/14/2012	20:02	CST-6	Hail	1.00 in.	0	0	2.00K	0.00K
MELROSE	MONROE CO.	IA	06/24/2012	00:50	CST-6	Hail	1.00 in.	0	0	0.00K	5.00K
AVERY	MONROE CO.	IA	05/28/2013	15:42	CST-6	Hail	1.00 in.	0	0	0.00K	10.00K
AVERY	MONROE CO.	IA	07/19/2013	16:57	CST-6	Hail	1.00 in.	0	0	0.00K	10.00K

C. Vulnerable locations/buildings.

Hailstorms develop from severe thunderstorms and wide region can be vulnerable to such a storm. Although they occur in every state on the mainland, hailstorms occur primarily in the Midwestern states. Severe crop damage can occur as a result of storm with hail diameters of .8 inches. There is also a risk of injury to humans; however the risk of serious injury is slight. Damage to vehicles and structures is usually covered by private insurance.

Exposure in Albia due to Hailstorm:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	1379	1379	100%	\$96,081,043	\$96,081,043	100%	3766	3766	100%
Commercial	166	166	100%	\$16,085,504	\$16,085,504	100%			100%
Industrial	14	14	100%	\$5,634,100	\$5,634,100	100%	-	-	-
Agricultural			-			100%	-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-	-	-	-	-	-	-

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		
Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrellgas	121 10 th St			X				\$15,933	
USDA Office	1709 S B St			X	X				
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					
Monroe County Professional Mang	15 A Ave								
House of Kids Daycare	304 S Main St		X						
King's Kids Preschool	1115 A Ave		X						
Albia Daycare Preschool	100 N 2 nd St		X						
Private In-Home Daycare	1933 Hwy 137		X						
Private In-Home Daycare	6427 160 th St		X						
Private In-Home Daycare	703 A Ave W		X						
Private In-Home Daycare	120 Linden Lane		X						
Private In-Home Daycare	306 S Clinton Ave		X						
Private In-Home Daycare	11 Hickory Cr		X						
Private In-Home Daycare	216 S Clinton Ave		X						
Private In-Home Daycare	517 S 9 th St		X						
Private In-Home Daycare	1671 631 st Lane		X						
Private In-Home Daycare	806 F Ave E		X						
Private In-Home Daycare	403 Washington Ave E		X						

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office. Insured value is according to the school's insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the hospital’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value	Occupancy or capacity
Monroe Co Hospital	6580 165 th St	X	X	X	X					

Exposure in Lovilia due to Hailstorm:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	217	217	100%	\$9,760,486	\$9,760,486	100%	538	538	100%
Commercial	27	27	100%	\$759,126	\$759,126	100%			100%
Industrial	0	0	100%	0	0	100%	-	-	-
Agricultural	8	8	-	\$1,049,936.00-	\$1,049,936.00-	-	-	-	-
Religious / Non-profit	1	1	100%						
Government	3								
Education									
Utilities	-	-	-	-	-	-	-	-	-

Lovilia’s critical asset that can be affected by a Hailstorm:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	\$ 125,537	\$257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	\$ 68,840	\$ 97,500
Community Bldg	608 W 17 th St				X				
Water plant	606 W 17 th St	X					1088 sq ft	\$ 43,700	\$ 49,070
Water tower	606 W 17 th St	X					--	\$ 285,600	--
City Maintenance/ Storage	1611 E Ave So				X		1239 sq ft	\$ 54,838	\$ 22,000
Lagoon	6057 115 th Trail	X					375 sq ft	\$ 132,490	--
Casey’s	1807 Highway 5						1962sq ft	\$102,125	
Lovilia Head Start	302 S H Ave			X					

MELROSE – exposure due to Hailstorm

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	58	58	100%	\$2,007,801	\$2,007,801	100%	112	112	100%
Commercial	8	8	100%	\$120,915	\$120,915	100%			100%
Industrial	1	1	100%	\$141,977	\$141,977	-	-	-	-
Agricultural	-	-	-	-	-	-	-	-	-
Religious / Non-profit	1	1	100%						
Government	2	2	100%						
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by Hailstorm:

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Sewer Lift Station		X							
Quality Ag	502 Erin Ave			X				\$141,977	
Melrose Market	115 Erin St								

UNINCORPORATED COUNTY AREA – Exposure in unincorporated area due to Hailstorm:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in Unincorp	# in Planning Area	% in Planning Area	\$ in Unincorp area	\$ in Planning Area	% in Planning Area	# in Unincorp	# in Planning Area	% in Planning Area
Residential	1,379	1397	100%	\$125,076,897	\$125,076,897	100%	3554	3554	100%
Commercial	63	63	100%	\$5,287,024	\$5,287,024	100%			
Industrial	15	15	100%	\$174,113,751	\$174,113,751	100%	-	-	-
Agricultural	905	905	100%	\$57,938,330.00	\$57,938,330.00	100%	-	-	-
Religious / Non-profit	4	4	100%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
Electrical Substations (4)	Scattered locations	X						\$1M/ea
Landfill				X				
Lake Miami Campground	N Hwy 5		X					
Rural Water towers (3)	Scattered location	X						\$1M/ea
IDOT roads maintenance shop	South Hwy 5			X				
Lake Miami dam	N Hwy 5				X			
Halley’s Trailer Park (35 homes)	East Hwy 34		X					\$68,890 land \$90,041 bldgs
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X				\$80,026,460
Lazy-Daz Ranch (91 structures)	Melrose		X		X			\$2,058,658
Green Acres Mobile homes (108 structures)	Melrose		X		X			\$3,467,566
Monroe County Fairgrounds (land & structures)	North Hwy 5			X				\$310,613
Lazy Daz Ranch Estates(21 structures)	Melrose		X		X			\$758,831
Willow Park	Melrose		X		X			\$169,790

Wacker Chemical Corp	NE corner of county			X	X			\$5,114,095
Ajinomoto Heartland, LLC	NE corner of county			X	X			\$29,733,719
Ajinomoto USA Inc/ Ajinomoto Food	NE corner of the county			X	X			\$22,895,026

D. Loss Estimate.

County-wide damage was established from the NCDC data base from the past 65 years and are shown in Appendix 12. The most recent five years events are listed in “Past Occurrence”. Loss factors were developed specific to the attributes of Hailstorms throughout the region. These factors were able to provide an annual damage estimate by dividing the total loss by number of years of data. Per event damage calculated by dividing total loss by number of events. During the past 36 years, 31 events have occurred with property damage being reported at \$466,500.00. This indicates a loss of approximately \$12,958 per year. The reported crop damage during the same timeframe was \$141,000 for an annual loss of \$3,917. The 2013 Iowa State Mitigation Plan indicates the annual average hailstorm loss is \$34,000.

E. Hazard Scoring & Ranking.

<i>Hazard Score Calculation</i>				
Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
3	3	4	2	12

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	Data on probability and frequency of occurrence of hailstorms is limited, but research indicates that any given point in Iowa can expect on average two to three hailstorms a year.	3
<i>MAGNITUDE / SEVERITY</i>	<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. Hail can strip plants of their vegetation in very little time. If this occurs at a critical time in the life cycle of plants, it could have fatal consequences.</p> <p>The land area affected by individual hail events is not much smaller than that of a 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. Exposure to hail larger than a nickel can be very dangerous and life threatening.</p> <p>Risk to response personnel is the same as the risk to others without shelter from the hail.</p> <p>Hailstorms cause nearly \$1 billion dollars annually in property and crop damage in the US. The peak hail activity coincides with the Midwest’s peak agricultural season. Financial impacts resulting from damage to property is in the millions of dollar every year, most of which is covered by crop and hazard insurance.</p>	3
<i>WARNING TIME</i>	Forecasting hailstorms as with their parent thunderstorm, 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 many television weather departments.	4
<i>DURATION</i>	The occurrence of hailstorms is Short Term (1-2yrs) in nature and usually limited to less than 6 hours per event.	2
	WEIGHTED SCORE	12

F. Mitigation

CRS PARTICIPATION	
DESCRIPTION	EXPLORE FEASIBILITY OF CITY PARTICIPATING IN COMMUNITY RATING SYSTEM FOR ENHANCED FLOOD PROTECTION
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	MELROSE CITY COUNCIL, COUNTY BOS
MITIGATION CATEGORY	PROPERTY PROTECTION, PREVENTION
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 3.1 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, RIVER FLOODING
JURISDICTIONS	MELROSE, UNINCORPORATED COUNTY

CONTINUITY OF OPERATIONS PLANNING	
PROGRAM/PROJECT DESCRIPTION	CITY AND CITY DEPARTMENTS WORK TO DEVELOP PROCEDURES OF WHAT DO WHEN HAZARDS OCCUR INCLUDING WHO HAS KEYS TO SHELTERS, CONTACT LIST FOR CITY AND EMERGENCY RESPONSE PERSONNEL, PRIORITIES FOR WHAT FACILITIES TO RESTORE FOLLOWING DISASTERS, HOW TO DIRECT MONROE COUNTY RESIDENTS TO MINIMIZE INJURIES, AS WELL AS (OFF-SITE) BACKUPS OF IMPORTANT CITY DOCUMENTS AND FILES
ANTICIPATED COST	MINIMAL
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE AGENCY	ADLM (EMERGENCY MANAGEMENT) ALBIA, LOVILIA & MELROSE FIRST RESPONDERS,
MITIGATION CATEGORY	PROPERTY PROTECTION
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.2, 2.3, 2.4, 3.2, 3.4, 3.5 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES - FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT, RIVER FLOODING, TORNADO, HAILSTORM, DAM FAILURE, SINK HOLE, HUMAN DISEASE INCIDENT, EARTHQUAKE,
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

COMMUNITY EMERGENCY RESPONSE TEAM	
DESCRIPTION	ENCOURAGE AND SUPPORT DEVELOPMENT OF VOLUNTEER COMMUNITY EMERGENCY RESPONSE TEAM OF RESIDENTS WHO HAVE ACCESS TO EQUIPMENT AND TRAINING TO RESPOND IF EMERGENCY SERVICES ARE UNABLE TO MEET ALL OF THE IMMEDIATE NEEDS FOLLOWING DISASTERS AS WELL AS CHECKING IN ON ELDERLY OR DISABLED RESIDENTS TO ENSURE THEIR SAFETY
ESTIMATED COST	VOLUNTEER
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	ADLM- EMERGENCY MANAGEMENT, ALBIA, LOVILIA, MELROSE FIRST RESPONDERS,
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS, EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.4, 3.5 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES-FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT, GRASS / WILDFIRE, RIVER FLOODING, TORNADO, HAILSTORM, DAM FAILURE, SINK HOLE, EXTREME HEAT, HUMAN DISEASE INCIDENT, EARTHQUAKE, DROUGHT
JURISDICTION	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

WEATHER RADIOS	
DESCRIPTION	ENCOURAGEMENT OF RESIDENTS AND BUSINESSES TO OBTAIN NOAA WEATHER RADIOS

ESTIMATED COST	VOLUNTARY PROGRAM; APPROXIMATELY \$30 PER RADIO
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	RESIDENTS
MITIGATION CATEGORY	PREVENTION AND PUBLIC AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.2, 3.1, 3.2, 3.3, 3.4 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, THUNDERSTORM / LIGHTNING, SEVERE WINTER STORM, WINDSTORM/HIGH WIND EVENT, RIVER FLOODING, TORNADO, HAILSTORM, EXTREME HEAT, MAY ADDRESS OTHER HAZARDS AS WELL
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

FLOOD PROOFING (WET OR DRY)	
DESCRIPTION	ENCOURAGE PROPERTY OWNER USE OF FLOOD PROOFING TECHNIQUES TO REDUCE POTENTIAL FLOOD-RELATED DAMAGES SUCH AS WATER-PROOFING BASEMENT WALLS, STRUCTURAL MODIFICATIONS ALLOWING FLOOD WATERS TO PASS THROUGH OR AROUND STRUCTURES WITHOUT CAUSING DAMAGE (AS PART OF REMODELING OR DISASTER RELATED REPAIRS), USE OF WATER- / MOLD-RESISTANT PAINTS, ETC.
ESTIMATED COST	MINIMAL TO HIGH DEPENDING ON STRUCTURE AND TECHNIQUES
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	ALBIA, MELROSE, LOVILIA CITY COUNCILS, & PROPERTY OWNERS (EXECUTION)
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS, STRUCTURAL PROJECTS, PREVENTION
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.2, 2.3, 2.4 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, RIVER FLOODING
JURISDICTIONS	ALBIA & MELROSE

STORM WATER MANAGEMENT	
DESCRIPTION	DEVELOP A STORM WATER MANAGEMENT ORDINANCE TO MINIMIZE IMPACTS ON STORM WATER SYSTEM AND TO MINIMIZE FLASH FLOODING IMPACTS; MAY INCLUDE ARTIFICIAL EROSION CONTROL, CREEK BANK STABILIZATION, EROSION RESISTANT PLANTING ON STEEP SLOPES (DEEP ROOT PLANTS) TO SLOW AND HELP INFILTRATE STORM WATER, TERRACING HILLSIDES, GRADING TECHNIQUES
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ALBIA, LOVILIA, & MELROSE CITY COUNCILS, COUNTY BOS
MITIGATION CATEGORY	PREVENTION, NATURAL RESOURCE PROTECTION
RELATED GOALS/OBJECTIVES	1.1, 2.2, 2.3, 2.4, 3.1 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, THUNDERSTORM / LIGHTNING, SEVERE WINTER STORM, RIVER FLOODING, SINK HOLES
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

EVACUATION PLANS	
DESCRIPTION	DEVELOP EVACUATION PLANS FOR SCHOOL, COMMUNITY BUILDINGS, AND FOR TOWN
ESTIMATED COST	MINIMAL TO MODERATE
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ADLM-EMERGENCY MANAGEMENT, ALBIA, LOVILIA, & MELROSE FIRE DEPARTMENT, ALBIA COMMUNITY SCHOOLS,
MITIGATION CATEGORY	PREVENTION, EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.4, 3.5, 3.6 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES -FLASH FLOODING, INFRASTRUCTURE FAILURE, HAZARDOUS MATERIALS INCIDENT TRANSPORTATION INCIDENT, RIVER FLOODING, DAM FAILURE, SINK HOLES
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

SEARCH AND RESCUE TRAINING FOR FIRST RESPONDERS	
DESCRIPTION	TRAINING FIREFIGHTERS AND OTHER LOCAL EMERGENCY RESPONDERS BEST PRACTICES IN SEARCH AND RESCUE OPERATIONS
ESTIMATED COST	MINIMAL TO MODERATE
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ALBIA, LOVILIA, MELROSE FIRE DEPARTMENT& FIRST RESPONDERS,
MITIGATION CATEGORY	EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.2, 2.3, 3.1, 3.4, 3.5, 3.6 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS INCIDENT, TRANSPORTATION INCIDENT RIVER FLOODING, TORNADO, WINDSTORM/HIGH WIND EVENT, , DAM FAILURE, SINK HOLES, EARTHQUAKE, LANDSLIDE
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

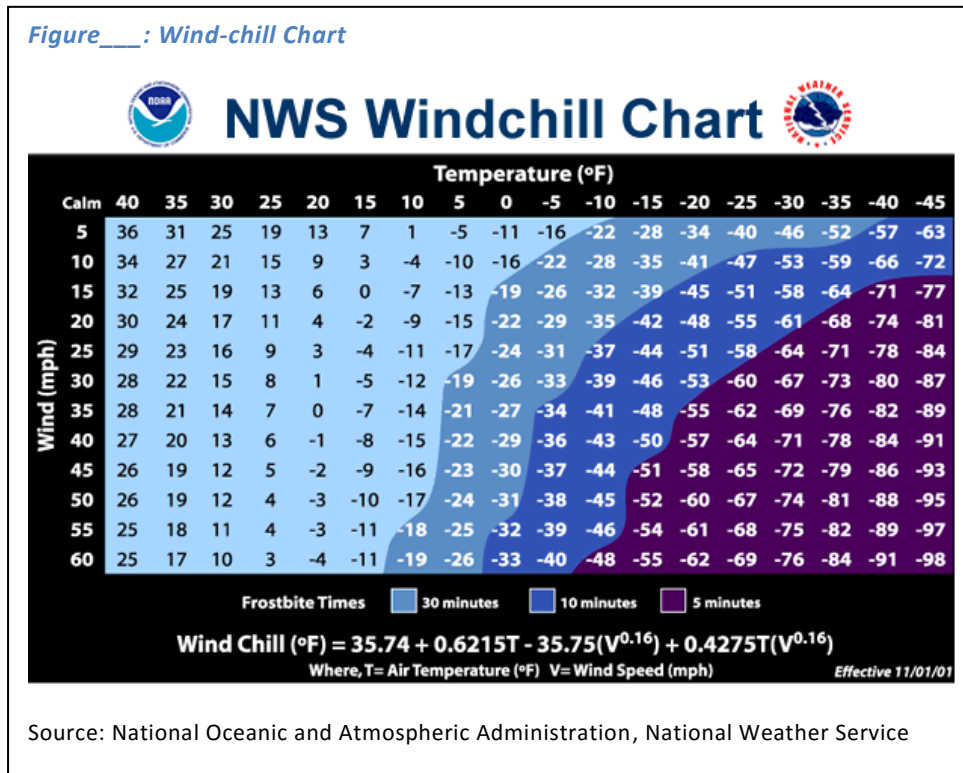
5. Hazard Profile – Severe Winter Storm

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

A. Description.

Winter storms are common during the winter months of October through April. The various types of extreme winter weather cause considerable damage. Heavy snows cause immobilized transportation systems, downed trees and power lines, collapsed buildings, and loss of livestock and wildlife. Blizzard conditions are winter storms which last at least three hours with sustained wind speeds of 35 mph or more, reduced visibility of 1/4 mile or less, and white-out conditions. Heavy snows of more than six inches in a 12-hour period or freezing rain greater than 1/4 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 the wind speed reaches 9 to 10 mph under freezing conditions. The potential for some drifting is substantially higher in open country than in urban areas where buildings, trees, and other features obstruct the wind. Ice storms result in fallen trees, broken tree limbs, downed power lines and utility poles, fallen communications towers, and impassable transportation routes. Severe ice storms have caused total electric power losses over large areas of Iowa and rendered assistance unavailable to those in need due to impassable roads. Frigid temperatures and wind chills are dangerous to people, particularly the elderly and the very young. Dangers include frostbite or hypothermia. Water pipes, livestock, fish and wildlife, and pets are also at risk from extreme cold and severe winter weather.

Figure___: Wind-chill Chart



B. Past Occurrences.

Since 1993, Iowa has had 1,221 recorded winter storms; including heavy snow, ice storm, blizzards or extreme wind-chills. In Iowa’s history, there are many accounts where large numbers of death are due to the cold and blizzards. While we are not as vulnerable as the early settlers were, there are recent accounts of multiple deaths from snowstorms and extreme cold around the state. Between 1993 and March of 2010, there have been 25 injuries and 12 deaths due to winter weather (data provided by the National Climactic Data Center).

Seven winter storm related Presidential Declarations for Major Disaster have been declared in Iowa since 1990, the first declaration occurred in 1991 resulting from an ice storm that affected 16 counties. Extensive damage occurred to power lines, including the collapse of numerous high-tension towers in north-central Iowa. The second declaration occurred in 1997 resulting from a severe winter storm that affected 13 counties.

The third and fourth declaration occurred in 2007 affecting 66 counties. The third declaration affected 48 counties and the fourth declaration affected 23 counties with five (5) counties counted in both declarations. These declarations resulted from a major winter storm with ice and heave snow combined with strong winds gusting to 50-55mph causing blizzard conditions. Some areas in Iowa received 16 inches of snow and coupled with the strong winds caused already weakened ice lined power lines to crumble and interstate highways to close due to drifting snow. This situation left approximately 250,000 plus Iowa citizens without electricity for ten plus days. In central Iowa, one county had twenty (20) miles of downed power poles that snapped due to power lines being coated with inches of ice coupled with the strong winds; high-tension towers collapsed. Due to the severity of the winter blizzard, the Governor signed a Governor’s Emergency Declaration for all 99 counties in Iowa.

There have been 60 recorded snow and ice events in Albia since 2000 including freezing rain, snow, ice storms, and winter storms. Zero deaths are associated with these events and property damage totaling \$389.9k are recorded.

Monroe County was affect twice in December 2007 by two separate ice storms. The combined loss for this area was more than \$150,000 in personal property. Between February 1995 and January 1997, there have been

nine recorded events of extreme wind chill and extreme cold that impacted Monroe County and the surrounding area. These nine events are attributed for \$1.8 million in property damage, one death and no injuries.

The following are the recent events during the past five years as documented by NOAA:

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Type</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
MONROE (ZONE)	MONROE (ZONE)	IA	01/06/2010	Winter Storm	0	0	25.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	01/30/2013	Winter Storm	0	0	25.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	02/04/2014	Winter Storm	0	0	0.00K	0.00K
Totals:					0	0	50.00K	0.00K

C. Vulnerable locations/buildings.

The entire planning area is vulnerable to the effects of severe winter storms. Winter storms tend to make driving more treacherous and can impact the response time of emergency vehicles. The probability of utility and infrastructure abruption or outages, increases during winter storms due to freezing rain accumulation on power lines. Elderly populations are especially vulnerable to the impacts of winter storms. Winter storms increase wear and tear on roadways also, but it is difficult to determine the amount of the expenses to maintain or recover from a storm.

Buildings with overhanging tree limbs are more vulnerable to damage during winter storms. Businesses experience loss of income as a result of closure due to power outages. Overhead power lines and infrastructure are also vulnerable to damages from winter storms. The weight from of the ice accumulation creates damage to power lines, as well as, damage to the lines and equipment from falling trees and/or tree limbs due to the weight. Potential losses would include the cost of repair or replacement of damaged facilities and lost economic opportunities. Secondary effects of loss of power could include ruptured water pipes in homes without electricity. Public safety hazards also include risk of electrocution from downed power lines. Specific amounts of estimated losses are not available due to the complexity and multiple variables with this hazard. The loss of use estimates are provided in the table below and were calculated using FEMA’s publication “*What is a Benefit? Guidance on Benefit-Cost Analysis of Hazard Mitigation Project, June 2009*”. The loss of use is provided in the heading s the loss of use cost per person per day of loss. The estimated loss of use provided for each jurisdiction represents the loss of service of the indicated utility for one day for 10 percent of the population. It is understood that in rural areas the typical loss of use may be for a longer period of time and a larger percentage of the population. These figures do not take into account the physical damage to utility equipment and infrastructure.

Jurisdiction	Population (2010)	Estimated Affected Population (10%)	Electric loss of use estimates @ \$128/person/day
Albia	3766	377	\$48,256/day
Lovilia	538	54	\$6,480/day
Melrose	112	11	\$1,408/day
Unincorporated	3554	355	\$45,440

The population most vulnerable and are most at risk to Severe Winter Storms are the elderly. The following table summarizes the number of residents that are over 65 years and what percentage of the county this comprises.

Location	Population over 65yrs	Percentage of Population over 65yrs
Albia	745	20%
Lovilia	77	15%
Melrose	29	25.9%
Unincorporated county	731	20.5%

2010 US Census

Albia's vulnerable structures due to Severe Winter Storms:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	1379	1379	100%	\$96,081,043	\$96,081,043	100%	3766	3766	100%
Commercial	166	166	100%	\$16,085,504	\$16,085,504	100%			100%
Industrial	14	14	100%	\$5,634,100	\$5,634,100	100%	-	-	-
Agricultural			-			100%	-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-						

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrellgas	121 10 th St			X				\$15,933	
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					
Monroe County Professional Mang	15 A Ave								
House of Kids Daycare	304 S Main St		X						
King's Kids Preschool	1115 A Ave		X						
Albia Daycare Preschool	100 N 2 nd St		X						
Private In-Home Daycare	1933 Hwy 137		X						
Private In-Home Daycare	6427 160 th St		X						
Private In-Home Daycare	703 A Ave W		X						
Private In-Home Daycare	120 Linden Lane		X						
USDA Office	1709 S B St			X	X				
Private In-Home Daycare	306 S Clinton Ave		X						

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Private Daycare	In-Home	11 Hickory Cr		X					
Private Daycare	In-Home	216 S Clinton Ave		X					
Private Daycare	In-Home	517 S 9 th St		X					
Private Daycare	In-Home	1671 631 st Lane		X					
Private Daycare	In-Home	806 F Ave E		X					
Private Daycare	In-Home	403 Washington Ave E		X					

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the school’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the hospital’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value	Occupancy or capacity
Monroe Co Hospital	6580 165 th St	X	X	X	X					

Exposure in Lovilia due to Severe Winter Storm:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	217	217	100%	\$9,760,486	\$9,760,486	100%	538	538	100%
Commercial	27	27	100%	\$759,126	\$759,126	100%			100%
Industrial	0	0	100%	0	0	100%	-	-	-
Agricultural	8	8	-	\$1,049,936.00-	\$1,049,936.00-	-	-	-	-
Religious / Non-profit	1	1	100%						
Government						100%			100%
Education						100%			100%
Utilities	-	-	-	-	-	-	-	-	-

Lovilia’s critical asset that can be affected by a Severe Winter Storm:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	\$ 125,537	\$257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	\$ 68,840	\$ 97,500
Community Bldg	608 W 17 th St				X				
Water plant	606 W 17 th St	X					1088 sq ft	\$ 43,700	\$ 49,070
Water tower	606 W 17 th St	X					--	\$285,600	--
City Maintenance/ Storage	1611 E Ave So				X		1239 sq ft	\$ 54,838	\$ 22,000
Lagoon	6057 115 th Trail	X					375 sq ft	\$ 132,490	--
Casey’s	1807 Highway 5						1962sq ft	\$102,125	
Lovilia Head Start	302 S H Ave			X					

MELROSE – exposure due to Severe Winter Storm

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	58	58	100%	\$2,007,801	\$2,007,801	100%	112	112	100%
Commercial	8	8	100%	\$120,915	\$120,915	100%			100%
Industrial	1	1	100%	\$141,977	\$141,977	-	-	-	-
Agricultural	-	-	-		-	-	-	-	-
Religious / Non-profit	1	1	100%						
Government	2	2	100%						
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by Winter Storms:

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Sewer Lift Station		X							
Quality Ag	502 Erin Ave			X				\$141,977	
Melrose Market	115 Erin St								

UNINCORPORATED COUNTY AREA – Exposure in unincorporated area due to Severe Winter Storms:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in Unincorp	# in Planning Area	% in Planning Area	\$ in Unincorp area	\$ in Planning Area	% in Planning Area	# in Unincorp	# in Planning Area	% in Planning Area
Residential	1,379	1397	100%	\$125,076,897	\$125,076,897	100%	3554	3554	100%
Commercial	63	63	100%	\$5,287,024	\$5,287,024	100%			
Industrial	15	15	100%	\$174,113,751	\$174,113,751	100%			
Agricultural	905	905	100%	\$57,938,330.00	\$57,938,330.00	100%	-	-	-
Religious / Non-profit	4	4	100%						

Unincorporated County Structural Inventory

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
Electrical Substations (4)	Scattered locations	X						\$1M/ea
Landfill				X				
Lake Miami Campground	N Hwy 5		X					
Rural Water towers (3)	Scattered location	X						\$1M/ea
IDOT roads maintenance shop	South Hwy 5			X				
Lake Miami dam	N Hwy 5				X			
Halley's Trailer Park (35 homes)	East Hwy 34		X					\$68,890 land \$90,041 bldgs
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X				\$80,026,460
Lazy-Daz Ranch (91 structures)	Melrose		X		X			\$2,058,658
Green Acres Mobile homes (108 structures)	Melrose		X		X			\$3,467,566
Monroe County Fairgrounds (land & structures)	North Hwy 5			X				\$310,613
Lazy Daz Ranch Estates (21 structures)	Melrose		X		X			\$758,831
Willow Park	Melrose		X		X			\$169,790
Wacker Chemical Corp	NE corner of county			X	X			\$5,114,095
Ajinomoto Heartland, LLC	NE corner of county			X	X			\$29,733,719
Ajinomoto USA Inc/ Ajinomoto Food	NE corner of the county			X	X			\$22,895,026

D. Loss Estimate.

County-wide damage was established from the NCDC data base from the past 65 years and are shown in Appendix 12. The most recent five years events are listed in "Past Occurrence". Loss factors were developed specific to the attributes of Severe Winter Storms throughout the region. These factors were able to provide an annual damage estimate by dividing the total loss by number of years of data. Per event damage calculated by dividing total loss by number of events. During the past 16 years, thirteen severe winter storm events have caused \$459,900 in damage. This calculates annual loss of \$28,744 for Monroe County. The 2013 Iowa State Mitigation Plan indicates that the annual estimated loss is \$30,000.

E. Hazard Scoring & Ranking.

<i>Hazard Score Calculation</i>				
Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
4	3	2	4	13

Hazard Scoring Guidelines from Iowa Homeland Security.

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	Winter storms regularly move easterly and use both the southward plunge of arctic cold air from Canada and the northward flow of moisture from the Gulf of Mexico to produce heavy snow and sometimes blizzard conditions in Iowa and other parts of the Midwest. The cold temperatures, strong winds, and heavy precipitation are	4

	<p>the ingredients of winter storms. Most counties can usually expect 2 or 3 winter storms a season with an extreme storm every 3 to 5 years on average (more in the northwest, fewer in the southeast). A snowfall of six inches or more from one storm only occurs in 49% of Iowa winters, while a large winter storm event of 10 inches or more will occur about once every 3 years.</p>	
<i>MAGNITUDE / SEVERITY</i>	<p>Hazardous driving conditions due to snow and ice on highways and bridges lead to many traffic accidents. The leading cause of death during winter storms is transportation accidents. About 70% of winter-related deaths occur in automobiles and about 25% are people caught out in the storm. The majority of these are males over 40 years of age. Emergency services such as police, fire, and ambulance are unable to respond due to road conditions. Emergency needs of remote or isolated residents for food or fuel, as well as 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. Those at risk are primarily either engaged in outdoor activity (shoveling snow, digging out vehicles, or assisting stranded motorists), or are the elderly or very young. Schools often close during extreme cold or heavy snow conditions to protect the safety of children and bus drivers. Citizens' use of kerosene heaters and other alternative forms of heating may create other hazards such as structural fires and carbon monoxide poisoning.</p> <p>Severe winter storms can lead to injury and death through traffic accidents or to individuals that may be caught outdoors. Cold temperature impacts on agriculture are frequently discussed in terms of frost and freeze impacts early or late in growing seasons and unprotected livestock.</p> <p>Response personnel are exposed to cold temperatures and traffic accidents when responding to the victim's needs.</p> <p>Immobilized transportation (including emergency vehicles), downed trees and electrical wires, building and communication tower collapse, and bodily injury/death are just a few of the impacts of a severe winter storm. Vehicle batteries and diesel engines are stressed and the fuel often gels in extreme cold weather. This impacts transportation, trucking, and rail traffic.</p> <p>Fire during winter storms presents a great danger because water supplies may freeze and firefighting equipment may not function effectively, or personnel and equipment may be unable to get to the fire. If power is out, interiors of homes become very cold and lead to pipes freezing and possibly bursting. Rivers and lakes freeze and subsequent ice jams threaten bridges and can close major highways. Ice jams can also create flooding problems when temperatures begin to rise. Ice coating of one-fourth inch in thickness is heavy enough to damage trees, overhead wires, and similar objects and to produce widespread power outages. Buried water pipes can burst causing massive ice problems and loss of water and subsequent evacuations during sub-zero temperatures.</p>	3
<i>WARNING TIME</i>	<p>The National Weather Service (NWS) has developed effective weather advisories that are prompted 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 a frost/freeze advisory.</p>	2
<i>DURATION</i>	<p>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 a major storm event.</p>	4
	WEIGHTED SCORE	13

F. Mitigation.

GENERATORS	
PROGRAM/PROJECT DESCRIPTION	ACQUISITION OF MOBILE AND / OR FIXED GENERATORS FOR USE AT COMMUNITY BUILDINGS USED FOR TEMPORARY STORM SHELTERS AND / OR FOR PUBLIC FACILITIES
ANTICIPATED COST	MODERATE
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE AGENCY	ALBIA CITY COUNCIL, CRITICAL FACILITY PROPERTY OWNERS, ALBIA FIRE DEPARTMENT
MITIGATION CATEGORY	EMERGENCY SERVICES, PREVENTION, PROPERTY PROTECTION
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.2, 2.3, 2.5, 3.1, 3.3, 3.4 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, THUNDERSTORM/LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENTS, RIVER FLOODING, TORNADO, HAILSTORM, EXTREME HEAT, HUMAN DISEASE, DROUGHT
JURISDICTIONS	ALBIA

NEW STORM SHELTER/ COOLING OR HEATING SHELTER	
PROGRAM/PROJECT DESCRIPTION	CONSTRUCTION OF COMPREHENSIVE STORM SHELTER TO TORNADO SAFE ROOM STANDARDS TO SERVE AS A TEMPORARY SHELTER FOR MULTIPLE HAZARDS AS OFTEN A CHURCH, COMMUNITY CENTER, LEGION HALL, CITY HALL, AND SCHOOL ARE CURRENTLY UTILIZED AS NEEDED
ANTICIPATED COST	MODERATE TO HIGH – GRANT DEPENDENT
TIMELINE/SCHEDULE	LONG TERM (5+YRS)
RESPONSIBLE AGENCY	ALBIA CITY COUNCIL
MITIGATION CATEGORY	STRUCTURAL PROJECT
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.2, 3.1, 3.3- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES - FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS, WINDSTORM/HIGH WIND EVENT, TORNADO, HAILSTORM, SINK HOLE, EARTHQUAKE
JURISDICTIONS	ALBIA

CONTINUITY OF OPERATIONS PLANNING	
PROGRAM/PROJECT DESCRIPTION	CITY AND CITY DEPARTMENTS WORK TO DEVELOP PROCEDURES OF WHAT DO WHEN HAZARDS OCCUR INCLUDING WHO HAS KEYS TO SHELTERS, CONTACT LIST FOR CITY AND EMERGENCY RESPONSE PERSONNEL, PRIORITIES FOR WHAT FACILITIES TO RESTORE FOLLOWING DISASTERS, HOW TO DIRECT MONROE COUNTY RESIDENTS TO MINIMIZE INJURIES, AS WELL AS (OFF-SITE) BACKUPS OF IMPORTANT CITY DOCUMENTS AND FILES
ANTICIPATED COST	MINIMAL
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE AGENCY	ADLM (EMERGENCY MANAGEMENT) ALBIA, LOVILIA, & MELROSE FIRST RESPONDERS OR CITY COUNCIL
MITIGATION CATEGORY	PROPERTY PROTECTION
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.2, 2.3, 2.4, 3.2, 3.4, 3.5- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES - FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS INCIDENT, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT, RIVER FLOODING, TORNADO, HAILSTORM, DAM FAILURE, SINK HOLE, HUMAN DISEASE INCIDENT, EARTHQUAKE,
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

PUBLIC EDUCATION AND OUTREACH	
DESCRIPTION	DEVELOP HAZARD EDUCATION AND OUTREACH PROGRAM TO HELP MONROE COUNTY RESIDENTS UNDERSTAND MEANING OF HAZARD WARNINGS AND SELF-PROTECTION MEASURES
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ADLM (EMERGENCY MANAGEMENT), ALBIA, LOVILIA, & MELROSE FIRST RESPONDERS,
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES -FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS INCIDENT, ENERGY FAILURE, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT, GRASS / WILDFIRE, RIVER FLOODING, TORNADO, HAILSTORM, , DAM FAILURE, SINK HOLE, EXTREME HEAT, HUMAN DISEASE INCIDENT, EARTHQUAKE, DROUGHT
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

COMMUNITY EMERGENCY RESPONSE TEAM	
DESCRIPTION	ENCOURAGE AND SUPPORT DEVELOPMENT OF VOLUNTEER COMMUNITY EMERGENCY RESPONSE TEAM OF RESIDENTS WHO HAVE ACCESS TO EQUIPMENT AND TRAINING TO RESPOND IF EMERGENCY SERVICES ARE UNABLE TO MEET ALL OF THE IMMEDIATE NEEDS FOLLOWING DISASTERS AS WELL AS CHECKING IN ON ELDERLY OR DISABLED RESIDENTS TO ENSURE THEIR SAFETY
ESTIMATED COST	VOLUNTEER
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	ADLM- EMERGENCY MANAGEMENT, ALBIA, LOVILIA, & MELROSE FIRST RESPONDERS,
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS, EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.4, 3.5- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES-FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS INCIDENT, ENERGY FAILURE, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT, GRASS / WILDFIRE, RIVER FLOODING, TORNADO, HAILSTORM, DAM FAILURE, SINK HOLE, EXTREME HEAT, HUMAN DISEASE, EARTHQUAKE, DROUGHT
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

WEATHER RADIOS	
DESCRIPTION	ENCOURAGEMENT OF RESIDENTS AND BUSINESSES TO OBTAIN NOAA WEATHER RADIOS
ESTIMATED COST	VOLUNTARY PROGRAM; APPROXIMATELY \$30 PER RADIO
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	RESIDENTS
MITIGATION CATEGORY	PREVENTION AND PUBLIC AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.2, 3.1, 3.2, 3.3, 3.4 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, THUNDERSTORM / LIGHTNING, SEVERE WINTER STORM, WINDSTORM/HIGH WIND EVENT , RIVER FLOODING, TORNADO, HAILSTORM, EXTREME HEAT, MAY ADDRESS OTHER HAZARDS AS WELL
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

BURYING POWER LINES	
DESCRIPTION	ENCOURAGE BURYING OF POWER LINES TO NEW CONSTRUCTION AND UPON SIGNIFICANT MAINTENANCE OR UPGRADES OF EXISTING POWER SUPPLY
ESTIMATED COST	MINIMAL (FOR CITY), MODERATE TO HIGH (FOR POWER COMPANIES)

TIMELINE/SCHEDULE	LONG TERM (5+YRS)
RESPONSIBLE ENTITY	ALBIA CITY COUNCIL, POWER COMPANIES
MITIGATION CATEGORY	PROPERTY PROTECTION, STRUCTURAL PROJECTS
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.3- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES - THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, HAZARDOUS MATERIALS, TRANSPORTATION INCIDENT
JURISDICTIONS	ALBIA

SNOW FENCES / BARRIERS	
DESCRIPTION	ENCOURAGE DEVELOPMENT OF SNOW FENCES OR BARRIERS TO BLOCK DRIFTING SNOW FROM BLOCKING CRITICAL ACCESS ROUTES OR FROM BUILDING ENTRANCES RANGING FROM ARTIFICIAL TO VEGETATIVE BARRIERS
ESTIMATED COST	VOLUNTARY
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	PROPERTY OWNERS
MITIGATION CATEGORY	PREVENTION, NATURAL RESOURCE PROTECTION
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.1, 2.2, 2.3, 2.4, 3.1- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- SEVERE WINTER STORMS, WINDSTORM/HIGH WIND EVENT
JURISDICTIONS	UNINCORPORATED COUNTY

MAINTENANCE OF HEATING / COOLING SYSTEMS	
DESCRIPTION	ENCOURAGE PROPERTY OWNER MAINTENANCE OF HEATING AND COOLING SYSTEMS AND MAINTENANCE OF HEATING AND COOLING SYSTEMS IN COMMUNITY BUILDINGS
ESTIMATED COST	MINIMAL TO MODERATE
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	PROPERTY OWNERS, ALBIA CITY MAINTENANCE DEPT
MITIGATION CATEGORY	PREVENTION, PUBLIC EDUCATION AND AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.1, 2.2, 2.3, 2.4, 3.3, 3.5 - SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- SEVERE WINTER STORM, INFRASTRUCTURE FAILURE, EXTREME HEAT
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

TREE MANAGEMENT/TRIMMING	
DESCRIPTION	ENCOURAGE PRIVATE HOME OWNERS, BUSINESSES, AND JURISDICTIONS TO REGULARLY PERFORM TREE TRIMMING AND MAINTENANCE TO PREVENT LIMB BREAKAGE AND FOR SAFEGUARDING NEARBY UTILITY LINES.
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	CITY OF ALBIA MAINTENANCE DEPT, PROPERTY HOME OWNERS, UTILITY COMPANIES, COUNTY ROADS DEPT
MITIGATION CATEGORY	PREVENTION, PUBLIC EDUCATION AND AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 2.1, 2.3, 3.1- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- INFRASTRUTURE FAILURE, SEVERE WINTER STORM, WINDSTORM/HIGH WIND EVENT
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

6. Hazard Profile – Radiological

This hazard encompasses the following consolidated hazards from 2007 mitigation plan: fixed radiological incident and transportation radiological incident. This includes an incident resulting in a release of radiological material in transport or at a fixed facility to include power plants, hospitals, laboratories, and the like.

A. Description.

FIXED RADIOLOGICAL INCIDENT - 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 States were developed in the mid-1960 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. Emergency classifications are divided into four categories. Each calls for a response from plant and government personnel. From least to most severe, the classifications are:

- | | |
|----------------|----------------------|
| *Unusual Event | * General Emergency |
| *Alert | *Site Area Emergency |

TRANSPORTATION RADIOLOGICAL INCIDENT – This is 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 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 (5+yrs) exposure. These materials are shipped in sealed drums within placarded trailers. The danger to the public is no more than 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.

B. Past Occurrences.

FIXED RADIOLOGICAL INCIDENT – Since 1990, the Quad Cities Nuclear Power Plant has had 17 Unusual Events, 7 Alerts, and no Site Area Emergencies or General Emergencies. Since 1990, the Cooper Nuclear Power Plant has had 18 Unusual Events, 1 Alert, and no Site Area Emergencies or General Emergencies. Since 1990, Ft. Calhoun Nuclear Power Plant has had 17 Unusual Events, 2 Alerts, and no Site Area Emergencies or General Emergencies. There have been no documented events in Monroe County.

TRANSPORTATION RADIOLOGICAL INCIDENT – 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. Rail and highway routes for the shipment of radioactive waste have been identified and mapped. There have been no documented events in Monroe County.

C. Vulnerable Locations/Buildings.

FIXED RADIOLOGICAL INCIDENT – There are no fixed radiological facilities in Monroe County.

TRANSPORTATION RADIOLOGICAL INCIDENT - The maximum population and building exposure to transportation of radiological materials is shown in the chart below. The county has three state highways that are identified in the county. Highway 5 transports traffic north and south across the county and Highway 34 extends east and west through Monroe county. State Highway 137 branches off of highway 5 on the north edge of Albia and continues northeasterly to the city of Eddyville. Additional risks of transportation of radiological

material can occur along the rail lines in Monroe County. There are three railroad companies that operate lines in Monroe County: BNSF, APNC, and IMRL. They total approximately 90 miles of rail line throughout the county. Industries located in the Northeast region of the county have potential exposure due to State Highway 137 that is adjacent each property. It is estimated that only the north half of each location (that closest the roadway) would be affected.

ALBIA – exposure to Transportation of Radiological Materials

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	1379	138	35%	\$96,081,043	\$33,628,365	35%	3766	1318	35%
Commercial	166	17	10%	\$16,085,504	\$1,308,550	10%			
Industrial	14	1	10%	\$5,634,100	\$563,410	10%	-	-	-
Agricultural			-				-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-	-	-	-	-	-	-

The community of Albia is at a greater risk of experiencing an incident related to Radiological Materials due to the number of rail lines that intersect the city. There are five sets of tracks that travel through the city limits of Albia. Along the miles of those rail lines lie numerous houses and a few businesses. This places approximately 35% of residential structures at risk and 10% of businesses.

Iowa State Highways 5 and 34 pass through (and intersect) in Albia's City limits to offer an increased potential for a transportation of radiological materials incident. State Highway 5 intersects the City of Albia from north to south and is adjacent to Grant Elementary near the heart of the city of Albia. There are also five sets of tracks that travel through the city limits of Albia. One rail line is within two city blocks of Kendall Elementary and the Jr. High section of the Jr/Sr High School building that could potentially create a radiological incident affecting the school system.

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/Other	Size of Bldg In Square feet	Replacement Value	Content Value	Occupancy or capacity
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696		
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951		
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280		
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175		
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971		
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093		
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp		
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692		
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331		
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280		

First Responder bldg (Ambulance)							3399sq ft	\$115,215		
Sewage Disposal Plant	120 S A St	X								
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000	
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000	
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft			
Albia Municipal waterworks	120 S A St	X						\$99,190		
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315		
Lift stations	SE/NE/ SW/ NW	X						\$115,627		
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft			
Quality Ag Services	6385 196 th St			X				\$277,260		
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933		
Kum & Go	204 S Main St			X			2052sq ft	\$120,278		
Casey's	122 N Main St			X			1920 sq ft	\$124,832		
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170		
Albia Stop & Shop	300 N Hwy 5			X			2981 sq ft	\$100,236		
Smith Grain & Fertilizer	805 N Hwy 5			X						
Ferrellgas	121 10 th St			X				\$15,933		
USDA Office	1709 S B St			X		X				
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985		
Relco- Locomotives	1 Relco Ave			X				\$7,092,511		
Burlington Northern- Santa Fe Railway	300 A St N			X						
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453		
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294		
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530		
Pamida	Hwy 34			X			26,817sq ft	\$495,770		
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975		
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014		
Preferred Wholesale	201 S Main St			X						
Trailer court	South Hwy 5		X							
Albia Historic Square	Hwy 5 & Benton Ave					X				
Albia Industrial park (8 businesses)	South Hwy 5			X						

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office. Insured value is according to the school's insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M

Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the hospital’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value	Occupancy or capacity
Monroe Co Hospital	6580 165 th St	X	X	X	X					

LOVILIA – exposure due to Transportation Radiological Material

TRANSPORATION RADIOLOGICAL INCIDENT - Lovilia also has a rail line that extends through the community from north to south. It runs parallel to State Highway 5 and within 30 yards of it. This places approximately 40% of businesses and 45% of homes at risk if there were to be Radiological Material on board. An additional risk could be any Radiological materials that are transported on State Highway 5. This highway and rail line both dissect the city the entire length north to south.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	217	98	45%	\$9,760,486	\$4,392,219	45%	538	242	45%
Commercial	27	11	40%	\$759,126	\$303,650	40%			
Industrial	0		0%	0		0%	-	-	-
Agricultural	8	4	50%	\$1,049,9360	\$524,968	50%	-	-	-
Religious / Non-profit	1		100%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Lovilia’s critical asset that can be affected by transportation radiological material:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	\$ 125,537	\$257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	\$ 68,840	\$ 97,500
Community Bldg	608 W 17 th St				X				
Water plant	606 W 17 th St	X					1088 sq ft	\$ 43,700	\$ 49,070
Water tower	606 W 17 th St	X					--	\$ 285,600	--
City Maintenance/ Storage	1611 E Ave So				X		1239 sq ft	\$ 54,838	\$ 22,000
Casey’s	1807 Highway 5						1962sq ft	\$102,125	
Lovilia Head Start	302 S H Ave			X					

MELROSE – exposure due to Radiological Transportation Incident

RADIOLOGICAL TRANSPORTATION INCIDENT - The maximum population and building exposure to transportation of radiological materials is shown in the chart below. Melrose has highway S70 that intersects the city, however, it is primarily traveled by local residents. The most likely radiological incident could take place on a rail line passes through the southern part of the community and could potential be transporting Radiological Materials. This places approximately 10% of commercial properties and 15% of residential structures.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	58	15	15%	\$2,007,801	\$301,170	25%	112	17	15%
Commercial	8	2	10%	\$120,915	\$12,092	25%			
Industrial	1	1	100%	\$141,977	\$141,977	100%	-	-	-
Agricultural	-	-	-		-	-	-	-	-
Religious / Non-profit									
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by Radiological Transportation Incident:

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Sewer Lift Station		X							
Quality Ag	502 Erin Ave			X				\$141,977	
Melrose Market	115 Erin St								

UNINCORPORATED COUNTY AREA – exposure due to Transportation of Radiological Materials

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in region	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in region	# in Hazard Area	% in Hazard Area
Residential	1,379	69	5%	\$125,076,897	\$6,253,845	5%	3554	178	5%
Commercial	63	3	5%	\$5,287,024	\$264,351	5%			
Industrial	15	1	5%	\$174,113,751	\$8,705,688	5%	-	-	-
Agricultural	905	45	5%	\$57,938,330	\$2,896,917	5%	-	-	-
Religious / Non-profit	4	1	5%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X				\$40,013,230
Wacker Chemical Corp	NE corner of county			X	X			\$2,557,048
Ajinomoto Heartland, LLC	NE corner of county			X	X			\$14,866,860

Ajinomoto USA Inc/ Ajinomoto Food	NE corner of the county			X	X			\$11,447,513
-----------------------------------	-------------------------	--	--	---	---	--	--	--------------

D. Loss Estimates.

There are no fixed radiological facilities in Monroe County for any potential loss. The estimated loss for a transportation radiological is difficult to predict without any history for comparison.

E. Hazard Scoring & Ranking.

<i>HAZARD SCORE CALCULATION</i>				
PROBABILITY	MAGNITUDE/SEVERITY	WARNING TIME	DURATION	WEIGHTED SCORE
1	4	4	4	13

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	<p>FIXED RADIOLOGICAL INCIDENT – THERE ARE NO FIXED RADIOLOGICAL LOCATIONS IN MONROE COUNTY.</p> <p>TRANSPORTATION RADIOLOGICAL INCIDENT – 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. THE LOCAL HMP COMMITTEE HAS EVALUATED THE PROBABILITY THAT A TRANSPORTATION RADIOLOGICAL INCIDENT IS UNLIKELY IN ANY GIVEN YEAR. RAIL AND HIGHWAY ROUTES FOR THE SHIPMENT OF RADIOACTIVE WASTE HAVE BEEN IDENTIFIED. THE ONLY ROUTE THAT EFFECTS MONROE COUNTY WOULD BE THE BURLINGTON NORTHERN SANTA FE RAIL LINE CROSSING EAST TO WEST AND NEAR OR THROUGH THE COMMUNITIES OF MELROSE AND ALBIA.</p>	1
<i>MAGNITUDE/ SEVERITY</i>	<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. IN OVER 50 YEARS OF NUCLEAR POWER PRODUCTION IN THE US, NO DEATHS OR INJURIES FROM RADIATION HAVE BEEN RECORDED AMONG THE GENERAL PUBLIC.</p> <p>DEPENDING ON THE LEVEL OF EXPOSURE, RADIATION CAN CAUSE LOSS OF LIFE AND LONG AND SHORT TERM (1-2YRS) HEALTH EFFECTS. TIME, DISTANCE, AND SHIELDING MINIMIZE RADIATION EXPOSURE TO THE BODY. NUCLEAR RADIATION ABOVE NORMAL LEVELS CAN BE A HEALTH AND SAFETY CONSIDERATION BECAUSE OF ITS ABILITY TO DAMAGE HUMAN CELLS BIOLOGICALLY. SPECIALIZED TRAINING IS NEEDED TO RESPOND TO THESE TYPES OF INCIDENTS. IF INADEQUATELY TRAINED PERSONNEL ATTEMPT TO RESPOND, THE IMPACTS COULD BE THE SAME AS THOSE FOR THE GENERAL PUBLIC EXPOSED TO THE TOXIC MATERIALS. PROPER TRAINING AND EQUIPMENT GREATLY REDUCE THE RISK TO RESPONSE PERSONNEL. THOSE WORKING WITH OR NEAR SOURCES OF RADIATION ARE AT A GREATER RISK THAN THE GENERAL CITIZENS OF THIS STATE.</p> <p>OTHER THAN A TRANSPORTATION INCIDENT INVOLVING LARGE AMOUNTS OF HIGH-LEVEL RADIOACTIVE MATERIALS, RADIATION EXPOSURE, WILL BE LIMITED TO MUCH LOCAL AREAS. TIME, DISTANCE AND SHIELDING MINIMIZE RADIATION EXPOSURE TO THE BODY. NUCLEAR RADIATION ABOVE NORMAL LEVELS CAN BE A HEALTH AND SAFETY CONSIDERATION BECAUSE OF ITS</p>	4

	ABILITY TO DAMAGE HUMAN CELLS BIOLOGICALLY AS WELL AS LONG-LASTING EFFECT ON THE ENVIRONMENT.	
<i>WARNING TIME</i>	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. A RADIOLOGICAL EVENT IN IOWA COULD RESULT FROM AN INCIDENT IN HANDLING OR TRANSPORTING RADIOACTIVE MATERIALS. THIS ACCIDENT COULD OCCUR WITH LITTLE OR NO WARNING.	4
<i>DURATION</i>	RESPONDING TO THE EFFECTS OF A RADIOLOGICAL RELEASE IN IOWA 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.	4
	WEIGHTED SCORE	13

F. Mitigation.

COLLECTION & PROTECTION OF VITAL RECORDS	
DESCRIPTION	ENCOURAGE PROPERTY OWNERS TO INVENTORY AND PROTECT CRITICAL INFORMATION FOR IMPROVED DISASTER RECOVERY AND MINIMIZE DISRUPTIONS TO LIVES FOLLOWING DISASTER EVENTS; CRITICAL INFORMATION INCLUDES TITLES TO PROPERTY, BANK INFORMATION, INSURANCE DOCUMENTS, WILLS, COPIES OF PRESCRIPTION MEDICATIONS, FAMILY CONTACT INFORMATION, SOCIAL SECURITY CARDS, PASSPORTS, MARRIAGE LICENSES, BIRTH CERTIFICATES, AND OTHER FORMS OF INFORMATION THAT MAY BE DIFFICULT TO REPLACE OR NEEDED TO DOCUMENT ELIGIBILITY FOR DISASTER AID
ESTIMATED COST	VOLUNTARY
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	RESIDENTS
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 3.1, 3.5, 3.6 – SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS INCIDENT, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT, RIVER FLOODING, TORNADO, HAILSTORM, DAM FAILURE, SINK HOLE, EXTREME HEAT, HUMAN DISEASE INCIDENT, EARTHQUAKE, LANDSLIDE
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

MASS CASUALTY PREPARATION	
DESCRIPTION	DEVELOP PLAN FOR HOW TO HANDLE MASS CASUALTIES RESULTING FROM HAZARD EVENTS IN AND NEAR EACH JURISDICTION
ESTIMATED COST	MINIMAL TO MODERATE
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ALBIA FIRST RESPONDERS, ADLM-EMERGENCY MANAGEMENT
MITIGATION CATEGORY	EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.2, 3.5- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS INCIDENT, TRANSPORTATION INCIDENT, RIVER FLOODING, TORNADO, HUMAN DISEASE INCIDENT, DAM FAILURE, SINK HOLES, EARTHQUAKE
JURISDICTIONS	ALBIA

EVACUATION PLANS	
DESCRIPTION	DEVELOP EVACUATION PLANS FOR SCHOOL, COMMUNITY BUILDINGS, AND FOR TOWN
ESTIMATED COST	MINIMAL TO MODERATE

TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ADLM-EMERGENCY MANAGEMENT, ALBIA, LOVILIA, & MELROSE FIRE DEPARTMENT, ALBIA COMMUNITY SCHOOLS,
MITIGATION CATEGORY	PREVENTION, EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.4, 3.5, 3.6- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES -FLASH FLOODING, INFRASTRUCTURE FAILURE, HAZARDOUS MATERIALS TRANSPORTATION INCIDENT, RIVER FLOODING, TRANSPORTATION INCIDENT, DAM FAILURE, SINK HOLES
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY
HAZARDOUS MATERIALS PROTECTION FOR STORM SHELTERS	
DESCRIPTION	DEVELOP HAMA POLICIES (SHUTTING OFF AIR CONDITIONING, CLOSING WINDOWS, ETC.), PREPARE KITS FOR SEALING OFF ROOMS INCLUDING DUCT TAPE AND PLASTIC SHEETING (SEE FEMA GUIDANCE; HTTP://WWW.FEMA.GOV/HAZARD/HAZMAT/HZ_DURING.SHTM)
ESTIMATED COST	MINIMAL OR VOLUNTARY
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	PROPERTY OWNERS – FIRST RESPONDERS
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS, EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.3, 3.4- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- HAZARDOUS MATERIALS, TRANSPORTATION INCIDENT, INFRASTRUCTURE FAILURE, HUMAN DISEASE INCIDENT
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

LOCAL HAZARDOUS MATERIALS CAPABILITIES

DESCRIPTION	ENCOURAGE ESTABLISHMENT OF LOCAL HAZARDOUS MATERIALS TEAM AND / OR SUPPORT TRAINING FOR LOCAL FIRST RESPONDERS
ESTIMATED COST	MODERATE TO HIGH
TIMELINE/SCHEDULE	MEDIUM TO LONG TERM (5+YRS)
RESPONSIBLE ENTITY	ADLM EMERGENCY MANAGEMENT, ALBIA, LOVILIA,& MELROSE FIRE DEPARTMENT (IN PARTNERSHIP WITH ADLM AND / OR COUNTY)
MITIGATION CATEGORY	EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.5- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- HAZARDOUS MATERIALS, TRANSPORTATION INCIDENT, INFRASTRUCTURE FAILURE, HUMAN DISEASE INCIDENT
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

COMMUNITY EMERGENCY RESPONSE TEAM

DESCRIPTION	ENCOURAGE AND SUPPORT DEVELOPMENT OF VOLUNTEER COMMUNITY EMERGENCY RESPONSE TEAM OF RESIDENTS WHO HAVE ACCESS TO EQUIPMENT AND TRAINING TO RESPOND IF EMERGENCY SERVICES ARE UNABLE TO MEET ALL OF THE IMMEDIATE NEEDS FOLLOWING DISASTERS AS WELL AS CHECKING IN ON ELDERLY OR DISABLED RESIDENTS TO ENSURE THEIR SAFETY
ESTIMATED COST	VOLUNTEER
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	ADLM- EMERGENCY MANAGEMENT, ALBIA, LOVILIA, & MELROSE FIRST RESPONDERS,
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS, EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.4, 3.5- SEE ALSO PAGE 31 OR APPENDIX 17
	YES-FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS INCIDENT, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT, GRASS / WILDFIRE, RIVER FLOODING, TORNADO, HAILSTORM, DAM FAILURE, SINK HOLE, EXTREME HEAT, HUMAN DISEASE INCIDENT, EARTHQUAKE, DROUGHT
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

7. Hazard Profile – Infrastructure Failure

This hazard encompasses the following consolidated hazards from the 2007 mitigation plan: communication failure, energy failure, structural failure, and structural fire. This includes an extended interruption, widespread breakdown, or collapse (part or all) of any public or private infrastructure that threatens life and property.

A. Description.

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

ENERGY FAILURE – 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 activate 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.

STRUCTURAL FAILURE – The collapse (part or all) of any public or private structure including roads, bridges, towers, and buildings is considered a structural failure. A road, bridge or building may collapse due to the failure of the structural components or because the structure was overloaded. Natural events such as heavy snow may cause the roof of a building to collapse (under the weight of the snow). Heavy rains and flooding can undercut and washout a road or bridge. The age of the structure is sometimes independent of the cause of the failure. Enforcement of building codes can better guarantee that structures are designed to hold-up under normal conditions. Routine inspections of older structures may alert inspectors to “weak” points. The level of damage and severity of the failure is dependent on factors such as the size of the building or bridge, the number of occupants of the building, the time of day, day of the week, amount of traffic on the road or bridge, and the type, and amount of the products stored in the structure.

Civil Structures may fail in a variety of modes. The unprecedented growth in technology has resulted in a host of problems related to complex structures, special materials, and severe operational and environmental loads, such as fire, excessive vibrations, explosion, high-energy piping failures, missiles, and earthquakes. With the possible exception of misuse, accidental or environmental loads, the causes of failure may be found in deficiencies of design, detailing, material, workmanship, or inspection. With the aging structures in the country along with problems with new materials discussed above, structural failure 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.

STRUCTURAL FIRE – 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 structure, but the occurrence of a fire in a commercial or industrial facility could affect more people and pose a greater threat to those near the fire or fighting the fire because of the volume or type of the material involved.

B. Past Occurrences.

No widespread communication failures have occurred in Iowa. Local incidents; due to weather conditions, equipment failure, excavation incidents, or traffic accidents have been reported, the outages were usually resolved in a timely manner. Widespread communication losses are unlikely due to backup systems and redundant system designs. Local communication failures are likely to affect small areas of a country. Communications failures have presumably occurred in Monroe County's past, however documentation is not readily available. One incident that is available is a communications tower collapse at the Rathbun Rural Water Association Treatment Plant in 2005 that affected the southern portion of Monroe County.

The energy crisis of the 1970's had significant impact on many consumers in Iowa. High inflation and unemployment were associated with the excessive dependence on foreign oil during the early and mid-1970's. 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. In the winter of 2007, Monroe County and all jurisdictions profiled experienced a widespread energy failure due to a severe winter storm. The area experienced this energy crisis for 2-3 days in the jurisdictions and 5-6 days in the un-incorporated regions. The hospital operated off of generators, one shelter site had a generator and residents took shelter with each other.

There have been several sporadic structural failures across the state. They have included homes, commercial structures, and communication towers. There is no central collection point for this information. Evidence of structural failure was seen in the devastating floods that occurred throughout this region in 1982. Monroe County had 19 bridges that were destroyed and replaced. They all were structural failures that occurred as a result of the floods. During the winter of 2007-2008, Monroe County experienced severe winter weather that caused widespread damage and closure of roads and bridges placing strains on county engineering budgets. In 2011, a building just off the northwest corner of the square had the roof collapse and cause extensive damage to the structure.

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 years 1974-2002 (this doesn't include the years 1978-79). From 2006 through April of 2010, there have been 167 recorded fire fatalities. Committee members discussed past fires that have occurred throughout the county but agreed that each were small in nature and none compromised the safety of the community or any critical facilities.

C. Vulnerable Locations/Buildings.

ENERGY FAILURE- An extended interruption of service 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 effects of an energy shortage would be felt throughout the state. Because the distribution systems are very well developed, local shortages can quickly be covered. Storm-related Energy Failures may impact a few homes or the entire community and surrounding areas. Response to such disruptions depends on the severity of the damage and the availability of staff to repair the system. During the holiday season, staff availability may be limited. Due to the rural population and the relative isolation of Albia, Melrose, and Lovilia in relation to more urbanized parts of Iowa, Monroe County residents may face longer periods without energy. Much like the storms in the winter of 2007, Monroe County and all jurisdictions profiled experienced a widespread energy failure due to a severe winter storm. The area experienced this energy crisis for 2-3 days in the jurisdictions and 5-6 days in the un-incorporated regions. The hospital operated off of generators, one shelter site had a generator and residents took shelter with each other.

COMMUNICATION FAILURE - Communication failure is the widespread breakdown or disruption of normal communication capabilities. This could include major telephone outages, loss of local government radio facilities, long-term interruption of electronic broadcast services, emergency 911, law enforcement, fire, emergency medical services, public works, and emergency warning systems are just a few of the vital services which rely on communication systems to effectively protect citizens. Business and industry rely heavily on various communication media as well. Mechanical failure, traffic accidents, power failure, line severance, and weather can affect communication systems and disrupt service. Potentially the entire county could be vulnerable to a communications failure, especially in the event that the local telephone system and radio system should fail. The cellular phones could be used as a back-up, however, that system could also fail do to the large number of calls going through or if the cell towers are damaged.

STRUCTURAL FAILURE - A summary of the maximum population and building exposure for structural failure are stated in the table below. Given the age of homes in the County, the presumed age of infrastructure based on when Monroe County flourished, and nationwide concerns over aging infrastructure, the risk of structural failures may be relatively high. Additionally, many of the buildings in Monroe County were constructed in the late 1800's and early 1900's prior to the advent of building codes in the United States. According to the Monroe county Engineer, "Monroe County has 140 bridges that we inspect (20 feet span or longer). Of those bridges, 54 are posted below a sufficiency rating of 50. That includes 4 that are closed to traffic. We have 28 that are considered "scour critical", which would require closure and re-inspection before they could be reopened after a "major event". Our bridge inspection consultant also rates our bridges for projected remaining life. They indicate we have 40 that have 5 or less years remaining life.

ALBIA – exposure by Structural Failure

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	1379	690	50%	\$96,081,043	\$48,040,522	50%	3706	1853	50%
Commercial	166	83	50%	\$16,085,504	8,042,752	50%			
Industrial	14	7	50%	\$5,634,100	\$2,817,050	50%	-	-	-
Agricultural		-	-				-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-	-	-	-	-	-	-

There are multiple private properties that have dilapidated buildings on them. One large dilapidated building includes the "old hotel" because of a detaching chimney from the three story building. The city of Albia is pursuing legal action on the private owner to condemn and remove.

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Trailer court	South Hwy 5		X						

Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the school’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the hospital’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value	Occupancy or capacity
Monroe Co Hospital	6580 165 th St	X	X	X	X					

LOVILIA – exposure due to Structural Failure

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	217	109	50%	\$9,760,486	\$4,880,243	50%	538	269	50%
Commercial	27	14	50%	\$759,126	\$379,563	50%			
Industrial	0		0%	0		0%	-	-	-
Agricultural	8		-	\$1,049,9360		-	-	-	-
Religious / Non-profit	1	1	100%						
Government	3								
Education									
Utilities	-								

Lovilia’s critical asset that can be affected by structural failure:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	\$ 125,537	\$ 257,760
Community Bldg	608 W 17 th St				X				

MELROSE- exposure due to Structural Failure

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	58	29	50%	\$2,007,801	\$1,003,901	50%	112	56	50%
Commercial	8	4	50%	\$120,915	\$60,458	50%			
Industrial	1	0	0%	\$141,977	0	0%	-	-	-
Agricultural	-	-	-		-	-	-	-	-
Religious / Non-profit	2	0	0						
Government	2	0	0						
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by Structural Failure:

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Melrose Market	115 Erin St								

UNINCORPORATED COUNTY AREA – exposure due to Structural Failure

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in region	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in region	# in Hazard Area	% in Hazard Area
Residential	1,379	621	45%	\$125,076,897	\$56,284,604	45 %	3554	1599	45%
Commercial	63	28	45%	\$5,287,024	\$2,379,161	45%			
Industrial	15	7	45%	\$174,113,751	\$78,351,188	45%	-	-	-
Agricultural	905	407	45%	\$57,938,330	\$26,072,249	45%	-	-	-

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg
Halley’s Trailer Park (35 homes)	East Hwy 34		X				
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X			
Lazy-Daz Ranch (91 structures)	Melrose		X		X		
Green Acres Mobile homes (108 structures)	Melrose		X		X		
Monroe County Fairgrounds (land& structures)	North Hwy 5			X			
Lazy Daz Ranch Estates(21 structures)	Melrose		X		X		
Wacker Chemical Corp	NE corner of county			X	X		
Ajinomoto Heartland, LLC	1116 Hwy 137, Eddyville			X	X		
Ajinomoto USA Inc/ Ajinomoto Food	1 Ajinomoto Dr, Eddyville			X	X		

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet
Agriland FS Inc	6281 160 th St. Albia				X		
Crop Production Services	2774 Hwy 5, Moravia				X		
Cargill Sweeteners	1 Cargill Dr, Eddyville				X		
Cargill –Vitamin E	1194 720 th Ave, Eddyville				X		
ITC Midwest	1 Cargill Drive, Eddyville				X		

STRUCTURAL FIRE - Structural Fire is a great concern in this area and is summarized in the table below. Monroe County unincorporated area is relatively old indicating two things, 1) the wood and building materials used in its structures may be more flammable due to age and 2) structures may not meet more recent building and fire codes. Similarly, the absence of a zoning ordinance means that hazardous and flammable materials may be stored and used anywhere in town elevating the potential threat of fire spreading to homes that may not be otherwise subject to substantial fires. Fire Insurance Ratings were given previously in this document. The ratings indicate reason for concern with Monroe County scoring the lowest possible at “10”. This score indicates that the community’s fire suppression program does not meet minimum requirements for the ISO. ISO is an organization that provides data, analysis, and decision-making support for various professions about risk.

All of the Cities in Monroe County are relatively old indicating two things, 1) the wood and building materials used in its structures may be more flammable due to age and 2) structures may not meet more recent building and fire codes. Similarly, the absence of a zoning ordinance means that hazardous and flammable materials may be stored and used anywhere in town elevating the potential threat of fire spreading to homes that may not be otherwise subject to substantial fires.

ALBIA – exposure due to Structural Fire

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	1379	690	50%	\$96,081,043	\$48,040,522	50%	3706	1853	50%
Commercial	166	83	50%	\$16,085,504	8,042,752	50%			
Industrial	14	7	50%	\$5,634,100	\$2,817,050	50%	-	-	-
Agricultural		-	-				-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-		-	-	-	-	-

Critical Facilities: Estimates of square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		
Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrellgas	121 10 th St			X				\$15,933	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Trailer court	South Hwy 5		X						
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					
Monroe County Professional Mang	15 A Ave								
House of Kids Daycare	304 S Main St		X						
King's Kids Preschool	1115 A Ave		X						
Albia Daycare Preschool	100 N 2 nd St		X						
Private In-Home Daycare	1933 Hwy 137		X						
Private In-Home Daycare	6427 160 th St		X						
Private In-Home Daycare	703 A Ave W		X						
Private In-Home Daycare	120 Linden Lane		X						
Private In-Home Daycare	306 S Clinton Ave		X						
Private In-Home Daycare	11 Hickory Cr		X						
Private In-Home Daycare	216 S Clinton Ave		X						
Private In-Home Daycare	517 S 9 th St		X						
Private In-Home Daycare	1671 631 st Lane		X						

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Private In-Home Daycare	806 F Ave E		X						
Private In-Home Daycare	403 Washington Ave E		X						
USDA Office	1709 S B St			X	X				

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the school’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the hospital’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value	Occupancy or capacity
Monroe Co Hospital	6580 165 th St	X	X	X	X					

LOVILIA – exposure due to Structural Fire

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	217	109	50%	\$9,760,486	\$4,880,243	50%	538	269	50%
Commercial	27	14	50%	\$759,126	\$379,563	50%			
Industrial	0		0%	0		0%	-	-	-
Agricultural	8		-	\$1,049,9360		-	-	-	-
Religious / Non-profit	1	1	100%						
Government	3								
Education									
Utilities	-		-	-		-	-	-	-

Lovilia’s critical asset that can be affected by structural fire:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Maintenance/ Storage	1611 E Ave So				X		1239 sq ft	54,838	\$ 22,000
Casey’s	1807 Highway 5						1962sq ft	\$102,125	

MELROSE – exposure due to Structural Fire

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	58	29	50%	\$2,007,801	\$1,003,901	50%	112	56	50%
Commercial	8	4	50%	\$120,915	\$60,458	50%			
Industrial	1	0	0%	\$141,977	0	0%	-	-	-
Agricultural	-	-	-		-	-	-	-	-
Religious / Non-profit	2	2	100%						
Government	2	2	100%						
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by Structural Fire:

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
Quality Ag	502 Erin Ave			X				\$141,977	

UNINCORPORATED COUNTY AREA – exposure due to Structural Fire

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in region	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in region	# in Hazard Area	% in Hazard Area
Residential	1,379	621	45%	\$125,076,897	\$56,284,604	45%	3554	1599	45%
Commercial	63	28	45%	\$5,287,024	\$2,379,161	45%			
Industrial	15	7	45%	\$174,113,751	\$78,351,188	45%	-	-	-
Agricultural	905	407	45%	\$57,938,330	\$26,072,249	45%	-	-	-
Religious / Non-profit	4		100%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
Electrical Substations (4)	Scattered locations	X						\$1M/ea
IDOT roads maintenance shop	South Hwy 5			X				
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X				\$80,026,460
Wacker Chemical Corp	NE corner of county			X	X			\$5,114,095
Ajinomoto Heartland, LLC	NE corner of county			X	X			\$29,733,719
Ajinomoto USA Inc/ Ajinomoto Food	NE corner of the county			X	X			\$22,895,026

D. Loss Estimate.

County-wide damage was established from the NCDL data base from the past 65 years and are shown in Appendix 12. The most recent five years events are listed in “Past Occurrence”. Loss factors were developed specific to the attributes of

Infrastructure Failure throughout the region. These factors were able to provide an annual damage estimate by dividing the total loss by number of years of data. Per event damage is calculated by dividing total loss by number of events.

Based on countywide fire statistics, the loss from a structure fire can vary from \$0 to a complete loss or hundreds of thousands of dollars.

E. Hazard Scoring & Ranking.

<i>Hazard Score Calculation</i>				
Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
3	3	4	4	14

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	<p>No widespread communication failures have occurred in Iowa. Local incidents; due to weather conditions, equipment failure, excavation incidents, or traffic accidents have been reported, the outages were usually resolved in a timely manner. Widespread communications losses are unlikely due to backup systems and redundant systems designs. Local communication failures are likely to affect small areas of the county. The SHMT evaluated the probability that a serious communication failure in Iowa at less than 10% probability in any given year and the local committee agreed.</p> <p>The energy crisis of the 1970's had significant impact on many consumers in Iowa. High inflation and unemployment were associated with the excessive dependence on foreign oil during the early and mid-1970's. An energy shortage of that magnitude has not affected Iowa in recent years. The local HMP committee evaluated the probability of an energy failure will occur in Monroe County is less than 10% in any given year.</p> <p>Structural fires are almost a daily occurrence in some communities. Nearly all are quickly extinguished by on-site personnel or local fire departments.</p> <p>Much of the fire prevention efforts have gone into nonresidential fires and the results have been highly effective. Even with an increase in the prevention efforts in residential fires, both residential and nonresidential fires will continue to occur. During cold months, clogged chimneys and faulty furnaces and fire places can increase the probability of structural fires. Structural fires with the potential to exceed city and county response resources are unlikely in any given year. The local HMP committee analysis has evaluated the probability that a major structural fire will occur in Monroe has an likely probability in any given year. The collapse (part or all) of any public or private structure including roads, bridges, towers, and buildings is considered a structural failure. A road, bridge or building may collapse due to the failure of the structural components or because the structure was overloaded. Natural events such as heavy snow may cause the roof of a building to collapse (under the weight of the snow). Heavy rains and flooding can undercut and washout a road or bridge. The age of the structure is sometimes independent of the cause of the failure. Enforcement of building codes can better guarantee that structures are designed to hold-up under normal conditions. Routine inspections of older structures may alert inspectors to "weak" points. The level of damage and severity of the failure is dependent on factors such as the size of the building or bridge, the number of occupants of the building, the time of day, day of the week, amount of traffic on the road or bridge, and the type, and amount of the products stored in the structure. The local HMP committee has evaluated the probability that structural failures will occur in Monroe County is less than 10% in any given year.</p>	3
<i>MAGNITUDE / SEVERITY</i>	<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 communication failure, only portions of Iowa would be impacted, but this is highly unlikely due to the support to other jurisdictions and secondary communication 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</p>	3

	<p>occur as market mechanisms are used to manage supply disruptions. This will disproportionately affect the low-income population because of their lower purchasing power. In Iowa, petroleum represents 97% of transportation fuel.</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 structures 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 the 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 a significant risk. Problems vary from region to region often because of climate, property, education and demographics. The fire death risk for the elderly and children under 5 years of age is more than two times that of the average population.</p> <p>With modern training, equipment, fire detection services 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>	
<i>WARNING TIME</i>	<p>A communication failure would likely occur with little or no warning. It is usually impossible to predict a communication failure. Some communication failures may be shut down for a short while for improvements or maintenance. These disruptions are usually made during periods of low demand and those who rely on them are given previous notice that the system will be without service.</p> <p>The Iowa Department of Natural Resources Energy Bureau monitors domestic and international energy situations and has developed a plan to deal with an energy crisis. Signs that an energy shortage may be developing can be recognized even months in advance, but energy shortages/ emergencies can rise suddenly and unexpectedly. Supply distribution problems in other counties and local weather situations can lead to low supply coupled with high demand in a matter of a day or two.</p> <p>The actual failure of the structure would likely occur suddenly with little or no warning. There several events that could lead up to the failure, and these have various warning times and are discussed in separate hazard worksheets. Casual hazards can include fire, explosion, overloading the ice and snow, vibration, earthquakes, flooding, high wind, erosion, chemical corrosion, subsidence, and lack of general upkeep.</p> <p>While fires usually start with little or no warning time, alert devices can allow time for responders to contain the fire and allow occupants to evacuate the area.</p>	4
<i>DURATION</i>	<p>With the exception of structural fires which are largely handled by local response personnel, the response to the hazards of communication failure, energy failure, and structural failure are widespread in nature and are likely to require outside resources to assist the region in emergency response.</p>	4
	WEIGHTED SCORE	14

F. Mitigation.

GENERATORS	
PROGRAM/PROJECT DESCRIPTION	ACQUISITION OF MOBILE AND / OR FIXED GENERATORS FOR USE AT COMMUNITY BUILDINGS USED FOR TEMPORARY STORM SHELTERS AND / OR FOR PUBLIC FACILITIES
ANTICIPATED COST	MODERATE
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE AGENCY	ALBIA CITY COUNCIL, CRITICAL FACILITY PROPERTY OWNERS, ALBIA FIRE DEPARTMENT
MITIGATION CATEGORY	EMERGENCY SERVICES, PREVENTION, PROPERTY PROTECTION
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.2, 2.3, 2.5, 3.1, 3.3, 3.4- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARD?	YES - FLASH FLOODING, THUNDERSTORM/LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, ENERGY FAILURE, RAIL TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENTS/HIGH WIND EVENTS, RIVER FLOODING, TORNADO, HAILSTORM, EXTREME HEAT, HUMAN DISEASE INCIDENT, DROUGHT
JURISDICTION	ALBIA

NEW STORM SHELTER/ COOLING OR HEATING SHELTER	
PROGRAM/PROJECT DESCRIPTION	CONSTRUCTION OF COMPREHENSIVE STORM SHELTER TO TORNADO SAFE ROOM STANDARDS TO SERVE AS A TEMPORARY SHELTER FOR MULTIPLE HAZARDS AS OFTEN A CHURCH, COMMUNITY CENTER, LEGION HALL, CITY HALL, AND SCHOOL ARE CURRENTLY UTILIZED AS NEEDED
ANTICIPATED COST	MODERATE TO HIGH – GRANT DEPENDENT
TIMELINE/SCHEDULE	LONG TERM (5+YRS)
RESPONSIBLE AGENCY	ALBIA CITY COUNCIL, COUNTY BOS
MITIGATION CATEGORY	STRUCTURAL PROJECT
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.2, 3.1, 3.3- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARD?	YES - FLASH FLOODING, THUNDERSTORM / LIGHTNING, STRUCTURAL FAILURE, SEVERE WINTER STORM, TRANSPORTATION OF HAZARDOUS MATERIALS, ENERGY FAILURE, WINDSTORM/HIGH WIND EVENT / HIGH WIND EVENT, TORNADO, HAILSTORM, SINK HOLE, EARTHQUAKE
JURISDICTIONS	ALBIA, UNINCORPORATED COUNTY

PUBLIC EDUCATION AND OUTREACH	
DESCRIPTION	DEVELOP HAZARD EDUCATION AND OUTREACH PROGRAM TO HELP MONROE COUNTY RESIDENTS UNDERSTAND MEANING OF HAZARD WARNINGS AND SELF-PROTECTION MEASURES
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ADLM (EMERGENCY MANAGEMENT), ALBIA, LOVILIA, & MELROSE FIRST RESPONDERS
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES -FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, STRUCTURAL FAILURE, SEVERE WINTER STORM, TRANSPORTATION OF HAZARDOUS MATERIALS INCIDENT, ENERGY FAILURE, RAIL TRANSPORTATION INCIDENT, HIGHWAY TRANSPORTATION INCIDENT, STRUCTURAL FIRE, WINDSTORM/HIGH WIND EVENT / HIGH WIND EVENT, GRASS / WILDFIRE, FIXED HAZARDOUS MATERIALS INCIDENT, RIVER FLOODING, TORNADO, HAILSTORM, AIR TRANSPORTATION INCIDENT, DAM FAILURE, SINK HOLE, EXTREME HEAT, HUMAN DISEASE INCIDENT, EARTHQUAKE, DROUGHT
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

SECURE FUNDING FOR VACANT STRUCTURES/COLLAPSED BUILDINGS	
DESCRIPTION	LEVERAGE FUNDS FOR PROPERTY OWNERS OR CITIES THAT ARE UNABLE TO AFFORD TO REMOVE/REPAIR/DEMOLISH DILAPIDATED STRUCTURES.
ESTIMATED COST	MODERATE-HIGH
TIMELINE/SCHEDULE	ONGOING
RESPONSIBLE ENTITY	ALBIA, LOVILIA, MELROSE CITY COUNCILS, PROPERTY OWNERS
MITIGATION CATEGORY	PROPERTY PROTECTION, PREVENTION, PUBLIC EDUCATION AND AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.1, 2.4, 2.5- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES-THUNDERSTORM / LIGHTNING,, STRUCTURAL FAILURE, STRUCTURAL FIRE, WINDSTORM/HIGH WIND EVENT / HIGH WIND EVENTS, FIXED HAZARDOUS MATERIALS (ESPECIALLY LEAD PAINT), TORNADO, HAILSTORM, HUMAN DISEASE INCIDENT (ESPECIALLY MOLD RELATED), EARTHQUAKE
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

REHABILITATION OF OLDER BUILDINGS	
DESCRIPTION	ENCOURAGE PROPERTY MAINTENANCE AND HELP LEVERAGE FUNDS FOR PROPERTY OWNERS UNABLE TO AFFORD MORE SIGNIFICANT STRUCTURAL MAINTENANCE
ESTIMATED COST	MINIMAL TO MODERATE
TIMELINE/SCHEDULE	ONGOING
RESPONSIBLE ENTITY	ALBIA, LOVILIA, MELROSE CITY COUNCILS, PROPERTY OWNERS, COUNTY BOS,
MITIGATION CATEGORY	PROPERTY PROTECTION, PREVENTION, PUBLIC EDUCATION AND AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.1, 2.2, 2.3, 2.4, 3.3- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES - THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, STRUCTURAL FAILURE, SEVERE WINTER STORM, ENERGY FAILURE, STRUCTURAL FIRE, WINDSTORM/HIGH WIND EVENT / HIGH WIND EVENTS, FIXED HAZARDOUS MATERIALS (ESPECIALLY LEAD PAINT), TORNADO, HAILSTORM, SINK HOLES, HUMAN DISEASE INCIDENT (ESPECIALLY MOLD RELATED), EARTHQUAKE,
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

SMOKE / FIRE / CARBON MONOXIDE DETECTOR AND SPRINKLER SYSTEMS	
DESCRIPTION	ENCOURAGE USE AND MAINTENANCE OF SMOKE / FIRE / CARBON MONOXIDE DETECTORS AND FIRE SUPPRESSION (AKA SPRINKLER) SYSTEMS IN PRIVATE BUILDINGS; USE AND MAINTAIN SMOKE / FIRE / CARBON MONOXIDE DETECTORS IN CITY-OWNED BUILDINGS AND INSTALL SPRINKLER SYSTEMS AS FUNDS ARE AVAILABLE AND AS NEEDED
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	PROPERTY OWNERS, ALBIA MAINTENANCE DEPT
MITIGATION CATEGORY	PREVENTION, PROPERTY PROTECTION
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.5- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES –INFRASTRUCTURE FAILURE
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

FIREPLACE MAINTENANCE	
DESCRIPTION	ENCOURAGE PROPERTY OWNERS WITH FIREPLACES TO KEEP CHIMNEYS CLEAN AND IN GOOD STRUCTURAL REPAIR
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	PROPERTY OWNERS, ALBIA, LOVILIA, & MELROSE FIRE DEPARTMENT
MITIGATION CATEGORY	PROPERTY PROTECTION, PUBLIC EDUCATION AND AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 2.1, 2.2, 2.3, 2.4, 3.5- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- STRUCTURAL FAILURE, STRUCTURAL FIRE, WINDSTORM/HIGH WIND EVENT / HIGH WIND EVENTS, TORNADO, EARTHQUAKE
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

BUILDING CODE ENFORCEMENT	
DESCRIPTION	ENCOURAGE ALL LOCAL GOVERNMENTS TO ADOPT AND ENFORCE UPDATED BUILDING CODES TO REDUCE THE RISK OF COLLAPSE, FAILURE OR INJURY IN THE EVENT OF A DISASTER.
ESTIMATED COST	MODERATE
TIMELINE/SCHEDULE	ONGOING
RESPONSIBLE ENTITY	ALBIA CITY COUNCIL,
MITIGATION CATEGORY	PREVENTION
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.1, 2.4, 2.6, 3.4- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- SEVERE WINTER STORM, STRUCTURAL FAILURE, STRUCTURAL FIRE, HUMAN DISEASE PANDEMIC, HUMAN DISEASE INCIDENT, EARTHQUAKE,
JURISDICTIONS	ALBIA

8. Hazard Profile – Human Disease

This hazard encompasses the following consolidated hazards from the 2007 mitigation plan: human disease incident, and pandemic human disease. This includes a medical, health, or sanitation threat to the general public (such as contamination, epidemics, plagues, insect infestations, and pandemics).

G. Description.

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 disease in the 21st century is based on the 19th century discovery of microorganisms as the cause of many serious diseases (i.e. cholera & TB). Disease control resulted from improvements in sanitation and hygiene, the discovery of antibiotics, and the implementation of universal childhood vaccination programs. Scientific and technological 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. As of January 1, 2010, sixty (60) infectious disease were designated as notifiable at the national level. A notifiable disease is one for which regular, frequent, and timely information regarding individual cases is considered necessary for the prevention and control of the disease.

Human disease is defined as a disease that has spread around the world to many people. The word, “pandemic”, means that disease has caused illness in a person on nearly every continent. Many diseases throughout 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.

H. Past Occurrences.

From 1990-2000, there were three (3) influenza pandemics, all about 30 years apart. This seems to follow the same trend with the next occurrences to affect Iowa beginning in 2009 with the H1N1 influenza virus causing 659 hospitalizations with lab confirmed H1N1 since 9/1/2009 and resulting in 41 fatalities. Typically people who become ill are the elderly, the very young people with chronic medical conditions and high risk behaviors. Approximately 22% of Iowa’s population is considered high risk.

The **Ebola virus disease (EVD), Ebola hemorrhagic fever (EHF)**, or simply **Ebola** is a disease caused by an ebolavirus. Symptoms start a few days, or weeks, after contracting the virus, with a sore throat, fever, headaches, and muscle pain. Typically, diarrhea, vomiting, and a rash follow, along with decreased function of the kidneys and liver. Around this time, people who are affected may begin to bleed both within the body and externally.

The virus may be acquired upon contact with bodily fluids or blood of an infected animal or other human. It has not been known to spread through the air. It is thought that fruit bats are a carrier, and may spread the virus without being affected. After human infection occurs, the disease could spread between people, as well.

Male survivors may be able to transmit the disease through semen for close to two months after being treated. In order to make a property diagnosis, typically other diseases with similar symptoms such as cholera, malaria, and other viral hemorrhagic fevers are initially excluded. To confirm a diagnosis, samples of blood are tested for viral RNA, viral antibodies, or the virus itself.

In 1976 the disease was first identified in Sudan and parts of Zaire. Outbreaks typically occur in tropical regions of sub-Saharan Africa. From 1976, the World Health Organization (WHO) has reported over 1,716 new cases. The largest outbreak to date is the ongoing 2014 West African Ebola Outbreak, which is affecting Sierra Leone, Guinea, Nigeria, and Liberia.

I. Vulnerable Locations/Buildings.

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 21st century is based on the 19th 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. 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. Considering that the manner that the diseases can spread so quickly, all residents can be considered at risk, however, the most vulnerable population considered are the elderly, youth and disabled residents.

The individuals that travel internationally and have high exposure to potential vectors of disease are the most susceptible. Greater than 20% of Iowa’s population is considered high risk. The elderly population of Albia makes up nearly 19% according to the 2010 Census with a youth population (under age 19) of nearly 27%. About 46% of Albia may be considered at high risk based on age alone. The elderly population of Lovilia make up nearly 14% according to the 2010 Census with a youth population (under age 18) of nearly 32%. About 46% of Lovilia’s population may be considered at high risk based on age alone. One private, in-home daycare in the community could also be at an increased risk for human disease.

Particular locations that are susceptible to such diseases would include assisted care facilities and school districts. There are 4 retirement homes or assisted care facilities in Albia. The children (age 18 and under) attending Albia Community Schools are located throughout the communities include Albia at 971. Additional risk includes the eleven daycare facilities located throughout the community.

Maximum Population and Building Exposure Human Disease 2010 US Census				
Jurisdiction	Population 65yrs & older	Population 19 years& younger	Population living below poverty guidelines	Residents living with a diagnosed disability
Albia	745	1031	347	253
Albia Community School	4	1271	384	154
Lovilia	77	174	53	66
Melrose	29	19	26	2
Unincorp	181	731	889	1801

J. Loss Estimate.

According to Iowa Department of Public Health, a clinic visit to the doctor costs an estimated \$84-\$200 and a visit to the emergency room will be approximately \$50-\$1600. A disease or epidemic event may put a higher than normal strain on public health services. It would also likely have an economic impact as well.

K. Hazard Scoring & Ranking.

<i>Hazard Score Calculation</i>				
Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
3	4	4	4	153

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	Public health agencies work to protect Iowans from infectious disease 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. Both the SHMT and local HMP committee evaluated the probability of a human disease incident less than 10% in any given year.	3
<i>MAGNITUDE / SEVERITY</i>	Public health agencies work to protect Iowa from infectious disease and preserve the health and safety of Iowans through disease surveillance, investigation, of suspect outbreaks, education, and consultation to the county, local and health agencies. Public health agencies also work to reduce the impact of communicable diseases in Iowa and to eliminate the morbidity associated with these diseases. Programs guide community-based prevention planning, monitor current infectious disease trends, prevent transmission of infectious diseases, 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, Iowans remain vulnerable to other diseases known and unknown. Because of our highly mobile society, these diseases can move rapidly across the state and across the nation within days, weeks, or months. Many of the diseases on the national notification list result in serious illness if not death. Some are treatable, others only the symptoms are treatable. Influenza (flu) happens every year in nearly every country of the world. It spreads through a population for a few months and then will disappear or will move onto another country. Influenza usually occurs in the fall and winter months. Typically people who usually become ill are the elderly, the very young and/or the people with chronic medical conditions and high risk behaviors. The individuals that travel internationally and have high exposure to potential vectors of the disease are the most susceptible. Greater than 20% of Iowa's population is considered high risk.	4
<i>WARNING TIME</i>	The private practitioner is the first line of defense and will undoubtedly be the first to witness the symptoms of human disease incidents. The Iowa Department of Public Health and the U.S. Centers for Disease Control monitor reports submitted by doctors, hospitals, and labs to identify patterns. The Department of 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 personnel, medications, and vaccinations rather quickly.	4
<i>DURATION</i>	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 N1H1 influenza in August of 2009.	4
	WEIGHTED SCORE	15

L. Mitigation.

PUBLIC EDUCATION AND OUTREACH	
DESCRIPTION	DEVELOP HAZARD EDUCATION AND OUTREACH PROGRAM TO HELP MONROE COUNTY RESIDENTS UNDERSTAND MEANING OF HAZARD WARNINGS AND SELF-PROTECTION MEASURES
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ADLM (EMERGENCY MANAGEMENT), ALBIA, LOVILIA, & MELROSE FIRST RESPONDERS,
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS

RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES -FLASH FLOODING, THUNDERSTORM / LIGHTNING, INFRASTRUCTURE FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS INCIDENT, TRANSPORTATION INCIDENT, WINDSTORM/HIGH WIND EVENT, GRASS / WILDFIRE, RIVER FLOODING, TORNADO, HAILSTORM, DAM FAILURE, SINK HOLE, EXTREME HEAT, HUMAN DISEASE INCIDENT, EARTHQUAKE, DROUGHT
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

MASS CASUALTY PREPARATION	
DESCRIPTION	DEVELOP PLAN FOR HOW TO HANDLE MASS CASUALTIES RESULTING FROM HAZARD EVENTS IN AND NEAR EACH JURISDICTION
ESTIMATED COST	MINIMAL TO MODERATE
TIMELINE/SCHEDULE	MEDIUM TERM (3-5YRS)
RESPONSIBLE ENTITY	ALBIA FIRST RESPONDERS, ADLM-EMERGENCY MANAGEMENT
MITIGATION CATEGORY	EMERGENCY SERVICES
RELATED GOALS/OBJECTIVES	1.1, 1.2, 2.2, 3.5- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- FLASH FLOODING, INFRASTRUCTURAL FAILURE, SEVERE WINTER STORM, HAZARDOUS MATERIALS INCIDENT, TRANSPORTATION INCIDENT, RIVER FLOODING, TORNADO, HUMAN DISEASE INCIDENT, DAM FAILURE, SINK HOLES, EARTHQUAKE
JURISDICTIONS	ALBIA

IMMUNIZATION	
DESCRIPTION	ENCOURAGE PERIODIC IMMUNIZATIONS, ESPECIALLY FOR CHILDREN AND ELDERLY RESIDENTS, REVIEW MASS IMMUNIZATION PLAN WITH SCHOOL FOR EMERGENCY IMMUNIZATIONS
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	COUNTY PUBLIC HEALTH DEPARTMENT
MITIGATION CATEGORY	PREVENTION, PUBLIC EDUCATION AND AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 2.2, 2.3, 2.6, 3.1, 3.5- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	NO
JURISDICTIONS	ALBIA

RADON/LEAD MITIGATION	
DESCRIPTION	ENCOURAGE PROPERTY OWNER RADON/LEAD TESTING AND MITIGATION, EXPLORE FEASIBILITY OF CITIES LEVERAGING FUNDS TO HELP PROPERTY OWNERS TEST AND / OR MITIGATION UNSAFE RADON/LEAD LEVELS
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	PROPERTY OWNERS, ADLM-ENVIRONMENTAL MANAGEMENT, COUNTY HEALTH DEPARTMENT
MITIGATION CATEGORY	PUBLIC EDUCATION AND AWARENESS, PREVENTION
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.6, 3.5- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	NO
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

PEST MANAGEMENT	
DESCRIPTION	REVIEW POLICIES FOR EFFECTIVENESS GOVERNING MOWING AND MAINTAINING PROPERTIES TO DISCOURAGE INFESTATIONS BY PESTS WITHIN EACH CITY LIMIT, CONSIDER OR UPDATE AS NEEDED OTHER POLICES TO CONTROL PESTS
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	ALBIA, LOVILIA, MELROSE CITY COUNCILS
MITIGATION CATEGORY	PREVENTION, NATURAL RESOURCE PROTECTION

RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.1, 2.4, 3.1, 3.5- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	NO
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

9. Hazard Profile – Tornado

A tornado is a violently rotating column of air extending from a thunderstorm to the ground. The most violent tornadoes are capable of tremendous destruction with wind speeds of 250 mph or more. Damage paths can be in excess of 1 mile wide and 50 miles long (FEMA 386-2 CD).

A. Description.

Tornadoes are among the most unpredictable of weather phenomena. While tornadoes can occur almost anywhere in the world, they are most prevalent in the United States. According to the National Weather Service, about 42 people are killed because of tornadoes each year. Tornadoes can occur in any state but are more frequent in the Midwest, Southeast, and Southwest. Tornado season runs ordinarily from March through August; however, tornadoes can strike at any time of the year if the essential conditions are present.

Thunderstorms and hurricanes spawn tornadoes when cold air overrides a layer of warm air, causing the warm air to rise rapidly. The winds produced from hurricanes, earthquake-induced fires, and wildfires have also been known to produce tornadoes. The frequency of tornadoes in the nation's midsection is the result of the recurrent collision of moist, warm air moving north from the Gulf of Mexico with colder fronts moving east from the Rocky Mountains.

Tornadoes were measured in intensity with the Fujita Scale which was then updated with the Enhanced Fujita Scale (EFS) in 2006. The EFS lowers the Fujita Scale threshold for each category ranging from 1 to 5 with 5 being the most intense with wind speeds in excess of 200 mph for at least 3 seconds (wind gusts). An additional scale is available called the Fujita-Pearson Scale which matches the Fujita Scale ratings and wind speeds with tornado path lengths and widths. All three scales follow this hazard profile:

Figure 4: Fujita Scale

ORIGINAL FUJITA SCALE		ENHANCED FUJITA SCALE	
F5	261-318 mph	EF5	+200 mph
F4	207-260 mph	EF4	166-200 mph
F3	158-206 mph	EF3	136-165 mph
F2	113-157 mph	EF2	111-135 mph
F1	73-112 mph	EF1	86-110 mph
F0	<73 mph	EF0	65-85 mph

Source: National Oceanic and Atmospheric Administration, <http://www.srh.noaa.gov/lch/jamb/jambalaya0407-5.php>

Table 3: Tornado Paths - LENGTH and Width

FUJITA-PEARSON TORNADO SCALE				
PEARSON RATING	LENGTH	WIDTH	FUJITA RATING	WIND SPEED
P0	0.3 - 0.9 MILES	6-17 YARDS	F0	40-72 MPH
P1	1.0-3.1 MILES	18-55 YARDS	F1	73-112 MPH
P2	3.2-9.9 MILES	56-175 YARDS	F2	113-157 MPH

P3	10.0-31.0 MILES	176-566 YARDS	F3	158-206 MPH
P4	32.0-99.0 MILES	0.3-0.9 MILES	F4	207-260 MPH
P5	100.0-315.0 MILES	1.0-3.1 MILES	F5	261-318 MPH

Source: <http://www.stormfax.com/fujita.htm>

B. Past Occurrences.

In the U.S., Iowa is ranked third in the number of tornadoes per 10,000 square miles. From 1950-2010, Iowa averaged 47 twisters per year. In Iowa most tornadoes occur in the spring and summer months, but twisters can and have occurred in every month of the year. Late afternoon to evening hour tornadoes are the most common, but they can occur at any time of the day. According to the National Climactic Data Center, Iowa has had 2,375 tornadoes events from 1980-2010. Historically, 40-50 tornadoes are confirmed in Iowa each year.

- e. Injury or death related to tornadoes most often occurs when buildings collapse; people are hit by flying objects or are caught trying to escape the tornado in a vehicle.
- f. Response personnel are exposed to the same risk as the general public when caught in the storm without shelter.
- g. Tornadoes can destroy government facilities just as they could other property. Disruption of critical services can also affect operations. Employees may be affected and unable to attend work-related issues.
- h. 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.
- i. 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.
- j. Tornadoes are naturally occurring phenomena. Damages to the environment could result from spills and other contaminants from the built environment.
- k. Whole towns have been known to be “wiped off the map” such as Greensburg, KS in recent years. Economic impacts can result from direct damages to facilities or business disruption from the lack of critical services such as power, gas, or water.
- l. Debris removal is a vital service that is often too vast for the jurisdiction to do without contractual assistance. These plans should be in place and monitored; a debris management plan is in progress including Monroe County.

Adequate warning is critical to the positive reputation of the jurisdiction. Responding in a timely manner and reconstructing the community is also important. Bringing critical services back on line quickly will ensure the residents can begin their personal recovery process sooner.

Monroe County has had 9 recorded tornadoes between 1964 and 2015. One of these tornadoes has exceeded F2 status. This event was an F4 tornado that occurred in 1985 which alone resulted in \$25 million dollars in Personal Property damage. Throughout the history of the 9 tornados a total of eight injuries, \$6.283 million in property damage, and \$5,000 in crop damage. There have been 3 tornado events in the past five years in Monroe County, June 20, 2015 –F1-Eddyville, June 22, 2015-F3-Albia, November 11, 2015-F1-Melrose.

C. Vulnerable locations/buildings.

Monroe County is located in the path known as “Tornado Alley” in the United States in which tornadoes are most frequent. Tornado damage can be minimal from minor roof damage, broken glass, and windows to the extreme of total destruction. People living in manufactured homes are particularly vulnerable to extreme wind events or tornadoes. Older homes in deteriorating condition are also vulnerable, however there is no information about the number of homes needing rehabilitated. It was acknowledged by the HMGP committee that there are many variables that dictate the vulnerability of structures or injured people. These factors include wind speed, time on the ground, length/width of the cell, population density, building density, age & construction of buildings and time of day. It was determined regardless of the strength; the most vulnerable population is the elderly, very young, people with disabilities, mobile homes, and structures that are prior to 1960’s. Tornadoes could potentially affect all structures, land and/or people. So the following charts display community wide data.

Jurisdiction	Population 65yrs & older		Population 19 years & younger		Population living below poverty guidelines		Residents living with a diagnosed disability	
Albia	745		1031		347		253	
Lovilia	77	14.3%	174	32%	53	13%	66	16.5%
Melrose	29	25.9%	19	17%	26	23%	2	1.7%
Unincorporated Co	731	20.5%	889	25%	130	3.6%	181	5%
								2010 US Census

Jurisdiction	Number of Mobile Homes		Number of homes built prior to 1960	
Albia	56		909	
Lovilia	23	9.1%	158	62.9%
Melrose	3	4.1%	50	86.2%
Unincorporated Co	422	11.8%	558	15.7%

Exposure in Albia due to Tornado:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	1379	1379	100%	\$96,081,043	\$96,081,043	100%	3766	3766	100%
Commercial	166	166	100%	\$16,085,504	\$16,085,504	100%			100%
Industrial	14	14	100%	\$5,634,100	\$5,634,100	100%	-	-	-
Agricultural			-			100%	-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-						

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Municipal waterworks	120 S A St	X						\$99,190	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrellgas	121 10 th St			X				\$15,933	
USDA Office	1709 S B St			X	X				
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					
Monroe County Professional Mang	15 A Ave								
House of Kids Daycare	304 S Main St		X						
King's Kids Preschool	1115 A Ave		X						
Albia Daycare Preschool	100 N 2 nd St		X						
Private In-Home Daycare	1933 Hwy 137		X						
Private In-Home Daycare	6427 160 th St		X						
Private In-Home Daycare	703 A Ave W		X						
Private In-Home Daycare	120 Linden Lane		X						
Private In-Home Daycare	306 S Clinton Ave		X						
Private In-Home Daycare	11 Hickory Cr		X						
Private In-Home Daycare	216 S Clinton Ave		X						
Private In-Home Daycare	517 S 9 th St		X						

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Private Daycare	In-Home 1671 631 st Lane		X						
Private Daycare	In-Home 806 F Ave E		X						
Private Daycare	In-Home 403 Washington Ave E		X						

ALBIA PUBLIC SCHOOL BUILDING

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the school’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the hospital’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value	Occupancy or capacity
Monroe Co Hospital	6580 165 th St	X	X	X	X					

Exposure in Lovilia due to Tornado:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	217	217	100%	\$9,760,486	\$9,760,486	100%	538	538	100%
Commercial	27	27	100%	\$759,126	\$759,126	100%			100%
Industrial	0	0	100%	0	0	100%	-	-	-
Agricultural	8	8	-	\$1,049,936.00-	\$1,049,936.00-	-	-	-	-
Religious / Non-profit	1	1	100%						
Government	3								
Education						100%			100%
Utilities	-	-	-	-	-	-	-	-	-

Lovilia’s critical asset that can be affected by a Tornado:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	\$ 125,537	\$257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	\$ 68,840	\$97,500
Community Bldg	608 W 17 th St				X				

Water plant	606 W 17 th St	X					1088 sq ft	\$ 43,700	\$ 49,070
Water tower	606 W 17 th St	X					--	\$285,600	--
City Maintenance/ Storage	1611 E Ave So				X		1239 sq ft	\$ 54,838	\$ 22,000
Lagoon	6057 115 th Trail	X					375 sq ft	\$ 132,490	--
Casey's	1807 Highway 5						1962sq ft	\$102,125	
Lovilia Head Start	302 S H Ave			X					

MELROSE – exposure due to Tornado

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	58	58	100%	\$2,007,801	\$2,007,801	100%	112	112	100%
Commercial	8	8	100%	\$120,915	\$120,915	100%			100%
Industrial	1	1	100%	\$141,977	\$141,977	-	-	-	-
Agricultural	-	-	-		-	-	-	-	-
Religious / Non-profit	2	2	100%						
Government	2	2	100%						
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by Tornado:

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Sewer Lift Station		X							
Quality Ag	502 Erin Ave			X				\$141,977	
Melrose Market	115 Erin St								

UNINCORPORATED COUNTY AREA – Exposure in unincorporated area due to Tornado:

Committee members discussed the most vulnerable locations as the campground at Lake Miami and the mobile homes located throughout the county. Discussion was held about the concerns of seasonal resident that live at Green Acres and Lazy Daz. The majority of the cabins and mobile homes don’t have a basement level for shelter. Also of critical concern is the aged (and possibly weak) housing structure in the area.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in Unincorp	# in Planning Area	% in Planning Area	\$ in Unincorp area	\$ in Planning Area	% in Planning Area	# in Unincorp	# in Planning Area	% in Planning Area
Residential	1,379	1397	100%	\$125,076,897	\$125,076,897	100%	3554	3554	100%
Commercial	63	63	100%	\$5,287,024	\$5,287,024	100%			
Industrial	15	15	100%	\$174,113,751	\$174,113,751	100%	-	-	-
Agricultural	905	905	100%	\$57,938,330.00	\$57,938,330.00	100%	-	-	-
Religious / Non-profit	4	4	100%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
Electrical Substations (4)	Scattered locations	X						\$1M/ea
Landfill				X				
Lake Miami Campground	N Hwy 5		X					
Rural Water towers (3)	Scattered location	X						\$1M/ea
IDOT roads maintenance shop	South Hwy 5			X				
Lake Miami dam	N Hwy 5				X			
Halley's Trailer Park (35 homes)	East Hwy 34		X					\$68,890 land \$90,041 bldgs
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X				\$80,026,460
Lazy-Daz Ranch (91 structures)	Melrose		X		X			\$2,058,658
Green Acres Mobile homes (108 structures)	Melrose		X		X			\$3,467,566
Monroe County Fairgrounds (land & structures)	North Hwy 5			X				\$310,613
Lazy Daz Ranch Estates (21 structures)	Melrose		X		X			\$758,831
Willow Park	Melrose		X		X			\$169,790
Wacker Chemical Corp	NE corner of county			X	X			\$5,114,095
Ajinomoto Heartland, LLC	NE corner of county			X	X			\$29,733,719
Ajinomoto USA Inc/ Ajinomoto Food	NE corner of the county			X	X			\$22,895,026

D. Loss Estimates.

County-wide damage was established from the NCDC data base from the past 65 years and are shown in Appendix 12. The most recent five years events are listed in "Past Occurrence". Loss factors were developed specific to the attributes of tornado throughout the region. These factors were able to provide an annual damage estimate by dividing the total loss by number of years of data. Per event damage calculated by dividing total loss by number of events. During the past 51 years, there have been 10 tornado events that caused \$459,900 in damage. This estimates \$9,018 annually in tornado damage to Monroe County. The 2013 Iowa State Mitigation Plan indicates that the estimated annual average loss is \$416,000.

E. Hazard Scoring & Ranking.

<i>Hazard Score Calculation</i>				
Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
3	2	1	2	8

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	In the US, Iowa is ranked third in the number of tornadoes per 10,000 square miles. From 1950-2010, Iowa averaged 47 twisters per year. In Iowa most tornadoes occur in the spring and summer months, but twisters can and have occurred in every month of the year. Late afternoon to evening hour tornadoes are most common, but they can occur at any time of day. According to the National	3

	<p>Climactic Data Center, Iowa has had 2,375 tornado events from 1980-2010. There were 11 Presidential Declarations of Major Disaster during 1950-2006.</p> <p>Historically 40-50 tornadoes are confirmed in Iowa per year. Developed areas occupy a growing portion of Iowa and stand a highly likely chance of having a tornado any given year.</p> <p>There have been 9 recorded tornadoes in Monroe County in the past 47 years. This equates to approximately one event per 5.2 years. Because tornadoes are sporadic there cannot be a reliable long-term prediction made as to when they may occur. Likewise, the chance of a tornado occurring at an exact location is very low making forecasting of tornado paths or touch-downs impossible</p>	
<i>MAGNITUDE / SEVERITY</i>	<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 the physically and mentally handicapped are most vulnerable because of the lack of mobility to escape the path of destruction. People who may not understand watches and warnings due to the 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.</p> <p>Impacts can range from broken tree branches, shingle damage to roofs, and some broken windows to complete destruction and disintegration of well-constructed structures, infrastructure and trees. 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> <p>Everyone is vulnerable to the powerful forces that accompany a tornado. There are those who are more vulnerable than others. For example:</p> <ul style="list-style-type: none"> • People in automobiles, • People in mobile homes, • People who may not understand warnings due to language barriers, • The elderly and very young, • People with physical or mental impairments. <p>Whole towns have been known to be destroyed. 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-Pearson scale. This scale rates tornadoes from 0-5 based on wind speed and the extent of damage at the site of impact.</p>	2
<i>WARNING TIME</i>	<p>Tornadoes strike with an incredible velocity. Wind speeds may exceed 300 miles per hour and the storm can travel across the ground at more than 70 mph. These winds can uproot trees and structures and turn harmless objects into deadly missiles all in a matter of seconds. The advancement in weather forecasting has allowed watches to be delivered to those in the path of these storms up to hours in advance. The best lead-time for a specific severe storm and tornado is about 30 minutes. Tornadoes have been known to change paths very rapidly, thus limiting the time in which to take shelter. Tornadoes may not be visible on the ground due to blowing dust and driving rain.</p>	1
<i>DURATION</i>	<p>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.</p>	2
	WEIGHTED SCORE	8

F. Mitigation

Generators	
Program/Project Description	Acquisition of mobile and / or fixed generators for use at community buildings used for temporary storm shelters and / or for public facilities
Anticipated Cost	Moderate
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Agency	Albia City Council, critical facility property owners, Albia Fire Department
Mitigation Category	Emergency services, Prevention, Property Protection
Related Goals/Objectives	1.1, 1.2, 1.3, 2.2, 2.3, 2.5, 3.1, 3.3, 3.4- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes - Flash Flood, Thunderstorm/Lightning, Infrastructure Failure, Severe winter storm, Transportation incident, Windstorm/High Wind Events, River flooding, Tornado, Hailstorm, Extreme heat, Human disease incident, drought
Jurisdictions	Albia

New Storm Shelter/ cooling or heating shelter	
Program/Project Description	Construction of comprehensive storm shelter to Tornado Safe Room standards to serve as a temporary shelter for multiple hazards
Anticipated Cost	Moderate to high – grant dependent
Timeline/Schedule	Long Term (5+yrs)
Responsible Agency	Albia City Council, County BOS
Mitigation Category	Structural project
Related Goals/Objectives	1.1, 1.3, 2.2, 3.1, 3.3- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes - Flash Flooding, thunderstorm / lightning, infrastructure failure, severe winter storm, hazardous materials, Windstorm/High Wind Event, tornado, hailstorm, sink hole, earthquake
Jurisdictions	Albia, Unincorporated County

Continuity of Operations Planning	
Program/Project Description	City and City Departments work to develop procedures of what do when hazards occur including who has keys to shelters, contact list for city and emergency response personnel, priorities for what facilities to restore following disasters, how to direct Monroe County residents to minimize injuries, as well as (off-site) backups of important City documents and files
Anticipated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Agency	ADLM (emergency management) Albia, Lovilia, & Melrose First responders,
Mitigation Category	Property protection
Related Goals/Objectives	1.1, 1.2, 2.2, 2.3, 2.4, 3.2, 3.4, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes - Flash Flooding, thunderstorm / lightning, Infrastructure Failure, severe winter storm, hazardous materials incident, transportation incident, Windstorm/High Wind Event, river flooding, tornado, hailstorm, , dam failure, sink hole, human disease incident, earthquake,
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Public Education and Outreach	
Description	Develop hazard education and outreach program to help Monroe county residents understand meaning of hazard warnings and self-protection measures

Estimated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	ADLM (emergency management), Albia, Lovilia, & Melrose First Responders,
Mitigation Category	Public Education and Awareness
Related Goals/Objectives	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes -Flash Flooding, thunderstorm / lightning, Infrastructure Failure, severe winter storm, hazardous materials incident, transportation incident, Windstorm/High Wind Event, grass / wildfire, river flooding, tornado, hailstorm, dam failure, sink hole, extreme heat, human disease incident, earthquake, drought
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Community Emergency Response Team	
Description	Encourage and support development of volunteer community emergency response team of residents who have access to equipment and training to respond if emergency services are unable to meet all of the immediate needs following disasters as well as checking in on elderly or disabled residents to ensure their safety
Estimated Cost	Volunteer
Timeline/Schedule	Short Term (1-2yrs)
Responsible Entity	ADLM- emergency management, Albia, Lovilia, & Melrose First Responders
Mitigation Category	Public Education and Awareness, Emergency Services
Related Goals/Objectives	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.4, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes - Flash Flooding, thunderstorm / lightning, Infrastructure Failure, severe winter storm, hazardous materials incident, transportation incident, Windstorm/High Wind Event, grass / wildfire, river flooding, tornado, hailstorm, dam failure, sink hole, extreme heat, human disease incident, earthquake, drought
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Storm Warning System	
Description	Acquisition and installation of community early warning system to compliment system at fire station
Estimated Cost	Moderate to high
Timeline/Schedule	Long Term (5+yrs)
Responsible Entity	Albia City Council,
Mitigation Category	Structural Project
Related Goals/Objectives	1.1, 1.3, 2.2, 2.3, 3.2- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, thunderstorm / lightning, severe winter storm, Windstorm/High Wind Event, river flooding, tornado, hailstorm, may address other hazards as well
Jurisdictions	Albia

Weather Radios	
Description	Encouragement of residents and businesses to obtain NOAA weather radios
Estimated Cost	Voluntary program; approximately \$30 per radio
Timeline/Schedule	Short Term (1-2yrs)
Responsible Entity	residents
Mitigation Category	Prevention and Public Awareness
Related Goals/Objectives	1.1, 1.3, 2.2, 3.1, 3.2, 3.3, 3.4- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, thunderstorm / lightning, severe winter storm, Windstorm/High Wind Event, river flooding, tornado, hailstorm, extreme heat, may address other hazards as well
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Temporary Debris Disposal Plan	
Description	Develop policy for temporary debris disposal for city and private property owners for post-disaster clean-up
Estimated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	City of Albia, Lovilia, Melrose City Councils, County BOS
Mitigation Category	Emergency Services
Related Goals/Objectives	1.1, 2.2, 2.3, 2.4, 3.1, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes-Flash Flooding, Thunderstorm / Lightning, Infrastructure Failure, Severe Winter Storm, Hazardous Materials, Transportation Incident, Windstorm/High Wind Event / High Windstorms, River Flooding, Tornado, Dam Failure, Sink Holes, Earthquake, Landslide
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Search and Rescue Training for First Responders	
Description	Training Firefighters and other local emergency responders best practices in search and rescue operations
Estimated Cost	Minimal to moderate
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	Albia, Lovilia & Melrose Fire Department& First responders,
Mitigation Category	Emergency Services
Related Goals/Objectives	1.1, 1.2, 1.3, 2.2, 2.3, 3.1, 3.4, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, Infrastructure Failure, Severe Winter Storm, Hazardous Materials Incident, Transportation Incident, River Flooding, Tornado, Windstorm/High Wind Event, Dam Failure, Sink Holes, Earthquake, Landslide
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Mass Casualty Preparation	
Description	Develop plan for how to handle mass casualties resulting from hazard events in and near each jurisdiction
Estimated Cost	Minimal to moderate
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	Albia First Responders, ADLM-Emergency Management
Mitigation Category	Emergency Services
Related Goals/Objectives	1.1, 1.2, 2.2, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, Infrastructure Failure, Severe Winter Storm, Hazardous Materials Incident, Transportation Incident, River Flooding, Tornado, Human Disease Incident, Dam Failure, Sink Holes, Earthquake
Jurisdictions	Albia

Waste Disposal Enforcement	
Description	Develop or update waste disposal policies and enforce, review for effectiveness
Estimated Cost	Minimal
Timeline/Schedule	Short to Medium Term (3-5yrs)
Responsible Entity	Albia City Council,
Mitigation Category	Prevention
Related Goals/Objectives	1.1, 1.3, 2.1, 2.2, 2.3, 2.4, 3.1, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Windstorm/High Wind Event, Hazardous Materials Incident, Tornado, Human Disease Incident
Jurisdictions	Albia

Collection & Protection of Vital Records	
Description	Encourage property owners to inventory and protect critical information for improved disaster recovery and minimize disruptions to lives

	following disaster events; critical information includes titles to property, bank information, insurance documents, wills, copies of prescription medications, family contact information, social security cards, passports, marriage licenses, birth certificates, and other forms of information that may be difficult to replace or needed to document eligibility for disaster aid
Estimated Cost	Voluntary
Timeline/Schedule	Short Term (1-2yrs)
Responsible Entity	Residents
Mitigation Category	Public Education and Awareness
Related Goals/Objectives	1.1, 3.1, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, Thunderstorm / Lightning, Infrastructure Failure, Severe Winter Storm, Hazardous Materials Incident, Transportation Incident, Windstorm/High Wind Event, River Flooding, Tornado, Hailstorm, , Dam Failure, Sink Hole, Extreme Heat, Human Disease Incident, Earthquake, Landslide
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Manufactured Home Tie-Downs	
Description	Encourage incorporated and rural manufactured homes to be secured by tie-downs to the ground. This anchoring can prevent damage and injuries.
Estimated Cost	Minimal
Timeline/Schedule	Short Term (1-2yrs)
Responsible Entity	Albia City council, property owners, County BOS
Mitigation Category	Prevention, Public Education and Awareness
Related Goals/Objectives	11, 1.3, 2.1, 2.4, 3.1- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Infrastructure failure, river flooding, tornado, Windstorm/High Wind Events
Jurisdictions	Albia, Unincorporated County

Safe Rooms	
DESCRIPTION	Risk to lives can be improved through construction and use of concrete safe rooms in homes and shelter areas of mobile home parks, fairgrounds, shopping malls, & other vulnerable public areas.
ESTIMATED COST	Moderate to high – grant dependent
TIMELINE/SCHEDULE	Long Term (5+yrs)
RESPONSIBLE ENTITY	Albia Community School Board, Monroe BOS
MITIGATION CATEGORY	Structural project
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.2, 3.1, 3.3- See also page 31 or Appendix 17
ADDRESSES HIGH RISK HAZARD?	Yes -Flash Flooding, thunderstorm / lightning, Infrastructure failure, severe winter storm, hazardous materials, Windstorm/High Wind Event, tornado, hailstorm, sink hole, earthquake
JURISDICTIONS	Albia Community School, Unincorporated County

10. Hazard Profile – Windstorm

Extreme winds associated with severe winter storms, severe thunderstorms, downbursts, and very steep pressure gradients. It may or not may be accompanied by rain or snow. It is difficult to separate windstorms and tornado damage when winds get above 64 knots.

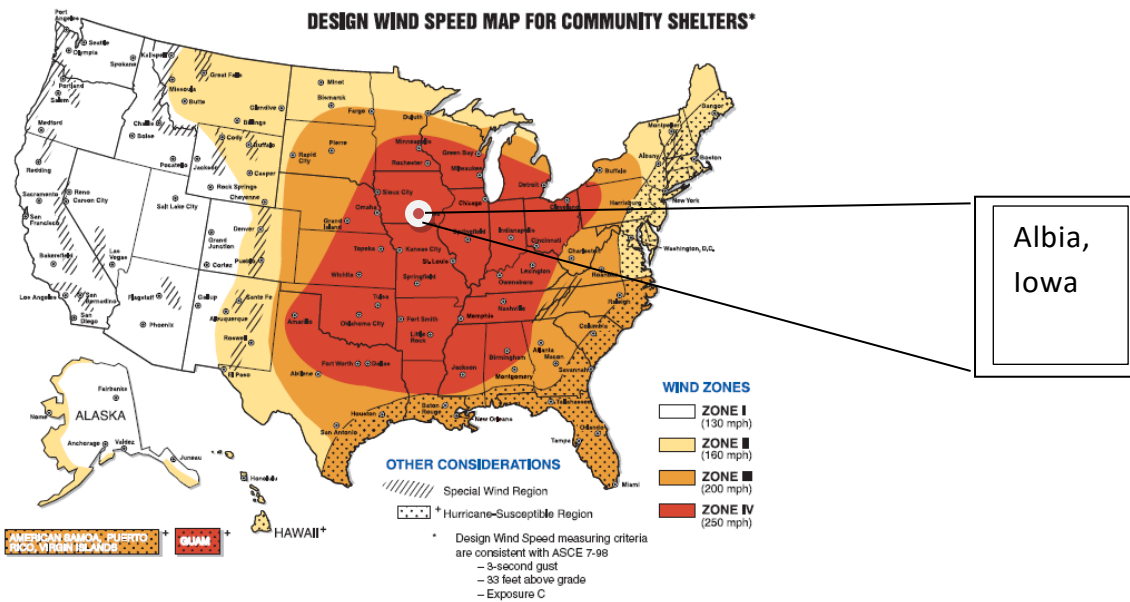
A. Description.

Damage from severe thunderstorm winds account for half of all severe reports in the lower 48 states and is more common than damage from tornadoes. Wind speeds can reach up to 100mph and can produce a damage path extending for hundreds of miles. These winds are often called "straight-line" winds to differentiate the damage they cause from tornado damage. Strong thunderstorm winds can come from a number of different processes. Damaging winds are classified as those exceeding 50-60mph.

Since most thunderstorms produce some straight-line winds as a result of outflow generated by the thunderstorm downdraft, anyone living in thunderstorm-prone areas of the world is at risk for experiencing this phenomenon.

High winds can result from thunderstorm inflow and outflow, or downburst winds when the storm cloud collapses, and can result from strong frontal systems, or gradient winds (high or low pressure systems) moving across a region. High winds are defined as speeds reaching 50 mph or greater, either sustaining (continuous) or gusting. Downdraft winds are from a strong thunderstorm downburst which causes damaging winds on or near the ground, and can extend to as little as 2 ½ miles or extend over a hundred miles. Downdraft wind speeds can be from 80 mph up to 168 mph, and occur quite suddenly as a thunderstorm cloud collapses. This is different from the winds associated with tornadoes. Winds associated with storms are convective. Non-convective winds are caused by fronts or gradient winds. These speeds can range from light breezes to sustained speeds of 80 to 100 mph. Windstorm/High Wind Events can be with little or no rain.

Figure 5: Wind Zones in the United States



B. Past Occurrences.

High winds have been responsible for 27 recorded events since 1993 in Iowa and Monroe County. However, many other high wind events are on record combined with thunderstorms since 1965. High winds tend to affect a large area so there are few events that impacted solely Monroe County alone. Of the high wind events alone that impacted Monroe County, including events that affected broader areas of Iowa, there were \$38.320 million in property damages, \$360 thousand in crop damage, one death, and 9 injuries.

There has been only one documented event in the past five years in Monroe County:

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Ini	PrD	CrD
MONROE (ZONE)	MONROE (ZONE)	IA	01/26/2014	15:00	CST-6	High Wind	50 kts. EG	0	0	25.00K	0.00K
Totals:								0	0	25.00K	0.0

However, thunderstorms often have wind associated with the cell. During the past five years, the following thunderstorm wind events have occurred in Monroe County:

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Ini	PrD	CrD
AVERY	MONROE CO.	IA	06/01/2010	18:06	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
ALBIA	MONROE CO.	IA	06/20/2011	00:15	CST-6	Thunderstorm Wind	57 kts. EG	0	0	75.00K	0.00K
ALBIA	MONROE CO.	IA	06/20/2011	00:17	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
LOVILIA	MONROE CO.	IA	06/26/2011	21:52	CST-6	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
ALBIA	MONROE CO.	IA	08/06/2011	22:55	CST-6	Thunderstorm Wind	61 kts. EG	0	0	25.00K	10.00K
ALBIA	MONROE CO.	IA	08/06/2011	23:04	CST-6	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
ALBIA	MONROE CO.	IA	05/19/2013	20:25	CST-6	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
ALBIA	MONROE CO.	IA	04/12/2014	22:37	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
LOVILIA	MONROE CO.	IA	04/27/2014	14:00	CST-6	Thunderstorm Wind	70 kts. EG	0	0	50.00K	0.00K
HITEMAN	MONROE CO.	IA	06/19/2014	18:05	CST-6	Thunderstorm Wind	61 kts. EG	0	0	25.00K	0.00K

C. Vulnerable Locations/Buildings.

Tornadoes could potentially affect all structures, land and/or people. So the following charts display community wide data.

Exposure in Albia due to Windstorm:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	1379	1379	100%	\$96,081,043	\$96,081,043	100%	3766	3766	100%
Commercial	166	166	100%	\$16,085,504	\$16,085,504	100%			100%
Industrial	14	14	100%	\$5,634,100	\$5,634,100	100%	-	-	-
Agricultural			-			100%	-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-						

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		
Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrellgas	121 10 th St			X				\$15,933	
USDA Office	1709 S B St			X	X				
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					
Monroe County Professional Mang	15 A Ave								
House of Kids Daycare	304 S Main St		X						
King's Kids Preschool	1115 A Ave		X						
Albia Daycare Preschool	100 N 2 nd St		X						
Private In-Home Daycare	1933 Hwy 137		X						
Private In-Home Daycare	6427 160 th St		X						
Private In-Home Daycare	703 A Ave W		X						
Private In-Home Daycare	120 Linden Lane		X						
Private In-Home Daycare	306 S Clinton Ave		X						
Private In-Home Daycare	11 Hickory Cr		X						
Private In-Home Daycare	216 S Clinton Ave		X						
Private In-Home Daycare	517 S 9 th St		X						
Private In-Home Daycare	1671 631 st Lane		X						
Private In-Home Daycare	806 F Ave E		X						
Private In-Home Daycare	403 Washington Ave E		X						

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office. Insured value is according to the school's insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office. Insured value is according to the hospital's insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value	Occupancy or capacity
Monroe Co Hospital	6580 165 th St	X	X	X	X					

Exposure in Lovilia due to Windstorm:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	217	217	100%	\$9,760,486	\$9,760,486	100%	538	538	100%
Commercial	27	27	100%	\$759,126	\$759,126	100%			100%
Industrial	0	0	100%	0	0	100%	-	-	-
Agricultural	8	8	-	\$1,049,936.00-	\$1,049,936.00-	-	-	-	-
Religious / Non-profit	1	1	100%						
Government	3								
Education									
Utilities	-	-	-	-	-	-	-	-	-

Lovilia’s critical asset that can be affected by a Windstorm:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	\$ 125,537	\$257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	\$ 68,840	\$ 97,500
Community Bldg	608 W 17 th St				X				
Water plant	606 W 17 th St	X					1088 sq ft	\$ 43,700	\$ 49,070
Water tower	606 W 17 th St	X					--	\$ 285,600	--
City Maintenance/ Storage	1611 E Ave So				X		1239 sq ft	\$ 54,838	\$ 22,000
Lagoon	6057 115 th Trail	X				X	375 sq ft	\$ 132,490	--
Casey’s	1807 Highway 5						1962sq ft	\$102,125	
Lovilia Head Start	302 S H Ave			X					

MELROSE – exposure due to Windstorm

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	58	58	100%	\$2,007,801	\$2,007,801	100%	112	112	100%
Commercial	8	8	100%	\$120,915	\$120,915	100%			100%
Industrial	1	1	100%	\$141,977	\$141,977	-	-	-	-
Agricultural	-	-	-			-	-	-	-
Religious / Non-profit	2	2	100%						
Government	2	2	100%						
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by Windstorms:

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Sewer Lift Station		X							

Quality Ag	502 Erin Ave			X				\$141,977	
Melrose Market	115 Erin St								

UNINCORPORATED COUNTY AREA – Exposure in unincorporated area due to Windstorm:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in Unincorp	# in Planning Area	% in Planning Area	\$ in Unincorp area	\$ in Planning Area	% in Planning Area	# in Unincorp	# in Planning Area	% in Planning Area
Residential	1,379	1397	100%	\$125,076,897	\$125,076,897	100%	3554	3554	100%
Commercial	63	63	100%	\$5,287,024	\$5,287,024	100%			
Industrial	15	15	100%	\$174,113,751	\$174,113,751	100%	-	-	-
Agricultural	905	905	100%	\$57,938,330.00	\$57,938,330.00	100%	-	-	-
Religious / Non-profit	4	4	100%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
Electrical Substations (4)	Scattered locations	X						\$1M/ea
Landfill				X				
Lake Miami Campground	N Hwy 5		X					
Rural Water towers (3)	Scattered location	X						\$1M/ea
IDOT roads maintenance shop	South Hwy 5			X				
Lake Miami dam	N Hwy 5				X			
Halley’s Trailer Park (35 homes)	East Hwy 34		X					\$68,890 land \$90,041 bldgs
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X				\$80,026,460
Lazy-Daz Ranch (91 structures)	Melrose		X		X			\$2,058,658
Green Acres Mobile homes (108 structures)	Melrose		X		X			\$3,467,566
Monroe County Fairgrounds (land & structures)	North Hwy 5			X				\$310,613
Lazy Daz Ranch Estates(21 structures)	Melrose		X		X			\$758,831
Willow Park	Melrose		X		X			\$169,790
Wacker Chemical Corp	NE corner of county			X	X			\$5,114,095
Ajinomoto Heartland, LLC	NE corner of county			X	X			\$29,733,719
Ajinomoto USA Inc/ Ajinomoto Food	NE corner of the county			X	X			\$22,895,026

D. Loss Estimate.

County-wide damage was established from the NCDC data base from the past 65 years and are shown in Appendix 12. The most recent five years events are listed in “Past Occurrence”. Loss factors were developed specific to the attributes of Windstorms throughout the region. These factors were able to provide an annual damage estimate by dividing the total loss by number of years of data. Per event damage calculated by dividing total loss by number of events. During the past 19 years, approximately 20 windstorms have caused \$700,110 in damages. This estimates \$36,848 annually. This timeframe Monroe County experienced approximately \$30,100 in crop damage and estimates damaged \$1,584 annually.

E. Hazard Scoring & Ranking.

<i>Hazard Score Calculation</i>				
Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
3	3	1	3	10

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	<p>Large scale extreme wind phenomena are experienced over every region of the United States. 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.</p> <p>Based on historical averages, Monroe County would expect to have about 4-5 windstorm events per year. Based on historical information into storms with the potential to cause large scale power outages, the local HMP committee determined the probability of occurrence is between 5%-10% in any given year.</p>	3
<i>MAGNITUDE / SEVERITY</i>	<p>Vulnerability to Windstorm/High Wind Events is very similar to tornadoes as Windstorm/High Wind Events mimic tornadoes in their effects. Buildings may be damaged by debris picked up by the storm, windows could be potentially blown out, and vehicles may be overturned. Persons in mobile homes, outdoors, and in vehicles during Windstorm/High Wind Events are at the most risk. People who may not understand watches and warnings due to the language barriers are also at risk.</p> <p>Unlike tornadoes, windstorms may have a destructive path that is tens of miles wide and several hundreds of miles long. Large hail, strong straight-line winds, heavy rains, flash flooding, and lightning are also associate such a storm.</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 to complete destruction and disintegration of well-constructed structures, infrastructure and trees. Windstorms 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> <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 wind storms; laying down crops, breaking stalks, and twisting plants, reducing the yield and making it difficult to harvest.</p>	3
<i>WARNING TIME</i>	<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 advancement in weather forecasting has allowed watches to be delivered to those in the path of these storms up to hours in advance. The best lead-time for a specific severe storm and tornado is about 30 minutes.</p>	1
<i>DURATION</i>	<p>The response to a windstorm event is tied to responding to the immediate threat to life and property immediately following the event. Response time is limited to event duration and immediate impact.</p>	3
	WEIGHTED SCORE	10

F. Mitigation

Temporary Debris Disposal Plan	
Description	Develop policy for temporary debris disposal for city and private property owners for post-disaster clean-up
Estimated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	Albia Fire Department
Mitigation Category	Emergency Services
Related Goals/Objectives	1.1, 2.2, 2.3, 2.4, 3.1, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes-Flash Flooding, Thunderstorm / Lightning, Infrastructure Failure, Severe Winter Storm, Hazardous Materials, Transportation Incident, Windstorm/High Wind Event / High Windstorm, , River Flooding, Tornado, Dam Failure, Sink Holes, Earthquake, Landslide
Jurisdictions	Albia

Generators	
Program/Project Description	Acquisition of mobile and / or fixed generators for use at community buildings used for temporary storm shelters and / or for public facilities
Anticipated Cost	Moderate
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Agency	Albia City Council, critical facility property owners, Albia Fire Department
Mitigation Category	Emergency services, Prevention, Property Protection
Related Goals/Objectives	1.1, 1.2, 1.3, 2.2, 2.3, 2.5, 3.1, 3.3, 3.4- See also page 31 or Appendix 17
Addresses High Risk Hazard?	Yes -Flash Flooding, Thunderstorm/Lightning, Infrastructure Failure, Severe winter storm, Transportation incident, Windstorm/High Wind Events, River flooding, Tornado, Hailstorm, Extreme heat, Human disease incident, drought
Jurisdictions	Albia

Burying Power Lines	
Description	Encourage burying of power lines to new construction and upon significant maintenance or upgrades of existing power supply
Estimated Cost	Minimal (for City), Moderate to High (for power companies)
Timeline/Schedule	Long Term (5+yrs)
Responsible Entity	City of Albia, Power Companies
Mitigation Category	Property Protection, Structural Projects
Related Goals/Objectives	1.1, 1.3, 2.3- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Thunderstorm / Lightning, Infrastructure Failure, Hazardous Materials, Transportation Incident
Jurisdictions	Albia

Rehabilitation of Older Buildings	
Description	Encourage property maintenance and help leverage funds for property owners unable to afford more significant structural maintenance
Estimated Cost	Minimal to moderate
Timeline/Schedule	Ongoing
Responsible Entity	Albia, Lovilia, Melrose City councils, Property Owners, County BOS,
Mitigation Category	Property Protection, Prevention, Public Education and Awareness
Related Goals/Objectives	1.1, 1.3, 2.1, 2.2, 2.3, 2.4, 3.3- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Thunderstorm / Lightning, Infrastructure Failure, Severe Winter Storm, Windstorm/High Wind Event, Hazardous Materials, Tornado, Hailstorm, Sink Holes, Human Disease Incident, Earthquake,
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Tree Management/Trimming	
Description	Encourage private home owners, businesses, and jurisdictions to regularly perform tree trimming and maintenance to prevent limb breakage and for safeguarding nearby utility lines.
Estimated Cost	Minimal
Timeline/Schedule	Short Term (1-2yrs)
Responsible Entity	City of Albia maintenance dept, property home owners, utility companies,
Mitigation Category	Prevention, Public Education and Awareness
Related Goals/Objectives	1.1, 2.1, 2.3, 3.1- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Infrastructure Failure, Severe winter storm, Windstorm/High Wind Event
Jurisdictions	Albia, Unincorporated county

Manufactured Home Tie-Downs	
Description	Encourage incorporated and rural manufactured homes to be secured by tie-downs to the ground. This anchoring can prevent damage and injuries.
Estimated Cost	Minimal
Timeline/Schedule	Short Term (1-2yrs)
Responsible Entity	Albia City council, Melrose City Council, Lovilia City Council, property owners, County BOS
Mitigation Category	Prevention, Public Education and Awareness
Related Goals/Objectives	11, 1.3, 2.1, 2.4, 3.1- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Infrastructure failure, river flooding, tornado, Windstorm/High Wind Events
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Safe Rooms	
DESCRIPTION	Risk to lives can be improved through construction and use of concrete safe rooms in homes and shelter areas of mobile home parks, fairgrounds, shopping malls, & other vulnerable public areas.
ESTIMATED COST	Moderate to high – grant dependent
TIMELINE/SCHEDULE	Long Term (5+yrs)
RESPONSIBLE ENTITY	Albia Community School Board, Monroe BOS
MITIGATION CATEGORY	Structural project
RELATED GOALS/OBJECTIVES	1.1, 1.2, 1.3, 2.2, 3.1, 3.3- See also page 31 or Appendix 17
ADDRESSES HIGH RISK HAZARD?	Yes - Flash Flooding, thunderstorm / lightning, Infrastructure failure, severe winter storm, hazardous materials, Windstorm/High Wind Event, tornado, hailstorm, sink hole, earthquake
JURISDICTIONS	Albia Community School, Unincorporated County

11. Hazard Profile – River Flooding

A rising or overflowing of a tributary or body of water that covers adjacent land not usually covered by water when the volume of water in a stream exceeds the channel’s capacity.

A. **Description.**

Floods are the most common and widespread of all natural disasters, except fire. Most communities in the United States can experience some kind of flooding after spring rains, heavy thunderstorms, winter snow thaws, and waterway obstructions, or levee or dam failures. Often it is a combination of these elements that causes damaging floods. 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.

Two common terms to describe areas that are prone to flooding are 100-year flood plain and 500-year flood plain. The meaning of these terms are often confused; though they sound like a flood in the designated areas only happens once every 100 or 500 years, this interpretation is incorrect. What the designation actually means is that for a 100-year flood plain, the chance of a flood occurring in any given year is 1% which is statistically about once every 100 years. Likewise, for the 500-year flood plain, the chance is .2% chance of a flood occurring in any given year. Floods may certainly occur more frequently in either flood plain designation, but these would be rare occurrences.

Responding to river flooding often includes sandbagging and working in floodwaters. Response personnel should have current tetanus and hepatitis shots. Rescuing victims often requires rescue from boat. Wearing personal protective gear such as life vests at all times can prevent most injuries related to river flooding.

B. Past Occurrences.

The most recent serious flooding event in May and June of 2008 resulted in 86 of the State’s 99 counties included in the Governor’s disaster declarations, and 84 begin declared as presidentially declared. The event resulted in 18 fatalities and 106 injuries, the evacuation of approximately 38,000 Iowans and impacting 21,000 housing units.

Since 2000 there have been 20 flood events in Monroe County in addition to the 11 flash floods previously detailed. There have been no deaths or injuries directly attributed to these events. During the past five years, NOAA has recorded six events in Monroe County:

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Type</u>	<u>Dth</u>	<u>Ini</u>	<u>PrD</u>	<u>CrD</u>
SELECTION	MONROE CO.	IA	04/25/2010	Flood	0	0	0.00K	0.00K
WELLER	MONROE CO.	IA	06/12/2010	Flood	0	0	0.00K	20.000M
AVERY	MONROE CO.	IA	06/15/2010	Flood	0	0	25.00K	0.00K
MELROSE	MONROE CO.	IA	05/28/2013	Flood	0	0	250.00K	0.00K
WELLER	MONROE CO.	IA	09/10/2014	Flood	0	0	100.00K	25.00K

C. Vulnerable Locations/Building.

UNINCORPORATED COUNTY AREA – exposure due to River flooding

Iowa DNR has recently released the new draft version of the Iowa Flood Hazards. The mapping can be viewed in Appendix 1. Nearly all of this area of concern is located in the rural region of the county. The most vulnerable region of the unincorporated community is the northeast corner of the county that does include the Iowa Bioprocessing Center industries of Cargill, Ajinomoto Co., and Ajinomoto Heartland. The property is adjacent to the Des Moines River but is surrounded by a berm. The industries are very guarded in releasing any information regarding their facilities, risks, or procedures.

River flooding risk also includes Hiteman of greatest concern because it lies just on the outer edge of the 100 year flood plain. Also at risk are the seasonal residents that reside in the regions of Green Acres, Lazy Daz Ranch, and Lazy Daz Ranch Estates because of their location near the tributaries that lead into the adjacent tail waters of Lake Rathbun. The following chart displays effects of river flooding. The estimate of population and building exposure and damage estimates are based on the estimates prepared by the Monroe County Engineer and the HMGP committee. Past flooding events of 2008 and 2010 have primarily affected the roads and agricultural land. There are no repetitive loss properties identified at this time. Cedar Creek commonly experiences flooding as it flows north to south and crosses approximately 75% the county’s length. This creek can solely affect 5 villages in the

unincorporated region. There are structures in low lying areas along Cedar and White Creek. Cedar Creek extends from the west county line to near the middle of Monroe County, then northwest to the north county line. Along this path, potential flooding could affect 12 county bridges, 1 road area, and 1 state highway bridge. White Creek extends from the west county line to the northeast and joins Cedar Creek. There are approximately 8 county bridges that could be impacted and 2 possible road areas that could experience a slight potential.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in region	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in region	# in Hazard Area	% in Hazard Area
Residential	1,379	138	10%	\$125,076,897	\$12,507,689	10%	3554	355	10%
Commercial	63	6	10%	\$5,287,024	\$528,702	10%			10%
Industrial	15	2	10%	\$174,113,751	\$17,411,375	10%	-	-	-
Agricultural	905	90	10%	\$57,938,330	\$5,793,833	10%	-	-	-
Religious / Non-profit	4	1	10%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

***Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office*

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
Quarry				X					
Iowa Processing Center									

MELROSE – exposure due to River Flooding

Cedar Creek enters the south quarter of city limits. Iowa DNR has recently released the draft mapping of flood plain hazards in Monroe County. See Appendix 1. This prediction of 100 year and 500 year estimated flood plains near Cedar Creek to clearly show the potential for damage along the railroad line, both sides of Main Street, and the complete southern quarter of the community.

No repetitive loss of properties.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	58	15	25%	\$2,007,801	\$501,950	25%	112	17	15%
Commercial	8	2	25%	\$120,915	\$30,229	25%			
Industrial	1	1	100%	\$141,977	\$141,977	100%	-	-	-
Agricultural	-	-	-		-	-	-	-	-
Religious / Non-profit	2	0	0						
Government	2	0	0						
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by River Flooding:

***Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office*

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value	Occupancy or capacity
Sewer Lift Station		X								
Quality Ag	502 Erin Ave			X				\$141,977		

D. Loss Estimate.

County-wide damage was established from the NCDC data base from the past 65 years and are shown in Appendix 12. The most recent five years events are listed in “Past Occurrence”. Loss factors were developed specific to the attributes of River Flooding throughout the region. These factors were able to provide an annual damage estimate by dividing the total loss by number of years of data. Per event damage calculated by dividing total loss by number of events. During the past 19 years, approximately 33 flooding events have occurred in Monroe County to cause \$2,590,000 in property damage and \$20,718,000 in crop damage. This indicates an annual loss of approximately \$136,316 in property loss and \$1,090,421 in annual crop loss due to flooding. The 2013 Iowa State Mitigation Plan estimates the annual average loss to be \$9.1 Million in the state. According to the structures at risk, Melrose could experience loss greater than \$650,000 in a significant event.

E. Hazard Scoring & Ranking.

	<i>Hazard Score Calculation</i>				
	Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
Comprehensive Score	3.5	2.5	3.5	2	11.5
Unincorp County	3	2	3	2	10
Melrose	4	3	4	2	13

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	<p>The flood of 1993 and 2008 are still fresh in the minds of Iowans. Flooding has been a regular and frequent hazard in Iowa. Iowa has been involved in 35 Presidential Declarations of a major disaster related to flooding since 1953. Given the history of this hazard, it is likely that there will be many minor events each year and high likelihood that a major flooding event requiring federal assistance will occur in the next 5 years. While hundreds of homes and businesses have been removed from the floodplain over the last decade, many remain.</p> <p>Monroe County historically experiences the most damage from river flooding in the unincorporated county. Primary damage is to roads and bridges. There are no repeatative loss structures in the county. The local HMP committee evaluated the proabability of river flooding to be very likely in any given year.</p>	3
<i>MAGNITUDE / SEVERITY</i>	<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>Operations could be disrupted from direct impacts if facilities are in the floodplain and indirectly from loss of critical services to maintain operations. Backup power and other services can eliminate the impact to operations.</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.</p> <p>Damage and disruption of communications, transportation, electric service, and community services are likely in severe cases. Wastewater treatment facilities may be located in the floodplain and thus at high risk of flooding; this is not uncommon around Iowa and eventually results in them being taken offline for a period of time.</p> <p>Hazards of fire, health and transportation accidents; and contamination of water supplies are likely effects of flooding situations as well.</p> <p>Crop and livestock losses and interruption of businesses either from direct flooding or loss of the delivery of critical services can have damaging impacts on the local economy. River flooding can last for weeks and the impacts can last for months and even years following the flood. Economic impacts can be felt with only a couple days of disruption.</p>	2

	FEMA has delineated the probable extent of the 100-year flood hazard areas in most areas. These flood insurance rate maps (FIRMS) show properties affected by the floods that have at least a 1% chance of occurring in any particular year. Generally, these areas are in the floodplain or adjacent areas. Much of these areas are parkland, agricultural, or conservation land. But residential and commercial areas are impacted by river flooding as well.	
<i>WARNING TIME</i>	Gauges along streams and gauges throughout the state provide for an early flood warning system. River flooding usually develops over the course of several hours or even days depending on the basin characteristics and the position of the particular reach of a stream. The National Weather Service provides flood forecasts for Iowa. Flood warnings are issued over emergency radio and TV 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.	3
<i>DURATION</i>	The response to the effects of river flooding in Iowa are extensive and required many days to adequately respond to the needs of cities and counties.	2
	WEIGHTED SCORE	10

F. Mitigation.

Acquisition or relocation of buildings	
Program/Project Description	Utilize disaster recovery funds or pre-disaster mitigation funds to acquire properties in floodplains or relocation of buildings outside of floodplains
Anticipated Cost	Moderate to high
Timeline/Schedule	Ongoing
Responsible Agency	Albia city Council, Monroe BOS
Mitigation Category	Prevention, property protection
Related Goals/Objectives	1.1, 1.3, 2.2, 2.3, 2.4- See also page 31 or Appendix 17
Addresses High Risk Hazard?	Yes - Flash Flooding, river flooding
Jurisdictions	Melrose, Unincorporated county, Albia

Public Education and Outreach	
Description	Develop hazard education and outreach program to help Monroe county residents understand meaning of hazard warnings and self-protection measures
Estimated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	ADLM (emergency management), Albia First Responders, Lovilia Fire Department, Melrose Fire Department, County BOS
Mitigation Category	Public Education and Awareness
Related Goals/Objectives	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes -Flash Flooding, thunderstorm / lightning, Infrastructure Failure, severe winter storm, hazardous materials incident, transportation incident, windstorm/High Wind Event, grass / wildfire, river flooding, tornado, hailstorm, dam failure, sink hole, extreme heat, human disease incident, earthquake, drought
Jurisdictions	Melrose, Unincorporated county, Albia

Community Emergency Response Team	
Description	Encourage and support development of volunteer community emergency response team of residents who have access to equipment and training to respond if emergency services are unable to meet all of the immediate needs following disasters as well as checking in on elderly or disabled residents to ensure their safety
Estimated Cost	Volunteer
Timeline/Schedule	Short Term (1-2yrs)
Responsible Entity	ADLM- emergency management, Albia First Responders, Lovilia Fire department, Melrose Fire Dept, County BOS

Mitigation Category	Public Education and Awareness, Emergency Services
Related Goals/Objectives	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.4, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes -Flash Flooding, thunderstorm / lightning, Infrastructure Failure, severe winter storm, hazardous materials incident, transportation incident, Windstorm Event, grass / wildfire, river flooding, tornado, hailstorm, dam failure, sink hole, extreme heat, human disease incident, earthquake, drought
Jurisdictions	Melrose, Unincorporated county, Albia

Review Floodplain Management and Enforcement for Effectiveness	
Description	Review city/county policies and procedures for enforcing floodplain ordinance and methods, if any, to ensure flooding is primarily limited to floodplains
Estimated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	Albia & Melrose City Council, County BOS
Mitigation Category	Property Protection, Prevention
Related Goals/Objectives	1.1, 1.2, 2.1, 2.3- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, river flooding
Jurisdictions	Melrose, Unincorporated county, Albia

CRS Participation	
Description	Explore feasibility of City participating in Community Rating System for enhanced flood protection
Estimated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	Melrose City Council, County BOS
Mitigation Category	Property Protection, Prevention
Related Goals/Objectives	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 3.1- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, river flooding
Jurisdictions	Albia, Lovilia, Melrose

Flood proofing (wet or dry)	
Description	Encourage property owner use of flood proofing techniques to reduce potential flood-related damages such as water-proofing basement walls, structural modifications allowing flood waters to pass through or around structures without causing damage (as part of remodeling or disaster related repairs), use of water- / mold-resistant paints, etc.
Estimated Cost	Minimal to high depending on structure and techniques
Timeline/Schedule	Short Term (1-2yrs)
Responsible Entity	Albia, Melrose, & Lovilia City councils, County BOS (encouragement) and Property Owners (execution)
Mitigation Category	Public Education and Awareness, Structural Projects, Prevention
Related Goals/Objectives	1.1, 1.3, 2.2, 2.3, 2.4- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, river flooding
Jurisdictions	Melrose, Unincorporated county, Albia

Flood Insurance	
Description	Encourage property owner purchase of flood insurance
Estimated Cost	Volunteer
Timeline/Schedule	Ongoing
Responsible Entity	County BOS and Property Owners
Mitigation Category	Property Protection
Related Goals/Objectives	1.1, 2.1, 2.2, 2.3, 2.4, 3.1- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, River Flooding

Jurisdictions	Unincorporated County, Melrose
---------------	--------------------------------

Evacuation Plans	
Description	Develop evacuation plans for school, community buildings, and for town
Estimated Cost	Minimal to moderate
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	ADLM-Emergency Management, Albia Fire department, Albia community Schools, County BOS, Melrose Fire Department
Mitigation Category	Prevention, Emergency Services
Related Goals/Objectives	1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.4, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, Infrastructure Failure, Hazardous Materials Incident, Transportation Incident, River Flooding, Dam Failure, Sink Holes
Jurisdictions	Melrose, Unincorporated county, Albia

Search and Rescue Training for First Responders	
Description	Training Firefighters and other local emergency responders best practices in search and rescue operations
Estimated Cost	Minimal to moderate
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	Albia Fire Department& First responders, Lovilia Fire Dept, Melrose Fire Dept, County BOS
Mitigation Category	Emergency Services
Related Goals/Objectives	1.1, 1.2, 1.3, 2.2, 2.3, 3.1, 3.4, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, Infrastructure Failure, Severe Winter Storm, Hazardous Materials Incident, Transportation Incident, River Flooding, Tornado, Windstorm/High Wind Event, Dam Failure, Sink Holes, Earthquake, Landslide
Jurisdictions	Melrose, Unincorporated county, Albia

Acquisition or relocation of buildings	
Description	Utilize disaster recovery funds or pre-disaster mitigation funds to acquire properties in floodplains or relocation of buildings outside of floodplains
Estimated Cost	Moderate to high
Timeline/Schedule	Ongoing
Responsible Entity	Albia city Council, Monroe BOS, Melrose City Council
Mitigation Category	Prevention, property protection
Related Goals/Objectives	1.1, 1.3, 2.2, 2.3, 2.4- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes - Flash Flooding, river flood
Jurisdiction	Albia, Unincorporated County, Melrose

NFIP Participation	
Description	Communities will consider or continue participating with the National Flood Insurance Program (NFIP).
Estimated Cost	Minimal
Timeline/Schedule	Ongoing
Responsible Entity	Albia City Council, Melrose City Council
Mitigation Category	Prevention
Related Goals/Objectives	1.1, 1.3, 2.2, 2.3, 2.4- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, River Flooding
Jurisdiction	Albia, Melrose

12. Hazard Profile – Animal/Crop/Plant Disease

An outbreak of disease that can be transmitted from animal to animal. The disease outbreak will likely have a significant economic implications or public health impact. The crop/plant pest infestation will likely have severe economic implications, cause significant crop production losses, or significant environmental damage. The crop/plant pests may also have implications for public health.

A. Description.

An outbreak of disease that can be transmitted from animal to animal or plant to plant represents an animal/crop/plant disease. The crop/plant pest infestation will likely have severe economic implications, cause significant crop production losses, or significant environmental damage. The crop/plant pests may also have implications for public health. The introduction of some high consequence diseases may severely limit or eliminate our ability to move, slaughter, and export animals and animal products. Response and recovery to infectious animal disease outbreaks will be lengthy, and many producers may never be able to return to business. There will be many indirect effects on our economy. Rumors of an infectious animal disease outbreak could cause significant damage to the markets; as was evidenced in an incident in Kansas in 2003 where the mere rumor of a Foot and Mouth Disease outbreak caused the market to plummet.

Crop/plant pest infestations can cause widespread crop/plant loss and severe economic hardship on farmers and landowners and related businesses. Once infestation occurs, the pest may become endemic, causing repeated losses in subsequent growing years. Loss of production will affect all related industries, such as fuel, food, synthetics, processors, etc.

B. Past Occurrences & Severity.

Every year the Iowa Department of Agriculture and Land Stewardship (IDALS) conduct numerous animal disease investigations. In 2005, IDALS and USDA conducted 19 highly infectious disease investigations. Fortunately the investigation results are negative. IDALS, under the direction of the state plant regulatory official works with Iowa's universities and industries to conduct regular crop / plant pest surveillance. Committee members indicate that there have been small amounts of Foot and Mouth Disease and random other disease the livestock can contract over the years. The incidents are small in numbers and where of no major concerns that have ever developed from them.

In 2014 the Avian Influenza A(H5N1), commonly referred to as the "Bird Flu" greatly affected the bird population in Iowa. By May of 2015 more than 9.5 million of cases have been reported throughout the state of Iowa. This includes 21 sites and spans across ten counties. Although it does not include Monroe County as this point, it is a very real possibility that the county will be affected. The governor recently declared a state of disaster to offer additional resources to handle this agricultural disaster.

The emerald ash borer (EAB), *Agrilus planipennis*, is an exotic insect pest from Asia. The flattened, creamy white larval stage feeds below the bark and cuts off the living, water and nutrient conducting vessels causing tree death. Adults are small elongated oval beetles that are metallic green in color. This insect colonizes the top of ash trees (*Fraxinus* species) first, then moves down the tree. EAB has been found in several Iowa counties. As of February 2014, all 99 counties in Iowa have been quarantined by the Iowa Department of Agriculture and Land Stewardship to slow the movement of this destructive pest to non-quarantined areas/states. A cooperative state and federal effort has developed the "Iowa Emerald Ash Borer Readiness Plan." EAB has also been found in 24 other states, including Illinois, Minnesota, Missouri, and Wisconsin, on Iowa's borders." (Iowa State University Extension & Outreach – Pesticide Safety Education Program).

C. Vulnerable Populations.

An outbreak of disease that can be transmitted from animal to animal. The disease outbreak will likely have a significant economic implications or public health impact. The crop/plant pest infestation will likely have

severe economic implications, cause significant crop production losses, or significant environmental damage. The crop/plant pests may also have implications for public health. The movement of people, animals, animal products, wildlife, plants, crops and potential disease/pest vectors could all cause the introduction of diseases/pests. Diseases/pests could also be introduced naturally, for example by hurricanes or jet streams. Emerging disease is also a threat such as West Nile Virus, new more virulent influenza strains, etc. Because many diseases/pests are not present in Iowa, our populations of animals, crops, and plants have no immunity and are highly susceptible.

<i>Monroe County (Unincorporated) Maximum Population & Building Exposure Animal/Plant/Crop Disease</i>				
543 Farms in Monroe County	Estimated Market Values per farm		Type of Livestock	Estimated number in Monroe County
Land & buildings	\$1,045,139		Cattle & calves	28,769
Machinery & Equipment	\$95,299		Hogs & pigs sold	3,635
Ag product Sold	\$99,581			

D. Loss Estimate.

One of Monroe County’s primary source of income for residents. According to the United States Department of Agriculture, Monroe County had farm related income exceeding \$7 million and an estimated total of more than \$26.3 million in animal (including products) income during 2012. A large breakout of any Animal/Plant/Crop Disease would have a profound impact on the local economy in Monroe County.

E. Hazard Scoring & Ranking.

<i>HAZARD SCORE CALCULATION</i>				
PROBABILITY	MAGNITUDE/SEVERITY	WARNING TIME	DURATION	WEIGHTED SCORE
3	3	2	4	12

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	<p>DISEASE/PESTS ARE PRESENT IN MANY OTHER AREAS OF THE COUNTRY/WORLD. MANY DISEASE/PESTS ARE EASILY TRANSMITTED THEREFORE THE PROBABILITY OF INTRODUCTION IS HIGH. IOWA LEADS THE NATION IN PRODUCTION OF PORK, SOYBEANS, EGGS, AND CORN AND IS AMONG THE LEADING BEEF PRODUCTION STATES. HUMAN DISEASE OUTBREAKS CAN HAVE AN ECONOMIC IMPACT ON AGRICULTURAL PRODUCTS AS WELL AS RECENTLY SEEN WITH THE H1N1 SCARE AND THE RESULTING AVERSION TO PORK PRODUCTS OR EVEN ERADICATION OF PIGS IN AREAS AROUND THE WORLD. WITH THE MILLIONS OF ANIMALS AND ANIMAL PRODUCTS THAT MOVE ACROSS OUR STATE YEARLY, PROBABILITY IS HIGH.</p> <p>EVERY YEAR THE IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP (IDALS) CONDUCT NUMEROUS ANIMAL DISEASE INVESTIGATIONS. IDALS, UNDER THE DIRECTIONS OF THE STATE PLANT REGULATORY OFFICIAL WORKS WITH IOWA’S UNIVERSITIES AND INDUSTRIES TO CONDUCT REGULAR CROP/PLANT PEST SURVEILLANCE. IN THE EVALUATION OF THE PROBABILITY OF A SERIOUS ANIMAL/PLANT/CROP DISEASE INCIDENT WAS THAT AN EVENT HAS A LOW PROBABILITY OF OCCURRENCE IN ANY GIVEN YEAR.</p>	3
<i>MAGNITUDE/ SEVERITY</i>	THE MOVEMENT OF PEOPLE, ANIMALS, ANIMAL PRODUCTS, WILDLIFE, PLANTS, CROPS AND POTENTIAL DISEASE/PEST VECTORS COULD ALL CAUSE THE INTRODUCTION OF DISEASES/PESTS. DISEASES/PESTS COULD ALSO BE	3

	<p>INTRODUCED NATURALLY, FOR EXAMPLE BY HURRICANES OR JET STREAMS. EMERGING DISEASE IS ALSO A THREAT SUCH AS WEST NILE VIRUS, NEW MORE VIRULENT INFLUENZA STRAINS, ETC. BECAUSE MANY DISEASES/PESTS ARE NOT PRESENT IN IOWA, OUR POPULATIONS OF ANIMALS, CROPS, AND PLANTS HAVE NO IMMUNITY AND ARE HIGHLY SUSCEPTIBLE.</p> <p>THE IMPACT WILL VARY BY DISEASE/PEST AND THE TYPE OF ANIMAL/ CROP/PLANT INFECTED. SHOULD THE DISEASE/PEST HAVE PUBLIC HEALTH IMPLICATIONS, THE ECONOMIC IMPACT WOULD BE EVEN GREATER.</p> <p>THE SEVERITY WILL VARY BY THE DISEASE/PEST. THE TYPES OF ANIMALS, CROPS, OR PLANTS AFFECTED WILL ALSO SIGNIFICANTLY INFLUENCE THE SEVERITY.</p>	
WARNING TIME	IF THE DISEASE/PESTS ARE HIGHLY INFECTIOUS (MANY ANIMALS THAT ARE INFECTED WITH THE DISEASE CAN BE TRANSMITTING DISEASE BEFORE THEY SHOW CLINICAL SIGNS), BY THE TIME THE TIME THEY ARE DISCOVERED, THEY WILL LIKELY HAVE SPREAD ACROSS THE STATE OR NATION. THIS WILL PUT US AT A VERY SEVERE DISADVANTAGE DURING THE RESPONSE AND RECOVERY.	2
DURATION	RESPONSE AND RECOVERY FROM SERIOUS INFECTIOUS OR DISEASE ARE LENGTHY, WITH MANY PRODUCERS LIKELY TO NEVER BE ABLE TO RETURN TO BUSINESS, IN ADDITION, CROP INFESTATION/ANIMAL DISEASE CAN REOCCUR, CAUSING REPEATED LOSSES IN SUBSEQUENT YEARS.	4
	WEIGHTED SCORE	12

F. Mitigation.

Public Education and Outreach	
Description	Develop hazard education and outreach program to help Monroe county residents understand meaning of hazard warnings and self-protection measures
Estimated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	ADLM (emergency management), Albia First Responders, Lovilia Fire Department, Melrose Fire Department
Mitigation Category	Public Education and Awareness
Related Goals/Objectives	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes - Flash Flooding, thunderstorm / lightning, Infrastructure Failure, severe winter storm, hazardous materials incident, transportation incident, Windstorm/High Wind Event, grass / wildfire, river flooding, tornado, hailstorm, dam failure, sink hole, extreme heat, human disease incident, earthquake, drought
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

13. Hazard Profile – Earthquake

EARTHQUAKE: A sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of earth’s tectonic plates (FEMA).

MERCALLI INTENSITY SCALE: The Mercalli Scale is based on observable damage which while is more subjective, is easier to comprehend for the general populace (USGS FAQ – Measuring Earthquakes). See Appendix 3: Modified Mercalli Scale for Earthquake Intensity.

RICHTER SCALE: The Richter Scale is a measure of size and power of earthquakes; “as an estimate of energy, each whole number step in the magnitude scale corresponds to the release of about 31 times more energy than the amount associated with the preceding whole number value” (USGS Visual Glossary – Richter Scale).

A. Description.

An earthquake is a sudden, rapid shaking of the earth caused by the breaking and shifting of rock beneath the Earth's surface. This shaking can cause buildings and bridges to collapse; disrupt gas, electric, and phone service;

and sometimes trigger landslides, flash floods, and fires. The three general classes of earthquakes now recognized are: tectonic, volcanic, and artificially produced.

While Iowa is not thought of as a state that can experience an earthquake, the New Madrid fault line is located where Missouri, Arkansas, Kentucky, and Tennessee meet. Additionally the Wabash Valley seismic zone is located along the south eastern boarder of Illinois and Indiana.

B. Past Occurrences.

Iowa as a whole has experienced the effects of only a few earthquakes in the past 175 years. The epicenters of thirteen (13) earthquakes have been located in the state with the majority along the Mississippi River. The first know occurrence was in 1867 near Sidney in southwest Iowa. The most recent occurrence was in 2004 near Shenandoah in southwest Iowa. The largest Iowa earth quake (Mercalli magnitude VI) occurred near Davenport in southeast Iowa in 1934. Only the most recent of these events was instrumentally recorded. Outside Iowa the most recent quakes were in the 1960’s occurring in Illinois and Missouri. While more than twenty (20) earthquakes have occurred in or around Iowa, over the past 175 years they have not seriously impacted the state.

The strongest earthquake in Iowa occurred in Davenport in 1934 and resulted in only slight damage. Estimated effects of a Richter scale 6.5 magnitude earthquake along the New Madrid Fault Zone Suggest that Iowans in four southeast counties could experience trembling buildings, some broken dishes and cracked windows. About 29 other counties, from Page (southwest) to Polk (central) to Muscatine (southeast), could experience vibrations similar to the passing of a heavy truck; rattling of dishes, creaking of walls, and swinging of suspended objects. Specific parts of central Iowa could sustain different levels of damage due to the soundness of the structures. A published FEMA report using the HAZUS-MH software determined the loss associated with such an event would result in approximately \$1,068,000 in damages to the State of Iowa. These losses are mainly attributed to the extreme southeastern portion of the state.

C. Vulnerable locations/buildings.

Earthquakes could potentially affect all structures, land and/or people. So the following charts display community wide data.

Exposure in Albia due to Earthquake:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	1379	1379	100%	\$96,081,043	\$96,081,043	100%	3766	3766	100%
Commercial	166	166	100%	\$16,085,504	\$16,085,504	100%			100%
Industrial	14	14	100%	\$5,634,100	\$5,634,100	100%	-	-	-
Agricultural			-			100%	-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-	-	-	-	-	-	-

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Considerati	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		
Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrellgas	121 10 th St			X				\$15,933	
USDA Office	1709 S B St			X	X				
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	

Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					
Monroe County Professional Mang	15 A Ave								
House of Kids Daycare	304 S Main St		X						
King's Kids Preschool	1115 A Ave		X						
Albia Daycare Preschool	100 N 2 nd St		X						
Private In-Home Daycare	1933 Hwy 137		X						
Private In-Home Daycare	6427 160 th St		X						
Private In-Home Daycare	703 A Ave W		X						
Private In-Home Daycare	120 Linden Lane		X						
Private In-Home Daycare	306 S Clinton Ave		X						
Private In-Home Daycare	11 Hickory Cr		X						
Private In-Home Daycare	216 S Clinton Ave		X						
Private In-Home Daycare	517 S 9 th St		X						
Private In-Home Daycare	1671 631 st Lane		X						
Private In-Home Daycare	806 F Ave E		X						
Private In-Home Daycare	403 Washington Ave E		X						

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office. Insured value is according to the school's insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office. Insured value is according to the hospital's insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value	Occupancy or capacity
Monroe Co Hospital	6580 165 th St	X	X	X	X					

Exposure in Lovilia due to Earthquake:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	217	217	100%	\$9,760,486	\$9,760,486	100%	538	538	100%
Commercial	27	27	100%	\$759,126	\$759,126	100%			100%

Industrial	0	0	100%	0	0	100%	-	-	-
Agricultural	8	8	-	\$1,049,936.00-	\$1,049,936.00-	-	-	-	-
Religious / Non-profit	1	1	100%						
Government	3								
Education									
Utilities	-	-	-	-	-	-	-	-	-

Lovilia’s critical asset that can be affected by Earthquake:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	\$ 125,537	\$257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	\$ 68,840	\$ 97,500
Community Bldg	608 W 17 th St				X				
Water plant	606 W 17 th St	X					1088 sq ft	\$ 43,700	\$ 49,070
Water tower	606 W 17 th St	X					--	\$ 285,600	--
City Maintenance/ Storage	1611 E Ave So				X		1239 sq ft	\$ 54,838	\$ 22,000
Lagoon	6057 115 th Trail	X					375 sq ft	\$ 132,490	--
Casey’s	1807 Highway 5						1962sq ft	\$102,125	
Lovilia Head Start	302 S H Ave			X					

MELROSE – exposure due to Earthquake

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	58	58	100%	\$2,007,801	\$2,007,801	100%	112	112	100%
Commercial	8	8	100%	\$120,915	\$120,915	100%			100%
Industrial	1	1	100%	\$141,977	\$141,977	-	-	-	-
Agricultural	-	-	-	-	-	-	-	-	-
Religious / Non-profit	2	2	100%						
Government	2	2	100%						
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by Earthquake:

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Sewer Lift Station		X							
Quality Ag	502 Erin Ave			X				\$141,977	
Melrose Market	115 Erin St								

UNINCORPORATED COUNTY AREA – Exposure in unincorporated area due to Earthquake:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in Unincorp	# in Planning Area	% in Planning Area	\$ in Unincorp area	\$ in Planning Area	% in Planning Area	# in Unincorp	# in Planning Area	% in Planning Area
Residential	1,379	1397	100%	\$125,076,897	\$125,076,897	100%	3554	3554	100%
Commercial	63	63	100%	\$5,287,024	\$5,287,024	100%			
Industrial	15	15	100%	\$174,113,751	\$174,113,751	100%	-	-	-
Agricultural	905	905	100%	\$57,938,330.00	\$57,938,330.00	100%	-	-	-
Religious / Non-profit	4	4	100%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
Electrical Substations (4)	Scattered locations	X						\$1M/ea
Landfill				X				
Lake Miami Campground	N Hwy 5		X					
Rural Water towers (3)	Scattered location	X						\$1M/ea
IDOT roads maintenance shop	South Hwy 5			X				
Lake Miami dam	N Hwy 5				X			
Halley’s Trailer Park (35 homes)	East Hwy 34		X					\$68,890 land \$90,041 bldgs
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X				\$80,026,460
Lazy-Daz Ranch (91 structures)	Melrose		X		X			\$2,058,658
Green Acres Mobile homes (108 structures)	Melrose		X		X			\$3,467,566
Monroe County Fairgrounds (land & structures)	North Hwy 5			X				\$310,613
Lazy Daz Ranch Estates(21 structures)	Melrose		X		X			\$758,831
Willow Park	Melrose		X		X			\$169,790
Wacker Chemical Corp	NE corner of county			X	X			\$5,114,095
Ajinomoto Heartland, LLC	NE corner of county			X	X			\$29,733,719
Ajinomoto USA Inc/ Ajinomoto Food	NE corner of the county			X	X			\$22,895,026

D. Loss Estimate.

According to simulations run using FEMA HAZUS software, a seismic event at the New Madrid fault would cause minimal damage to Monroe County.

E. Hazard Scoring & Ranking.

<i>Hazard Score Calculation</i>				
Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
1	2	4	4	11

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	<p>Seismologists attempt to forecast earth quake size and frequency based on data from previous events in the New Madrid Fault Zone, is difficult because there are few historic moderate to large earthquakes, and the active faults are too deeply buried to effectively monitor. Based on the recurrence intervals for small earthquakes, scientist estimate a 90% chance of a Richter scale 6.0 magnitude earthquake in the New Madrid Fault Zone by the year 2040. A magnitude 6.5 in New Madrid would create a magnitude four (4) effect in Iowa; resulting in little or no damage and/or fear. The SHMT analysis evaluated the probability of future earthquakes in Iowa as less than 10% in any given year. The local committee evaluated the probability to be even less at 1-5% chance.</p> <p>Monroe County is in an area where the probability of exceeding horizontal peak gravity acceleration by 1-2% is 10% over a period of 50 years. In other words, there is a 90% chance that any earthquake in the next 50 years affecting Monroe County will not exceed an acceleration of 1-2% of the force of gravity.</p> <p>An intensity of 6-7 on the Mercalli Scale is approximately equal to 10% gravity acceleration, meaning the speed at which the ground shakes. This magnitude is roughly equivalent to a strong earthquake that would be very noticeable with some structural damage, especially to older or poorly built structures and movement of heavy furniture. Ground acceleration of 1-2%, the intensity applicable to the Monroe county area, would be minor or negligible.</p>	1
<i>MAGNITUDE / SEVERITY</i>	<p>Vulnerability to earthquakes in Iowa is largely related to buildings and infrastructure. As Iowa is not known as an area at risk of earthquakes, buildings often do not incorporate the earthquake resistant features that those in California and other earthquake-prone regions do. Unreinforced structures face the risk of collapse or similar significant damage which poses a risk to the inhabitants and those that may be outside but near. Likewise, damage to infrastructure ranging from roadways, to buried pipelines, to structures could cripple a municipality’s capacity to maintain services or recover following a significant earthquake.</p> <p>Few if any injuries would likely be seen in Iowa from an earthquake. However, the elderly and individuals with mobility or balance challenges may face some injuries from falls.</p> <p>Response personnel are at minimal risk in Iowa. Continuity of operations would not likely be affected.</p> <p>Property losses would likely be minimal generally confined to minor cracks in walls to potentially knocking pictures or other objects hung on walls down. Dams may be most at risk, though given the distance from the nearest known fault lines, the risk would likely be limited.</p> <p>Earthquakes are naturally occurring events though threats to the environment may occur through chemical spills or hazardous substances disturbed by an earthquake.</p> <p>Damage to infrastructure and buildings, while minor, could result in costs to repair damaged brick or utilities.</p> <p>Earthquake coverage in Iowa insurance policies is not common, however the monetary impacts of an earthquake are likely minor given the distance to the nearest known fault lines.</p> <p>Since Iowa is not known for earthquakes, the reputation of local jurisdictions would likely not face much risk unless there is a significant event and lack of local response.</p>	2

<i>WARNING TIME</i>	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
<i>DURATION</i>	Due to the limited effects to Iowa, response to the occurrence of an earthquake would likely be in support of nearby states utilizing mutual aid agreements, in-state response would be likely be very limited.	4
	WEIGHTED SCORE	11

F. Mitigation.

Public Education and Outreach	
Description	Develop hazard education and outreach program to help Monroe county residents understand meaning of hazard warnings and self-protection measures
Estimated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	ADLM (emergency management), Albia, Lovilia & Melrose First Responders,
Mitigation Category	Public Education and Awareness
Related Goals/Objectives	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes -Flash Flooding, thunderstorm / lightning, Infrastructure Failure, severe winter storm, hazardous materials incident transportation incident, Windstorm/High Wind Event event, grass / wildfire, river flooding, tornado, hailstorm, dam failure, sink hole, extreme heat, human disease incident, earthquake, drought
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

New Storm Shelter/ cooling or heating shelter	
Program/Project Description	Construction of comprehensive storm shelter to Tornado Safe Room standards to serve as a temporary shelter for multiple hazards as often a Church, Community Center, Legion Hall, City Hall, and School are currently utilized as needed
Anticipated Cost	Moderate to high – grant dependent
Timeline/Schedule	Long Term (5+yrs)
Responsible Agency	City Councils
Mitigation Category	Structural project
Related Goals/Objectives	1.1, 1.3, 2.2, 3.1, 3.3- See also page 31 or Appendix 17
Addresses High Risk Hazard?	Yes - Flash Flooding, thunderstorm / lightning, Infrastructure failure, severe winter storm, hazardous materials, Windstorm/High Wind Event, tornado, hailstorm, sink hole, earthquake
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Continuity of Operations Planning	
Program/Project Description	City and City Departments work to develop procedures of what do when hazards occur including who has keys to shelters, contact list for city and emergency response personnel, priorities for what facilities to restore following disasters, how to direct Monroe County residents to minimize injuries, as well as (off-site) backups of important City documents and files
Anticipated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)

Responsible Agency	ADLM (emergency management) Albia, Lovilia & Melrose First responders,
Mitigation Category	Property protection
Related Goals/Objectives	1.1, 1.2, 2.2, 2.3, 2.4, 3.2, 3.4, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazard?	Yes - Flash Flooding, thunderstorm / lightning, Infrastructure Failure, , severe winter storm, hazardous materials incident, transportation incident, , Windstorm/High Wind Event river flooding, tornado, hailstorm, dam failure, sink hole, human disease incident, earthquake,
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Community Emergency Response Team	
Description	Encourage and support development of volunteer community emergency response team of residents who have access to equipment and training to respond if emergency services are unable to meet all of the immediate needs following disasters as well as checking in on elderly or disabled residents to ensure their safety
Estimated Cost	Volunteer
Timeline/Schedule	Short Term (1-2yrs)
Responsible Entity	ADLM- emergency management, Albia, Lovilia, & Melrose First Responders,
Mitigation Category	Public Education and Awareness, Emergency Services
Related Goals/Objectives	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.4, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes -Flash Flooding, thunderstorm / lightning, Infrastructure Failure severe winter storm, hazardous materials incident, transportation incident, Windstorm/High Wind, grass / wildfire, river flooding, tornado, hailstorm, dam failure, sink hole, extreme heat, human disease incident, earthquake, drought
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Rehabilitation of Older Buildings	
Description	Encourage property maintenance and help leverage funds for property owners unable to afford more significant structural maintenance
Estimated Cost	Minimal to moderate
Timeline/Schedule	Ongoing
Responsible Entity	Albia, Lovilia, Melrose City councils, County BOS
Mitigation Category	Property Protection, Prevention, Public Education and Awareness
Related Goals/Objectives	1.1, 1.3, 2.1, 2.2, 2.3, 2.4, 3.3- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Thunderstorm / Lightning, Infrastructure Failure, Severe Winter Storm, Windstorm/High Wind Event, Tornado, Hailstorm, Sink Holes, Human Disease Incident, Earthquake,
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Search and Rescue Training for First Responders	
Description	Training Firefighters and other local emergency responders best practices in search and rescue operations
Estimated Cost	Minimal to moderate
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	Albia, Lovilia, & Melrose First responders,
Mitigation Category	Emergency Services
Related Goals/Objectives	1.1, 1.2, 1.3, 2.2, 2.3, 3.1, 3.4, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, Infrastructure Failure, Severe Winter Storm, Hazardous Materials Incident, Transportation Incident, River Flooding, Tornado, Windstorm/High Wind Event, Dam Failure, Sink Holes, Earthquake, Landslide
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Mass Casualty Preparation

Description	Develop plan for how to handle mass casualties resulting from hazard events in and near each jurisdiction
Estimated Cost	Minimal to moderate
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	Albia First Responders, ADLM-Emergency Management
Mitigation Category	Emergency Services
Related Goals/Objectives	1.1, 1.2, 2.2, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, Structural Failure, Severe Winter Storm, Hazardous Materials Incident, Transportation Incident, River Flooding, Tornado, Human Disease Incident, Dam Failure, Sink Holes, Earthquake
Jurisdictions	Albia

Building Code Enforcement	
Description	Encourage all local governments to adopt and enforce updated building codes to reduce the risk of collapse, failure or injury in the event of a disaster.
Estimated Cost	Moderate
Timeline/Schedule	ongoing
Responsible Entity	Albia City Council,
Mitigation Category	Prevention
Related Goals/Objectives	1.1, 1.2, 1.3, 2.1, 2.4, 2.6, 3.4- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Severe winter storm, Infrastructure failure, Human disease, Human disease incident, earthquake
Jurisdictions	Albia

14. **Hazard Profile – Terrorism**

This hazard encompasses the following consolidated hazards from the 2007 mitigation plan: enemy attack, biological terrorism, agro-terrorism, chemical terrorism, conventional terrorism, cyber terrorism, radiological terrorism and public disorder. This includes the use of multiple outlets to demonstrate unlawful force, violence, and/or treat again persons or property causing intentional harm for purposes of intimidation, coercion or ransom in violation of the criminal laws of the United States. These actions may cause massive destruction and/or extensive casualties.

A. **Description.**

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.

PUBLIC DISORDER – 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 assembling of people together in a manner to substantially interfere with public peace to constitute a threat, and with use of unlawful force or violence against another person, or causing property damage or attempting to interfere with, disrupting, or destroying the government, political subdivision, or group of people. Labor strikes and work stoppages are not considered in this hazard unless they escalate into a threat to the community. Vandalism is usually initiated by a small number of individuals and limited to a small target group or institution. Most events are within the capacity of local law enforcement.

BIOLOGICAL TERRORISM – use of biological agents against persons or property in violation of the criminal laws of the United States for 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. Biological agents may pose viable threats from hours to years depending upon the agent and the conditions in which it exists. Depending on the agent

used and the effectiveness with which it is deployed, contamination can be spread via wind and water. Infections can be spread via human or animal vectors.

AGRO-TERRORISM – Causing intentional harm to an agricultural product or vandalism of agricultural/animal related facility is agro-terrorism. This category covers a large variety of incidents from potential to intentional introduction of disease; vandalism of facilities; theft of agricultural products, machinery, or chemicals; release of animals; and contamination of agricultural products. Depending on the type of action taken, the implications will vary greatly. Activities could include the following examples: animal rights activities who release mink or lab animals; disgruntled employees who intentionally contaminated 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.

CHEMICAL TERRORISM - this involves the use or threat of chemical agents against persons or property in violation of the criminal laws of the United States for 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 and wind. Chemicals may be corrosive or otherwise damaging over time if not mitigated.

CONVENTIONAL TERRORISM - The use of conventional weapons and explosives against persons or property in violation of the criminal laws of the United States 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 of 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.

CYBER ATTACK- 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.

RADIOLOGICAL TERRORISM – This is the use of radiological materials against persons or property in violation of the criminal laws of the United States for purposes of intimidation, coercion or ransom. Radioactive contaminants can be dispersed using sprayers/aerosol generators, or by point of line resources such as munitions, covert deposits, and moving sprayers or by the detonation of nuclear device underground, at the surface, in the air or at high altitude.

B. Past Occurrences.

ENEMY ATTACK – The federal government monitors the international political and military activities of other nations and would notify the State of Iowa of escalating military threats. There are many small military installations in Iowa; most are Iowa National Guard assets spread throughout the state comprised of various military units and functions. There have been no enemy attacks on or in Iowa in modern times. The only history of enemy attack dates back to the days of settlement and the Civil War in the 1800's. The breakup of the Soviet Union and other Soviet-Bloc nations has ended the Cold War. However, an enemy attack is still a possibility due to international conflicts and the large number of weapons still in existence throughout the world.

PUBLIC DISORDER – Large-scale civil disturbances rarely occur, but when they do they are usually an offshoot or result of one or more of the 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 shortage caused by a catastrophic event; 4) disagreements between special interest groups over a particular issue or cause; 5) a perceived unjust death or injury to a person held in high esteem or regard by a particular segment of society. There have been numerous labor disputes and protests in Iowa, but these have remained fairly non-violent. Other non-peaceful incidents have occurred in the state, but within the state, but within the response capabilities of local law enforcement.

BIOLOGICAL TERRORISM - Iowa has not been immune to acts of terrorism or sabotage, the state has experienced many threats in the past. Most incidents have been limited to reported “suspect” powders, actual threats, and hoaxes. Beginning in October 2001, following the original “Anthrax” scares, we experienced a large number of responses for suspicious powders. Following the development of a threat assessment/response protocol the number of response was reduced; and now average a few responses each month.

AGRO-TERRORISM – Incidents such as this have occurred in the state of Iowa. Over the past 10 years, Iowa has experienced at least 10 incidents in which animal rights activities have vandalized or released animals in our agricultural facilities. Additionally, there has been vandalism to agricultural facilities or incidents of disgruntled employees causing damage to animals and animal products. There are frequent cases of theft of agricultural machinery, products, and chemical.

CHEMICAL TERRORISM - Iowa has not been immune to acts of terrorism or sabotage. The chemical terrorism history, fortunately, has been limited. We experience at least one event in 2005, where a subject mailed “rat poison” to a number of state and local officials. One of the letters was torn open in a mail-sorting machine in Des Moines, which led to the closure of the Main Post Office and the Emergency Room of Mercy Medical Center. We have experienced at least one event where subjects broke into a city’s water supply and it was suspected that chemicals may have been deposited in the water supply. We have experienced many releases of anhydrous ammonia by persons engaged in clandestine drug manufacturing. At least two events occurred in Des Moines between 2007 and 2009 but were later assessed as non-threatening and non-criminal.

CONVENTIONAL TERRORISM - The state of Iowa has experienced many bomb threats in the distant and recent past. During the spring of 2002, 18 pipe bombs were found in mailboxes in five states stretching from Illinois to Texas, including Iowa. Six people were injured in the bombings in Iowa and Illinois. In 2005 and 2006, pipe bombs were used in attempted murder cases in two Iowa cities.

CYBER ATTACK- 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 deliberating effect on public confidence in the internet.

RADIOLOGICAL TERRORISM – There is no history of radiological terrorism in Iowa. Since there is almost no record of acts of nuclear terrorism, an approach other than the traditional approach to probability of occurrence is needed to estimate the probability.

C. Vulnerable Locations/Buildings.

Exposure in Albia due to Terrorisms:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	1379	1379	100%	\$96,081,043	\$96,081,043	100%	3766	3766	100%
Commercial	166	166	100%	\$16,085,504	\$16,085,504	100%			100%
Industrial	14	14	100%	\$5,634,100	\$5,634,100	100%	-	-	-
Agricultural			-			100%	-	-	-

Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-						

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		
Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrellgas	121 10 th St			X				\$15,933	
USDA Office	1709 S B St			X	X				
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					
Monroe County Professional Mang	15 A Ave								
House of Kids Daycare	304 S Main St		X						
King's Kids Preschool	1115 A Ave		X						
Albia Daycare Preschool	100 N 2 nd St		X						
Private In-Home Daycare	1933 Hwy 137		X						
Private In-Home Daycare	6427 160 th St		X						
Private In-Home Daycare	703 A Ave W		X						
Private In-Home Daycare	120 Linden Lane		X						
Private In-Home Daycare	306 S Clinton Ave		X						
Private In-Home Daycare	11 Hickory Cr		X						
Private In-Home Daycare	216 S Clinton Ave		X						
Private In-Home Daycare	517 S 9 th St		X						
Private In-Home Daycare	1671 631 st Lane		X						
Private In-Home Daycare	806 F Ave E		X						
Private In-Home Daycare	403 Washington Ave E		X						

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office. Insured value is according to the school's insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M

Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the hospital’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value	Occupancy or capacity
Monroe Co Hospital	6580 165 th St	X	X	X	X					

Exposure in Lovilia due to Terrorisms:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	217	217	100%	\$9,760,486	\$9,760,486	100%	538	538	100%
Commercial	27	27	100%	\$759,126	\$759,126	100%			100%
Industrial	0	0	100%	0	0	100%	-	-	-
Agricultural	8	8	-	\$1,049,936.00-	\$1,049,936.00-	-	-	-	-
Religious / Non-profit	1	1	100%						
Government	3								
Education									
Utilities	-	-	-	-	-	-	-	-	-

Lovilia’s critical asset that can be affected by Terrorisms:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	\$ 125,537	\$257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	\$ 68,840	\$ 97,500
Community Bldg	608 W 17 th St				X				
Water plant	606 W 17 th St	X					1088 sq ft	\$ 43,700	\$ 49,070
Water tower	606 W 17 th St	X					--	\$ 285,600	--
City Maintenance/ Storage	1611 E Ave So				X		1239 sq ft	\$ 54,838	\$ 22,000
Lagoon	6057 115 th Trail	X					375 sq ft	\$ 132,490	--
Casey’s	1807 Highway 5						1962sq ft	\$ 102,125	
Lovilia Head Start	302 S H Ave			X					

MELROSE – exposure due to Terrorisms:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	58	58	100%	\$2,007,801	\$2,007,801	100%	112	112	100%
Commercial	8	8	100%	\$120,915	\$120,915	100%			100%
Industrial	1	1	100%	\$141,977	\$141,977	-	-	-	-
Agricultural	-	-	-		-	-	-	-	-
Religious / Non-profit	2	2	100%						
Government	2	2	100%						
Education									

Utilities	-	-	-	-	-	-	-	-	-
-----------	---	---	---	---	---	---	---	---	---

Melrose’s critical asset that can be affected by Terrorisms:

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Sewer Lift Station		X				X			
Quality Ag	502 Erin Ave			X				\$141,977	
Melrose Market	115 Erin St								

UNINCORPORATED COUNTY AREA – Exposure in unincorporated area due to Terrorisms:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in Unincorp	# in Planning Area	% in Planning Area	\$ in Unincorp area	\$ in Planning Area	% in Planning Area	# in Unincorp	# in Planning Area	% in Planning Area
Residential	1,379	1397	100%	\$125,076,897	\$125,076,897	100%	3554	3554	100%
Commercial	63	63	100%	\$5,287,024	\$5,287,024	100%			
Industrial	15	15	100%	\$174,113,751	\$174,113,751	100%	-	-	-
Agricultural	905	905	100%	\$57,938,330.00	\$57,938,330.00	100%	-	-	-
Religious / Non-profit	4	4	100%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
Electrical Substations (4)	Scattered locations	X						\$1M/ea
Landfill				X				
Lake Miami Campground	N Hwy 5		X					
Rural Water towers (3)	Scattered location	X						\$1M/ea
IDOT roads maintenance shop	South Hwy 5			X				
Lake Miami dam	N Hwy 5				X			
Halley’s Trailer Park (35 homes)	East Hwy 34		X					\$68,890 land \$90,041 bldgs
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X				\$80,026,460
Lazy-Daz Ranch (91 structures)	Melrose		X		X			\$2,058,658
Green Acres Mobile homes (108 structures)	Melrose		X		X			\$3,467,566
Monroe County Fairgrounds (land & structures)	North Hwy 5			X				\$310,613
Lazy Daz Ranch Estates(21 structures)	Near Melrose		X		X			\$758,831

Willow Park	Melrose		X		X			\$169,790
Wacker Chemical Corp	NE corner of county			X	X			\$5,114,095
Ajinomoto Heartland, LLC	NE corner of county			X	X			\$29,733,719
Ajinomoto USA Inc/ Ajinomoto Food	NE corner of the county			X	X			\$22,895,026

D. Loss Estimate.

The likelihood of terrorism is low in this rural area of the United States. Any event could have significant loss of life and/or property. The greatest risk and potential loss would include the industries that the Iowa Bioprocessing Center with the potential losses in the hundreds of millions of dollars and hundreds of residents who are employed.

E. Hazard Scoring & Ranking.

<i>HAZARD SCORE CALCULATION</i>				
PROBABILITY	MAGNITUDE/SEVERITY	WARNING TIME	DURATION	WEIGHTED SCORE
1	3	4	4	12

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	<p>ENEMY ATTACK – THE SHMT AND THE LOCAL COMMITTEE HAS EVALUATED THE PROBABILITY THAT AN ENERGY ATTACK WILL OCCUR IN IOWA IS UNLIKELY IN ANY GIVEN YEAR. ALTHOUGH DES MOINES IS THE STATE CAPITOL, COUNTY SEAT, AND MOST POPULOUS CITY AND THUS A POTENTIAL TARGET IN AN ALL-OUT ATTACK ON THE UNITED STATES, IT IS UNLIKELY THAT IOWA WOULD BE A PRIMARY TARGET DURING AN ENEMY ATTACK. THE U.S. FEDERAL GOVERNMENT MONITORS GLOBAL POLITICAL GLOBAL POLITICAL SITUATIONS AND PROVIDES SECURITY FROM INTERNATIONAL ATTACKS. WORLD EVENTS IN RECENT YEARS HAVE GREATLY CHANGED THE NATURE OF ENEMY ATTACK/WAR.</p> <p>PUBLIC DISORDER – ALTHOUGH LARGE-SCALE 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 THE INTERNET PROVIDE THE ABILITY TO INSTANTLY BROADCAST INFORMATION (FACTUAL OR NOT), IN REAL TIME, TO THE ENTIRE COMMUNITY. OFTEN TIMES THAT COVERAGE HELPS TO SPREAD THE INCIDENT TO OTHER, UNINVOLVED OR UNAFFECTED AREAS, EXACERBATING AN ALREADY DIFFICULT SITUATION. THIS ALSO ALLOWS INSIGHTFUL PEOPLE, PREVIOUSLY NOT INVOLVED, TO PARTICIPATE IN THE DISTURBANCE FOR NO OTHER REASON THAN TO RIOT, LOOT, BURN, AND DESTRUCT. ALCOHOL IS OFTEN INVOLVED IN PUBLIC DISORDER, ESPECIALLY RELATED TO COLLEGE CAMPUSES, SPORTING EVENTS, AND CONCERTS. THE LOCAL HMP COMMITTEE HAS EVALUATED THE PROBABILITY THAT A SERIOUS PUBLIC DISORDER EVENT IS UNLIKELY TO OCCUR IN IOWA IN ANY GIVEN YEAR.</p> <p>BIOLOGICAL TERRORISM – THE LOCAL HMP COMMITTEE EVALUATED THE PROBABILITY THAT A BIOLOGICAL TERRORISM WILL POSSIBLY OCCUR IN IOWA WITH A PROBABILITY OF UNLIKELY IN ANY GIVEN YEAR.</p> <p>AGRO-TERRORISM – THE LOCAL HMP COMMITTEE EVALUATED THE PROBABILITY THAT A SERIOUS AGRO TERRORISM EVENT IS UNLIKELY TO OCCUR IN IOWA IN ANY GIVEN YEAR.</p> <p>CHEMICAL TERRORISM - THE LOCAL HMP COMMITTEE ANALYSIS EVALUATED THE PROBABILITY THAT CHEMICAL TERRORISM WILL OCCUR IN IOWA AS UNLIKELY IN ANY GIVEN YEAR.</p> <p>CONVENTIONAL TERRORISM - THE LOCAL HMP COMMITTEE EVALUATED THE PROBABILITY OF A HIGH IMPACT CONVENTIONAL TERRORISM INCIDENT OCCURRING IN IOWA IN ANY GIVEN YEAR TO BE UNLIKELY.</p> <p>CYBER ATTACK- THE LOCAL HMP COMMITTEE EVALUATED THE PROBABILITY THAT A SERIOUS IMPACT INTRUSION WILL OCCUR IN IOWA AS UNLIKELY IN IOWA ANY GIVEN YEAR.</p>	1

	<p>RADIOLOGICAL TERRORISM – WITH NO PRIOR EVENTS BY WHICH TO JUDGE PROBABILITY, IT BECOMES NECESSARY TO CONSIDER THE TECHNICAL FEASIBILITY OF RADIOLOGICAL TERRORISM. GIVEN THAT THE RADIATION WOULD KILL ANYONE BEFORE THEY COULD AMASS ENOUGH MATERIAL TO PRODUCE A WEAPON, THE THREAT IS RELATIVELY LOW. TECHNICAL FEASIBILITY IS IMPORTANT BECAUSE WHATEVER IS FEASIBLE MIGHT ALSO BE REALIZED AND MIGHT HAPPEN. THE THREAT IS RELATIVELY LOW BECAUSE IT IS TECHNICALLY INFEASIBLE TO CONSTRUCT SUCH A WEAPON FOR TERRORIST USES. THE LOCAL HMP COMMITTEE EVALUATED THE PROBABILITY THAT RADIOLOGICAL TERRORISM IS UNLIKELY TO HAPPEN OR HAS UNLIKELY PROBABILITY IN ANY GIVEN YEAR.</p>	
<p><i>MAGNITUDE / SEVERITY</i></p>	<p>SINCE THE TARGETS OF ATTACKS ON CRITICAL INFRASTRUCTURE WOULD LIKELY INCLUDE BOTH FACILITIES IN THE ECONOMY AND THOSE IN THE GOVERNMENT. THESE CRITICAL INFRASTRUCTURES INCLUDE INFORMATION AND COMMUNICATION SYSTEMS; ELECTRICAL POWER SYSTEMS; GAS AND OIL PRODUCTION, STORAGE, AND TRANSPORTATION SYSTEMS; BANKING AND FINANCE ORGANIZATIONS; TRANSPORTATION DISTRIBUTION SYSTEMS; WATER SUPPLY SYSTEMS; EMERGENCY SERVICES; AND GOVERNMENTAL SERVICES. NEARLY EVERY CITIZEN, BUSINESS AND ORGANIZATION DEPENDS ON THESE FOR NORMAL OPERATION AS WELL AS SAFETY AND SECURITY. IF NOT AFFECTED DIRECTLY, THE ENTIRE COMMUNITY WOULD BE VULNERABLE THROUGH INDIRECT IMPACTS.</p> <p>WHILE THE ENTIRE STATE WOULD LIKELY BE AFFECTED IN SOME SORT OF WAY, AREAS NEAR GOVERNMENT BUILDINGS, MILITARY COMPLEXES, AND TRANSPORTATION, COMMUNICATION, AND FUEL FACILITIES WOULD EXPERIENCE THE LARGEST IMPACTS. A FULL-SCALE ATTACK IN THE FORESEEABLE FUTURE IS NOT LIKELY; HOWEVER, A LIMITED ATTACK COULD TAKE PLACE THAT COULD POTENTIALLY THREATEN TARGET AREAS. GIVEN THE TREMENDOUS DESTRUCTIVE CAPABILITY OF EVEN ONE NUCLEAR WEAPON, THE DEVASTATION THAT COULD OCCUR WOULD BE FAR WORSE THAN ANYTHING EVER EXPERIENCED IN THIS COUNTRY.</p> <p>INNOCENT PEOPLE ARE OFTEN VICTIMS OF TERRORIST ACTIVITY TARGETED AT CERTAIN ORGANIZATIONS AND ACTIVITIES. BASED ON THE METHOD OF DELIVERY, THE GENERAL PUBLIC IS VULNERABLE TO BIOTERRORISM. STATE AND LOCAL AGENCIES DEVELOPED THE BIOLOGICAL CHEMICAL THREAT AGENT (BCTA) PROTOCOL MODEL TO GUIDE RESPONSE AGENCIES. THE AMERICAN PUBLIC IS NOT VACCINATED FOR MANY OF THE AGENTS USED AS WEAPONS BY TERRORIST GROUPS. IOWA VACCINATED VOLUNTEERS AGAINST SMALLPOX AT 15 HOSPITALS IN EARLY 2003. THE US POSTAL SERVICE INSTALLED BIO-DETECTION SYSTEMS (BDS) IN 2005-06 IN SEVERAL POSTAL SORTING FACILITIES IN IOWA TO ADDRESS EARLY DETECTION SINCE MANY OF THE THREATS HAVE USED THE POSTAL DELIVERY SYSTEM.</p> <p>BECAUSE OF THE CHARACTERISTICS OF THE WEAPONS TERRORISTS USE, THE AREA CAN BE LIMITED TO A ROOM, BUILDING, OR AN ENTIRE COMMUNITY. DEPENDING ON THE AGENT USED AND THE EFFECTIVENESS WITH WHICH IT IS DEPLOYED, CONTAMINATION CAN BE SPREAD VIA WIND AND WATER. INFECTIONS CAN BE SPREAD VIA HUMAN OR ANIMAL VECTORS. BECAUSE OF THE VARIABLES DESCRIBED ABOVE, THE GEOGRAPHIC EXTENT CAN BECOME QUITE BROAD BEFORE THE INCIDENT IS RECOGNIZED AS A TERRORIST ACT.</p> <p>CHEMICAL AGENTS MAY POSE VIABLE THREATS FOR HOURS TO WEEKS DEPENDING ON THE AGENT AND THE CONDITIONS IN WHICH IT EXISTS. SHIELDING IN THE FORM OF SHELTERING IN PLACE CAN PROTECT PEOPLE AND PROPERTY FROM HARMFUL EFFECTS. THERE ARE A LIMITED NUMBER OF ANTIDOTES AVAILABLE TO REDUCE THE VULNERABILITY FROM CHEMICAL AGENTS.</p> <p>CYBER SECURITY PROFESSIONALS ARGUE THAT CURRENT APPROACHES ARE INADEQUATE. WITH COMPANIES INCREASINGLY USING THE INTERNET TO CONNECT TO SUPPLIERS AND CUSTOMERS, THEY SAY ORGANIZATIONS PLACE TOO MUCH FAITH IN TECHNOLOGY TO PROTECT THEIR DATA AND DO NOT PAY ENOUGH ATTENTION TO SECURITY EDUCATION AND AWARENESS. INADEQUATE SECURITY CAN FACILITATE ACCESS TO CRITICAL COMPUTER SYSTEMS, ALLOWING THEM TO BE SUED TO CONDUCT ATTACKS. OUR SOCIETY IS HIGHLY NETWORKED AND INTERCONNECTED AND AN ATTACK COULD BE LAUNCHED FROM ANYWHERE IN THE WORLD.</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. INITIAL EFFECTS WILL BE LOCALIZED TO SITE OF ATTACK; DEPENDING ON METEOROLOGICAL CONDITIONS, SUBSEQUENT BEHAVIOR OF RADIOACTIVE CONTAMINATES MAY BE DYNAMIC. GIVEN THE TECHNICAL FEASIBILITY OF RADIOLOGICAL TERRORISM, THE SEVERITY OF AN INCIDENT WOULD PRIMARILY BE</p>	<p>3</p>

	<p>ISOLATED TO THE DETONATION OF EXPLOSIVE MATERIALS; HOWEVER THE DISCOVERY OF SLIGHTLY ELEVATED RADIATION LEVELS WOULD INCITE HYSTERIA AMONGST THE UNINFORMED PUBLIC.</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 A PEACEFUL MANNER. PEOPLE CAN BE AT RISK ARE THE PARTICIPANTS AND LAW ENFORCEMENT OFFICIALS. INNOCENT BYSTANDERS AND THEIR PROPERTY CAN ALSO BE AT RISK.</p>	
<i>WARNING TIME</i>	<p>AS MENTIONED ABOVE, THE U.S. GOVERNMENT MONITORS WORLDWIDE POLITICAL AND MILITARY ACTIVITY. THE CITIZENS AND STATES OF THE US WOULD BE PUT ON HEIGHTENED ALERT DURING PERIODS OF INTENSE POLITICAL OR MILITARY CONFLICT. WITH IOWA'S POSITION IN THE INTERIOR OF THE US THERE WOULD LIKELY BE SIGNIFICANT WARNING OF AN IMPENDING ENEMY ATTACK.</p> <p>ACTS OF TERRORISM CAN BE IMMEDIATE AND OFTEN COME AFTER LITTLE OR NO WARNING. THE ONLY EXCEPTION WOULD BE IF SOMEONE CALLED IN A THREAT. ACTS OF TERRORISM CAN BE IMMEDIATE AND OFTEN COME AFTER LITTLE OR NO WARNING. THERE ARE OCCASIONS WHERE TERRORISTS HAVE WARNED THE TARGETED ORGANIZATION BEFOREHAND. HOWEVER, EXPLOSIONS ARE USUALLY INSTANTANEOUS; ADDITIONAL SECONDARY DEVICES MAY BE USED, LENGTHENING THE DURATION OF THE HAZARD UNTIL THE ATTACK SITE IS DETERMINED TO BE CLEAR. BECAUSE OF THE NETWORKS (FORMAL AND INFORMAL) THAT EXIST TO SHARE INTRUSION ATTEMPTS AND IMPACTS, WARNINGS CAN BE PUT OUT IN ADVANCE TO ALERT THOSE IN SIMILAR SITUATIONS TO TAKE PROTECTIVE SECURITY RECOMMENDATIONS SUCH AS UPDATING VIRUS PROTECTION SOFTWARE, MAKING SURE SECURITY PATCHES ARE IN PLACE, ETC. WARNING TIMES CAN RANGE FROM NO WARNING TO DAYS. BECAUSE OF OUR HIGHLY INVOLVED COMPUTER NETWORKS AND DATA SHARING, BUGS, VIRUSES, AND WORMS CAN PROLIFERATE RAPIDLY. EFFECTS OF HACKING CAN BE INSTANTANEOUS.</p> <p>EVENTS THAT INCITE PUBLIC DISORDER CAN BUILD UP OVER HOURS, DAYS, OR YEARS, AND THE VIOLENT DISTURBANCE IS A CULMINATION OF THE LONG-TERM SITUATION. CIVIL DISRUPTIONS CAN ALSO ESCALATE VERY RAPIDLY FOLLOWING EVENTS WHERE PEOPLE ARE GATHERED SUCH AS SPORTING EVENTS, CONCERTS, AND SPEECHES.</p>	4
<i>DURATION</i>	<p>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.</p>	4
	WEIGHTED SCORE	12

F. Mitigation.

Assessment Risk for Terrorism	
Description	Local jurisdictions will develop a through risk and threat assessment that identifies potential vulnerabilities and potential targets for a terroristic attack.
Estimated Cost	Moderate
Timeline/Schedule	Long Term (5+yrs)
Responsible Entity	Albia, Lovilia, & Melrose First Responders, ADLM emergency management
Mitigation Category	Prevention, Public Education and Awareness
Related Goals/Objectives	1.1, 2.2, 2.3, 3.1, 3.4, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Terrorisms
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Critical Infrastructure Protection (CIP) from terrorism	
Description	Critical Infrastructure Protection will be a prominent part of a community risk assessment & threat assessment. It will identify vulnerabilities and possible targets for terroristic actions. The CIP insures that critical

	services such as water, electricity, telephones, roads, bridges, etc. in the event of an act of terrorism.
Estimated Cost	Moderate
Timeline/Schedule	Long Term (5+yrs)
Responsible Entity	Albia, Lovilia, & Melrose First Responders, ADLM emergency management
Mitigation Category	Prevention, Public Education and Awareness
Related Goals/Objectives	1.1, 1.2, 1.3, 2.2, 3.1, 3.2, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Terrorisms
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

15. **Hazard Profile – Flash Flooding**

A flood is caused by heavy or excessive rainfall in a short period of time, generally less than 6 hours. Flash floods are usually characterized by raging torrents after heavy rains that rip through river beds, urban streets, or mountain canyons sweeping everything before them. They can occur within minutes or a few hours of excessive rainfall. They can also occur even if no rain has fallen, for instance after a levee or dam has failed, or after a sudden release of water by a debris or ice jam (National Weather Service).

A. **Description.**

Flooding causes more damage in the United States than any other severe weather related event, an average of \$5 billion a year. Flooding can occur in any of the 50 states or U.S. territories at any time of the year. Flash flooding can occur anywhere and is not confined to or near flood plains; once the soil is saturated, water will wash over it to lower lying areas. Damage is likely to be more severe in lower lying areas, but can occur at higher ground as well.

Flash flooding is an extremely dangerous form of flooding which can reach full peak in only a few minutes and allows little or no time for protective measures to be taken by those in its path. Flash flood waters move at very fast speeds and can roll boulders, tear out trees, scour channels, destroy buildings, and obliterate bridges. Flash flooding often results in higher loss of life, both human and animal, than slower developing river and stream flooding.

Two common terms to describe areas that are prone to flooding are 100-year flood plain and 500-year flood plain. The meaning of these terms are often confused; though they sound like a flood in the designated areas only happens once every 100 or 500 years, this interpretation is incorrect. What the designation actually means is that for a 100-year flood plain, the chance of a flood occurring in any given year is 1% which is statistically about once every 100 years. Likewise, for the 500-year flood plain, the chance is .2% chance of a flood occurring in any given year. Floods may certainly occur more frequently in either flood plain designation, but these would be rare occurrences.

Flash floods do not always occur in flood plains, during heavy downpours the capacity of the soil to absorb rain can be overwhelmed leading to water accumulating and running off of the surface of the land. Similarly with compaction of soil due to build infrastructure such as roads and buildings heavy rain is limited in its local soil infiltration capacity leading to runoff. This runoff can accumulate very quickly resulting in flash flooding.

B. **Past Occurrences.**

Floods are the most common and widespread of all-natural disasters except fire. In Iowa, as much as 21 inches of rain has fallen in a 24 hour period. The latest significant event to affect Iowa occurred in June/July of 2008. This event resulted in a Presidential Disaster Declaration due to widespread personal and physical property losses. Since then, many flash flood events have occurred across Iowa though mostly localized events. The National Climatic Data Center lists 1,628 flash flooding/urban or small stream flooding events from 1993-2009. Between 1993 and 2006 there have been seven (7) deaths and thirteen (13) injuries related to flash flooding in Iowa.

- a. Flash floods can result in death and injury, typically to individuals caught either in vehicles swept off of roads or who may be in low-lying areas when fast moving water moves through
- b. Flash floods can present a challenge to first responders by limiting access to a site or by requiring alternative modes of access such as by boat or helicopter; special training is often necessary for such rescues

- c. Continuity of operations can be affected depending on the facilities impacted, transportation impacts, and delays in government responses
- d. Property can be impacted either by being damaged by the force of flowing water, water damage inside buildings, and compromises to structural integrity due to erosion
- e. 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.
- f. Hazards of fire, health and transportation accidents, and contamination of water supplies are likely effects of flash flooding situations. Materials swept away by flood waters can contaminate and leave a lasting impact on the environment.
- g. Most impacts are indirect due to disruption of business and damage to infrastructure on which industry and services rely upon.

Flash floods can be damaging to the reputation of the community if proper notification and warning are not given. Often times the victim will blame development or other changes in the community as the cause of the flooding on their property.

Since 1950, there have been fifteen recorded flash flood events in Monroe County. All fifteen recorded events happened since 1993. These flash flood events caused \$690 million in property damage with no injuries or loss of life reported. The events caused \$125 thousand in crop damage.

Countywide flash flooding occurring in 2001 resulting in \$150,000 in Personal Property damage.

Eleven flash floods occurred in the spring and summer of 2008 in areas of Monroe County. Seven different communities recorded over \$225,000 in Personal property damage and \$10,000 in crop damage. Flash flooding occurred in Albia, Hiteman, Lovilia, Melrose, Selection, and Tyrone all in 2008. Cedar Creek commonly experiences flash flooding as it flows north to south and crosses approximately 75% the county's length.

The following chart displays the events documented by NOAA illustrating the past five years:

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Type</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
ALBIA	MONROE CO.	IA	06/15/2010	Flash Flood	0	0	100.00K	0.00K
ALBIA	MONROE CO.	IA	06/15/2010	Flash Flood	0	0	100.00K	0.00K
ALBIA	MONROE CO.	IA	09/10/2014	Flash Flood	0	0	50.00K	25.00K
Totals:					0	0	250.00K	25.00K

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Type</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
LOVILIA	MONROE CO.	IA	05/28/2013	Flash Flood	0	0	150.00K	0.00K
LOVILIA	MONROE CO.	IA	05/28/2013	Flash Flood	0	0	150.00K	0.00K
County Totals:					0	0	300K	00K

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Type</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
MELROSE	MONROE CO.	IA	05/28/2013	Flash Flood	0	0	500.00K	0.00K
Totals:					0	0	1.410M	25.00K

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Type</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
ALBIA	MONROE CO.	IA	06/15/2010	Flash Flood	0	0	100.00K	0.00K

AVERY	MONROE CO.	IA	06/15/2010	Flash Flood	0	0	25.00K	0.00K
ALBIA	MONROE CO.	IA	06/15/2010	Flash Flood	0	0	100.00K	0.00K
GEORGETOWN	MONROE CO.	IA	08/11/2010	Flash Flood	0	0	10.00K	0.00K
AVERY	MONROE CO.	IA	04/17/2013	Flash Flood	0	0	25.00K	0.00K
WELLER	MONROE CO.	IA	05/28/2013	Flash Flood	0	0	100.00K	0.00K
LOVILIA	MONROE CO.	IA	05/28/2013	Flash Flood	0	0	150.00K	0.00K
AVERY	MONROE CO.	IA	05/28/2013	Flash Flood	0	0	200.00K	0.00K
LOVILIA	MONROE CO.	IA	05/28/2013	Flash Flood	0	0	150.00K	0.00K
MELROSE	MONROE CO.	IA	05/28/2013	Flash Flood	0	0	500.00K	0.00K
ALBIA	MONROE CO.	IA	09/10/2014	Flash Flood	0	0	50.00K	25.00K
Totals:					0	0	1.410M	25.00K

C. Vulnerable Locations/Buildings.

ALBIA- exposure due to Flash Flooding

The community of Albia has experienced flash flooding in the northeast quarter of the City. The flooding occurs due to problems with poor storm water drainage system in that area. This places about 15% of the residential structures at risk of experiencing flooding damage. Specific locations in the city would include the underpass near “Aveune C”, North 8th Street, and streets near South 2nd Street and East 2nd Street. These three locations primarily impact street conditions and no commercial and few residential properties. Flash flooding can occur anywhere when there is an unseasonable amount of precipitation. Although there has not been recent damage to the school structures the potential still exists for any of the locations. Recently, Monroe County Hospital mitigated a drainage issue that was causing flash flooding near their loading docks. There has not been another occurrence since this action was taken but an unusually heavy rain could re-create this problem.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	1379	14	1%	\$96,081,043	\$960,810	1%	3766	38	1%
Commercial	166	1	1%	\$16,085,504	\$160,855	1%			
Industrial	14		0%	\$5,634,100			-	-	-
Agricultural			-				-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-	-	-	-	-	-	-

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Lift Station	Southeast Corner of City	X			X				

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the school’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the hospital’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Monroe Co Hospital	6580 165 th St	X	X	X	X				

LOVILIA – exposure due to Flash Flooding

Flash flooding occurs as a result of heavy rains over a short period of time and occurs without sufficient warning for the communities or individuals to take emergency protective measures. During periods of heavy rain Lovilia has limited concern at various locations throughout the city. Flash flooding that does occur outside of this region but it limited in nature. The most common impacts are minor street flooding, sewer infiltration and minimal basement flooding. Flash flooding was given a rating of high concern throughout Monroe County.

Lovilia has had limited experience with flash flooding but it has occurred under record rainfall incidents in the past few years. Primarily the storm water drainage systems could not keep up so there was flooding in low lying areas throughout the community. Specific locations with drainage issues include West 14th Street at the railroad tracks, Highway 5 & 16th Street intersection and various sections of 3rd Street and “H” Avenue.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	217	11	5%	\$9,760,486	\$488,024	5%	538	27	5%
Commercial	27	1	5%	\$759,126	37,956	5%			
Industrial	0		0%	0		0%	-	-	-
Agricultural	8		0%	\$1,049,936.00-		-	-	-	-
Religious / Non-profit	1		100%						
Government	3								
Education									
Utilities	-	-	-	-	-	-	-	-	-

Lovilia’s critical asset that can be affected by flash flooding:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
Gas Station	Highway 5	X		X					

MELROSE – exposure due to Flash Flooding

Flash flooding occurs as a result of heavy rains over a short period of time and occurs without sufficient warning for the communities or individuals to take emergency protective measures. During periods of heavy rain the communities noted particular areas of concern in the southern edge of Melrose. Floodplain mapping is available for Melrose and is shown in Appendix 1 and 2. Flash flooding that does occur outside of this region but it limited in nature, especially since much of this community is on a hillside. The most common impacts are minor street flooding, sewer infiltration and minimal basement flooding. Flash flooding was given a rating of high concern throughout Monroe County. The City of Melrose has the southern 20% of the community lying in the flood plain as draft mapped in the FEMA FIRM. This region has historically experienced flash flooding and continues to be at risk. This does include possible damage to the BNSF rail system, the MFA propane containers, potentially the community’s sewer lift station, a critical bridge and 2 structures that are on the private properties of the railroad and the MFA business.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	58	12	20%	\$2,007,801	\$401,560	20%	112	22	20%
Commercial	8	1	5%	\$120,915	\$6,045	5%			
Industrial	1	1	5%	\$141,977	\$7,099	5%	-	-	-
Agricultural	-	-	-		-	-	-	-	-
Religious / Non-profit	2	0	0						
Government	2	0	0						
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by Flash Flooding:

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
Sewer Lift Station	South edge of city	X							
Quality Ag	502 Erin Ave			X				\$141,977	

UNINCORPORATED COUNTY AREA – exposure due to Flash Flooding

The table below summarizes the maximum population and building exposure for flood events. The estimate of maximum population and building exposure based on an estimate of the Special Flood Hazard Areas of the unincorporated county. Monroe county LEPC specifically sites the locations of Middle Avery Creek along “Smokey Hollow”; White Creek Valley; and Cedar Creek Valley in the rural regions of the county is particularly vulnerable to flash flooding. Primary damage along these valleys results in roadway and agriculture damage. Also, Cedar Creek commonly experiences flash flooding as it flows north to south and crosses approximately 75% the county’s length. This creek can solely affect 5 villages in the unincorporated region. There are structures in low lying areas along Cedar and White Creek. Cedar Creek extends from the west county line to near the middle of Monroe County, then northwest to the north county line. Along this path, potential flash flooding could affect 12 county bridges, 1 road area, and 1 state highway bridge. White Creek extends from the west county line to the northeast and joins Cedar Creek. There are approximately 8 county bridges that could be impacted and 2 possible road areas that could experience a slide potential.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in region	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in region	# in Hazard Area	% in Hazard Area

Residential	1,379	138	10%	\$125,076,897	\$12,507,689	10%	3554	355	10%
Commercial	63	0	0%	\$5,287,024		0%			0%
Industrial	15	0	0%	\$174,113,751		0%	-	-	-
Agricultural	905	90	10%	\$57,938,330	\$5,793,833	10%	-	-	-
Religious / Non-profit	4	0	0%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory – Primary damage of flash flooding in the unincorporated county occurs to the roadways and bridges. There are no structures that have experienced damage due to flash flooding.

D. Loss Estimate.

County-wide damage was established from the NCDC data base from the past 65 years and are shown in Appendix 12. The most recent five years events are listed in “Past Occurrence”. Loss factors were developed specific to the attributes of Flash Flooding throughout the region. These factors were able to provide an annual damage estimate by dividing the total loss by number of years of data. Per event damage calculated by dividing total loss by number of events. During the past 15 years, approximately 16 flash flooding events have occurred in Monroe County. The loss from these events totaled \$2,115,000. This indicates an annual estimated loss of \$141,000. This timeframe also had \$150,000 in crop damage due to flash flooding. This would be an estimated \$10,000 annually. The 2013 Iowa State Mitigation Plan estimates that the annual average loss is \$80,000.

E. Hazard Scoring & Ranking.

<i>Hazard Score Calculation</i>					
	Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
Comprehensive Score	2	2	4	2	11
Unincorp County	4	2	3	2	11
Albia	2	2	4	2	10
Lovilia	2	2	4	1	9
Melrose	4	3	4	3	14

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	<p>Floods are the most common and widespread of all-natural disasters except fire. The National Climatic Data Center lists 1,628 flash flooding/urban or small stream flooding events from 1993-2009.</p> <p>As land is converted from fields or woodlands to roads and parking lots, it loses its ability to absorb rainfall. Urbanization increases runoff two (2) to six (6) times over what would occur on natural terrain. Portions of Iowa are very developed with significant amounts of impervious surfaces, as more development occur in the watersheds; the amount of runoff produced also increases. If measure are not taken to reduce the amount of runoff (or slow its movement), flash floods will continue to occur and may possibility increase.</p> <p>In certain area, aging storm sewers were not designed to carry the capacity currently needed to handle the increased storm runoff. This combined with rainfall trends (that are moving upwards) and rainfall extremes (that are patterning higher) all demonstrate the high likelihood yet, unpredictable nature of flash flooding in the state.</p> <p>The local HMP Committee evaluation concluded that it is highly likely that flash flood will affect multiple locations in Monroe County during any given year. All team members can relate to a flooding situation, making it easy to evaluate. Monroe County experiences numerous flash flooding events yearly.</p>	2

<i>MAGNITUDE / SEVERITY</i>	<p>Flash flooding can occur anywhere and is not confined to or near flood plains; once the soil is saturated, water will wash over it to lower lying areas. Damage is likely to be more severe in lower lying areas, but can occur at higher ground as well.</p> <p>Flash flooding is an extremely dangerous form of flooding which can reach full peak in only a few minutes and allows little or no time for protective measures to be taken by those in its path. Flash flood waters move at very fast speeds and can roll boulders, tear out trees, scour channels, destroy buildings, and obliterate bridges. Flash flooding often results in higher loss of life, both human and animal, than slower developing river and stream flooding.</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 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 dangerous if people are trapped in them.</p> <p>Rescuers are at significant risk when attempting to work in swift moving floodwaters associated with flash flooding.</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. Because flash flood water is off premises quickly, damages related to standing water is limited, but the current associated with flash floods because abrasive type damages such as erosion and undercutting.</p> <p>Flash floods can quickly inundate areas thought to be out of a flood-prone area. 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>	2
<i>WARNING TIME</i>	Flash floods are somewhat unpredictable, but there are factors that can point to the likelihood of flood's occurring in an area. Flash floods occur with a few minutes or hours of excessive rainfall, a dam or levee failure, or a sudden release of water held by and ice jam. Weather surveillance radar is being used to improve monitoring capabilities of intense rainfall. Knowledge of the watershed characteristics, modelling, monitoring, and warning systems increase the predictability of flash floods. Depending on the location in the watershed, warning times can be increased.	4
<i>DURATION</i>	The response time to the effects of flash flooding in Iowa is short in duration due to the nature of the hazard.	2
WEIGHTED SCORE		10

F. Mitigation.

CRS Participation	
Description	Explore feasibility of City participating in Community Rating System for enhanced flood protection
Estimated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	Albia & Melrose City Council, County BOS
Mitigation Category	Property Protection, Prevention
Related Goals/Objectives	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 3.1- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, river flooding
Jurisdictions	Albia, Melrose, Unincorporated county

Continuity of Operations Planning	
Program/Project Description	City and City Departments work to develop procedures of what do when hazards occur including who has keys to shelters, contact list for city and emergency response personnel, priorities for what facilities to restore following disasters, how to direct Monroe County residents to minimize injuries, as well as (off-site) backups of important City documents and files
Anticipated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Agency	ADLM (emergency management) Albia, Lovilia, & Melrose First responders
Mitigation Category	Property protection
Related Goals/Objectives	1.1, 1.2, 2.2, 2.3, 2.4, 3.2, 3.4, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazard?	Yes - Flash Flooding, thunderstorm / lightning, Infrastructure Failure, severe winter storm, hazardous materials incident, transportation incident, Windstorm/High Wind Event, river flooding, tornado, hailstorm dam failure, sink hole, human disease incident, earthquake,
Jurisdictions	Albia, Lovilia, Melrose,

Community Emergency Response Team	
Description	Encourage and support development of volunteer community emergency response team of residents who have access to equipment and training to respond if emergency services are unable to meet all of the immediate needs following disasters as well as checking in on elderly or disabled residents to ensure their safety
Estimated Cost	Volunteer
Timeline/Schedule	Short Term (1-2yrs)
Responsible Entity	ADLM- emergency management, Albia, Lovilia, & Melrose First Responders,
Mitigation Category	Public Education and Awareness, Emergency Services
Related Goals/Objectives	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.4, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes -Flash Flooding, thunderstorm / lightning, Infrastructure Failure, severe winter storm, hazardous materials incident, transportation incident, Windstorm/High Wind Event, grass / wildfire, river flooding, tornado, hailstorm, dam failure, sink hole, extreme heat, human disease incident, earthquake, drought
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Weather Radios	
Description	Encouragement of residents and businesses to obtain NOAA weather radios
Estimated Cost	Voluntary program; approximately \$30 per radio
Timeline/Schedule	Short Term (1-2yrs)
Responsible Entity	residents
Mitigation Category	Prevention and Public Awareness
Related Goals/Objectives	1.1, 1.3, 2.2, 3.1, 3.2, 3.3, 3.4- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, thunderstorm / lightning, severe winter storm, Windstorm/High Wind Event, river flooding, tornado, hailstorm, extreme heat, may address other hazards as well
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Flood proofing (wet or dry)	
Description	Encourage property owner use of flood proofing techniques to reduce potential flood-related damages such as water-proofing basement walls, structural modifications allowing flood waters to pass through or around structures without causing damage (as part of remodeling or disaster related repairs), use of water- / mold-resistant paints, etc.

Estimated Cost	Minimal to high depending on structure and techniques
Timeline/Schedule	Short Term (1-2yrs)
Responsible Entity	Albia City councils (encouragement) and Property Owners (execution)
Mitigation Category	Public Education and Awareness, Structural Projects, Prevention
Related Goals/Objectives	1.1, 1.3, 2.2, 2.3, 2.4- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, river flooding
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Storm water Management	
Description	Develop a storm water management ordinance to minimize impacts on storm water system and to minimize flash flooding impacts; may include artificial erosion control, creek bank stabilization, erosion resistant planting on steep slopes (deep root plants) to slow and help infiltrate storm water, terracing hillsides, grading techniques
Estimated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	Albia, Lovilia, Melrose City Councils, County BOS
Mitigation Category	Prevention, Natural Resource Protection
Related Goals/Objectives	1.1, 2.2, 2.3, 2.4, 3.1- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, Thunderstorm / Lightning, Severe Winter Storm, River Flooding, Sink Holes
Jurisdictions	Albia, Lovilia, Melrose

Evacuation Plans	
Description	Develop evacuation plans for school, community buildings, and for town
Estimated Cost	Minimal to moderate
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	ADLM-Emergency Management, Albia, Lovilia, & Melrose Fire department, Albia community Schools,
Mitigation Category	Prevention, Emergency Services
Related Goals/Objectives	1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.4, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, Infrastructural Failure, Hazardous Materials Incident, Transportation Incident, River Flooding, Dam Failure, Sink Holes
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Search and Rescue Training for First Responders	
Description	Training Firefighters and other local emergency responders best practices in search and rescue operations
Estimated Cost	Minimal to moderate
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	Albia, Lovilia & Melrose First responders,
Mitigation Category	Emergency Services
Related Goals/Objectives	1.1, 1.2, 1.3, 2.2, 2.3, 3.1, 3.4, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, Infrastructure Failure, Severe Winter Storm, Hazardous Materials Incident, Transportation Incident, River Flooding, Tornado, Windstorm/High Wind Event, Dam Failure, Sink Holes, Earthquake, Landslide
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Acquisition or relocation of buildings	
Description	Utilize disaster recovery funds or pre-disaster mitigation funds to acquire properties in floodplains or relocation of buildings outside of floodplains
Estimated Cost	Moderate to high
Timeline/Schedule	Ongoing
Responsible Entity	Albia city Council, Monroe BOS

Mitigation Category	Prevention, property protection
Related Goals/Objectives	1.1, 1.3, 2.2, 2.3, 2.4- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes - Flash Flooding, river flooding
Jurisdiction	Albia, Unincorporated County

NFIP Participation	
Description	Communities will consider or continue participating with the National Flood Insurance Program (NFIP).
Estimated Cost	Minimal
Timeline/Schedule	Ongoing
Responsible Entity	Albia City Council, Lovilia City Council, Melrose City Council
Mitigation Category	Prevention
Related Goals/Objectives	1.1, 1.3, 2.2, 2.3, 2.4- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, River Flooding
Jurisdiction	Albia, Melrose, Lovilia

16. Hazard Profile –Drought

A period of prolonged lack of precipitation for weeks at a time producing severe dry conditions.

A. Description.

There are three types of drought conditions that are relevant to Iowa:

METEORLOGIC DROUGHT: which refers to precipitation deficiency;

HYRDOLOGICAL DROUGHT: which refers to declining surface water and groundwater supplies;

AGRICULTURAL DROUGHT: which refers to soil moisture deficiencies.

Droughts can be spotty or widespread and last from weeks to a period of years. A prolonged drought can have serious economic impact on a community. Increased demand for water and electricity may result in shortages of resources. Moreover, food shortages may occur if agricultural production is damaged or destroyed by a loss of crops or livestock. While droughts are generally associated with extreme heat, droughts can and do occur during cooler months.

B. Past Occurrences.

According to the National Climatic Data Center, Iowa has had twenty (20) periods of drought from 1980-2009. During the period from 1980 to 2009, there was \$2.010 billion in crop damages resulting from drought periods. The most common trend was the consistency of drought periods during the months of July through August; out of the twenty (20) periods, nine (9) of them were between July and August. While some may have been more severe than others, agricultural areas were impacted much more than the metropolitan areas were impacts were indirect.

Regionally, the East Central and Southeast portion of Iowa has experienced at least eight droughts in the last ten years. Mid- to South Central Iowa has experienced five to seven droughts since 1995, followed by the Northwest to North Central areas of Iowa experiencing three or four recorded events. The Southwest and Northeast portions of the State have not been as significantly impacted s other areas.

The State of Iowa experienced a regional drought in 2012 that included Monroe County. According to the 2012 Agricultural Census, Monroe County had 85,196 harvested acres of land on 395 farms in Monroe County. The committee noted that these are statewide numbers and include the central section of the state which was the most severely damage. Although this may be viewed as one event, NCDC documented it on a monthly basis and the committee supported this approach for proof of the timeframe of the conditions.

There have been 11 droughts affecting Monroe County and the surrounding area since 1995 when the first recorded drought occurred. No deaths or injuries are associated with these events; however \$645.15 million in property damage resulted from the most recent drought in August of 2003. A combined total of \$1.6 billion in crop damage is recorded among the 11 events. All of these 11 recorded events included multiple counties thus

the costs of damages are dispersed. The following chart displays the most recent events in Monroe County as documented by NOAA:

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Type</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
MONROE (ZONE)	MONROE (ZONE)	IA	07/01/2012	Drought	0	0	0.00K	90.000M
MONROE (ZONE)	MONROE (ZONE)	IA	08/01/2012	Drought	0	0	0.00K	6.000M
MONROE (ZONE)	MONROE (ZONE)	IA	09/01/2012	Drought	0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	10/01/2012	Drought	0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	08/01/2013	Drought	0	0	0.00K	21.000M

C. Vulnerable locations/buildings.

Droughts can be spotty or widespread and last from weeks to a period of years. A prolonged drought can have serious economic impact on a community. Increased demand for water and electricity may result in shortages of resources. Moreover, food shortages may occur if agricultural production is damaged or destroyed by a loss of crops or livestock. While droughts are generally associated with extreme heat, droughts can and do occur during cooler months.

Drought is a naturally occurring hazard that occurs about every 20 years. The environmental impacts are usually short-term (resilient) and the natural environment is used to drought cycles. Drought more directly affects agricultural crops, livestock, natural vegetation, wildlife, and stream flows (fish and aquatic vegetation).

A severe drought, such as the event in 1988-1990 would have the greatest impact on agriculture crops, livestock, wildlife, and stream flows, as well as, the entire community. The agricultural would be the most severely impacted. Increased demand for water and electricity could result in shortages and rationing. The number and severity of fires may also increase.

The result of the drought on the economic impact would depend on the severity and length of the drought. A severe drought would have the greatest impact, but any reduction in agricultural income could result in reduced revenues for the agricultural and retail and service sectors.

Droughts rarely result in the loss of life, although the high heats that contribute to the droughts may also contribute to heat related illnesses and even death. In addition, property damage is not a direct impact of droughts, but drought conditions that may increase the fire hazard could be an indirect impact.

D. Loss Estimate.

County-wide damage was established from the NCDC data base from the past 65 years and are shown in Appendix 12. The most recent five years events are listed in "Past Occurrence". Loss factors were developed specific to the attributes of Drought throughout the region. These factors were able to provide an annual damage estimate by dividing the total loss by number of years of data. Per event damage calculated by dividing total loss by number of events. During the past 16 years, approximately 10 events have caused \$12,650,000 in property damage and \$97,650,000 in crop damage due to drought. This indicates and an annual loss of approximately \$790,625 in property damage and \$6,103,125 in crop damage annually in Monroe County. The 2013 Iowa State Mitigation Plan estimates the annual average loss is \$7.822 Million.

E. Hazard Scoring & Ranking.

<i>Hazard Score Calculation</i>				
Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
3	3	2	4	12

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	Drought is part of normal climate fluctuations. Climatic variability can bring dry conditions to the region for up to years at a time. Research and observations of the El Nino/La Nina climatic events are resulting in more predictable climatic forecasts. The committee discussions indicated that moderate forms of drought can be experienced on any given year as the entire Midwest often experiences that accompanying high summer temperatures. Members agreed that this profile had more of the intention of severe drought and major agricultural damage. The local HMP Committee agrees with the SHMT who evaluated the probability of future droughts in Monroe County and Iowa in the order of magnitude of between -3.0 to -3.9 Palmer drought severity index (severe drought event) at between 10% and 20% probability in any given year.	3
<i>MAGNITUDE / SEVERITY</i>	<p>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. 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.</p> <p>Fire suppression can also become a problem due to the dryness of the vegetation and possible lack of water. This would be most threatening to older buildings, especially those that are attached or are located very close to adjacent structures such as some of the buildings on the historic square of Albia.</p> <p>A drought would likely affect the state of Iowa if not the Midwest as a whole. Because of 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 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.</p> <p>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>	3
<i>WARNING TIME</i>	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 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.	2
<i>DURATION</i>	According to Iowa's drought history, most droughts that affect Iowa occur for at least a month at a time.	4
WEIGHTED SCORE		13

F. Mitigation.

Public Education and Outreach	
Description	Develop hazard education and outreach program to help Monroe county residents understand meaning of hazard warnings and self-protection measures
Estimated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	ADLM (emergency management), Albia, Lovilia, & Melrose First Responders
Mitigation Category	Public Education and Awareness
Related Goals/Objectives	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes -Flash Flooding, thunderstorm / lightning, Infrastructure Failure, severe winter storm, hazardous materials incident, transportation incident, Windstorm/High Wind Event, grass / wildfire, river flooding, tornado, hailstorm, dam failure, sink hole, extreme heat, human disease incident, earthquake, drought
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Water Storage or Saving Plans	
Description	Develop plan for water storage for back-up and to supplement Rathbun Rural Water, develop policy or program for helping residents reduce water demand using measures such as low-flow toilets and showerheads and landscaping
Estimated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	First Responders, ADLM emergency management,
Mitigation Category	Prevention, Public Education and Awareness
Related Goals/Objectives	1.1, 1.3, 2.2, 2.5, 3.1, 3.3, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes - InfraStructure Fire, Drought
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Burning Restrictions	
Description	Develop, implement, and enforce burning restrictions for trash and yard waste within each city's boundaries
Estimated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	Albia City Council, Melrose City Council, Lovilia City Council, County BOS
Mitigation Category	Prevention
Related Goals/Objectives	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Infrastrucure, Hazardous Materials
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

17. Hazard Profile – Extreme Heat

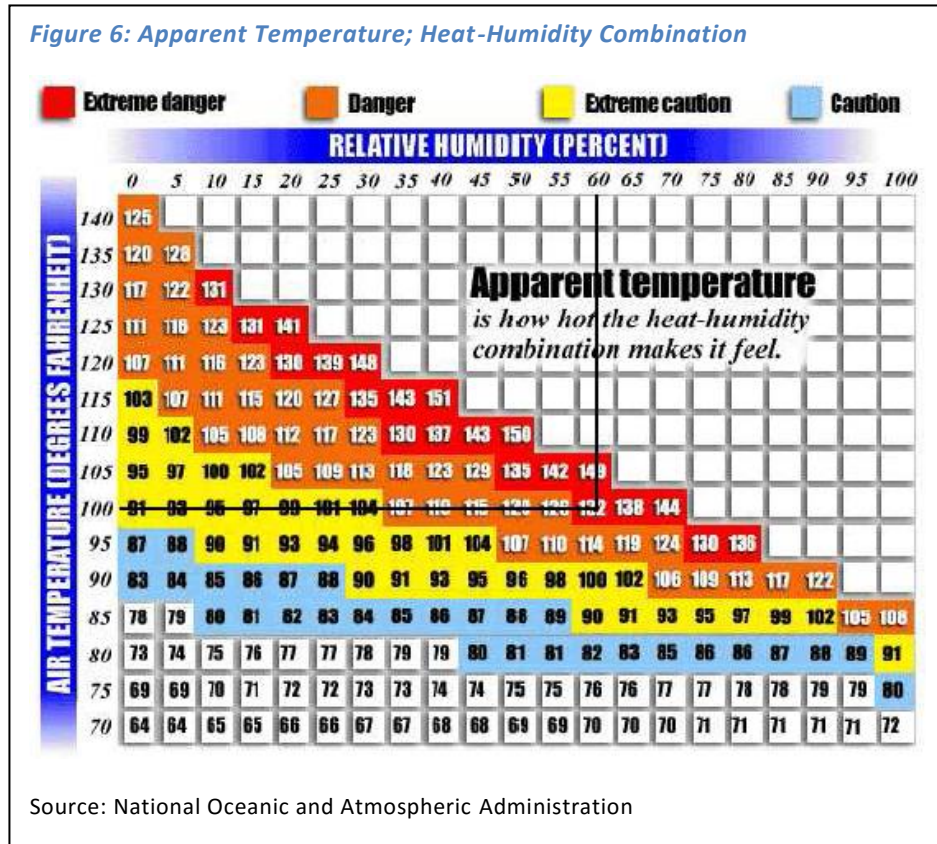
Temperatures (including heat index) in excess of 100 degrees Fahrenheit or 3 successive days of 90+ degrees Fahrenheit. A heat advisory is issued when temperatures reach 105 degrees and a warning is issued at 115 degrees.

A. Description.

Conditions for extreme heat are defined by summertime weather that is substantially hotter and/or more humid than average for a location at that time of year. This includes temperatures (including heat index) in excess of 100 degrees Fahrenheit or at least three (3) 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 sunshine can increase

the heat index by at least 15 degrees. Extreme heat can impose stress on humans and animals. Heatstroke, sunstroke, cramps, exhaustion, and fatigue are possible with prolonged exposure or physical activity due to the body's inability to dissipate the heat. Urban areas are particularly at risk because of air stagnation and large quantities of heat absorbing materials such as streets and buildings. Extreme heat can also result in distortion and failure of structures and surfaces such as roadways and railroad tracks.

Figure 6: Apparent Temperature; Heat-Humidity Combination



B. Past Occurrences.

During the period between 1995 and 2014 experienced 20 extreme heat events. The heat wave that occurred in July of 1995 had a major impact across the entire state, temperatures ranged from 98 degrees to 108 degrees with heat indices reaching a high of 131 degrees. This event lasted two (2) days causing 3.8 million dollars of property damage and resulted in three (3) fatalities. The figure relating to property damage with this event was based on a combination of livestock losses and transportation infrastructure damages. The following map depicts the number of extreme heat occurrences from 1994-2009.

During the summers of 1997 and 1998, there were combined total of 31 days when the high temperature was 90 degrees Fahrenheit or higher. There were three (3) periods when temperatures were 90 degrees or above for at least three (3) consecutive days during the summers of 2005-2006. Based on historical information, Iowa will likely experience around 26 days a year with temperatures above 90 degrees. There is a very good chance that there will also be period of at least three (3) consecutive days or more with temperatures in the 90s. It is also common for the temperature to hit 100 degrees or more once every three (3) years during the summer months.

Two periods of extreme heat between 1995 and 2001 resulted in 4 deaths and \$3.8 million in property damage for the region. In 2011, the region experienced an event that caused \$135,000 in property damage. The only event documented in the past five years is as follows:

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Type</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
MONROE (ZONE)	MONROE (ZONE)	IA	07/15/2011	Excessive Heat	0	0	135.00K	0.00K
Totals:					0	0	135.00K	0.00K

C. Vulnerable Population.

The table below summarizes the maximum population and building exposure to Extreme Heat. The health of the public and the economic impact on the agricultural community are the primary concerns with extreme heat. The segments of the public most at risk from extreme heat are the elderly, the very young, and individuals living below the poverty line. The estimated number of affected people in the table below is derived from the 2010 US census. Those included in this calculation are residents over 65 years, children under 5 years, individuals living below the poverty line and people living with a diagnosed disability. Economic impact on the agricultural sector could result from the damage to animals and crops. Livestock is particularly vulnerable to the effects of the extreme heat. Roads, bridges, and railroad tracks are also susceptible to damage from extreme heat. The HMGP committee believes that the major effect of an extreme heat will be on livestock and crops. Transportation facilities are also vulnerable to extreme heat. Most common type of damage is road buckles; however Monroe County has not tracked the damage expenses directly related to this hazard.

Monroe County (Unincorporated) Maximum Population & Building Exposure Extreme Heat								
Jurisdiction	Population 65yrs & older		Population 19 years & younger		Population living below poverty guidelines		Residents living with a diagnosed disability	
Albia	745	19.7%	1031	27.3%	347	11.56%	253	21.7%
Lovilia	77		174		53		66	
Melrose	29		19		26		2	
Unincorporated Co	731		889		130		181	

2010 Census

D. Loss Estimate.

County-wide damage was established from the NCDC data base from the past 65 years and are shown in Appendix 12. The most recent five years events are listed in "Past Occurrence". Loss factors were developed specific to the attributes of Extreme Heat throughout the region. These factors were able to provide an annual damage estimate by dividing the total loss by number of years of data. Per event damage calculated by dividing total loss by number of events. The only event of Extreme Heat in Monroe County in the past 50 years occurred in 2011 with no damage reported and no deaths. The 2013 Iowa State Mitigation Plan estimates the annual average loss to be \$34,000.

E. Hazard Scoring & Ranking.

<i>Hazard Score Calculation</i>				
Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
3	3	1	3	10

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

	Based on the evaluation of this hazard, The local HMP Committee determined that Iowa has between 10%-20% chance of experiencing extreme heat events lasting at least three days or more in succession.	
<i>MAGNITUDE / SEVERITY</i>	<p>The very young and the elderly are particularly vulnerable to extreme heat as are low income populations. Likewise, those on certain medications or drugs (especially tranquilizers and anticholinergics), and persons with weight and alcohol problems are particularly susceptible to heat reactions. Children are less likely to recognize the risk and therefore less likely to take precautionary measures. Likewise, the elderly may have more difficulty in sensing the extremities and may become over-exposed to the dangers.</p> <p>Nationally, over the last 30 years, excessive heat accounts for more reported deaths annually than hurricanes, floods, tornadoes, and lightning combined. Response personnel could suffer heat stroke and dehydration working in extreme heat conditions. Transportation impacts include the loss of lift for aircrafts, softening of asphalt roads, buckling of highways and railways, and stress on automobiles and trucks (increase in mechanical failures).</p> <p>Electric transmission systems are impacted when power lines sag in high temperatures. High demand for electricity also outstrips supply, causing electric companies to have rolling black outs. The demand for water also increases sharply during periods of extreme heat. This can contribute to fire suppression problems for both urban and rural fire departments.</p> <p>Livestock and other animals are adversely impacted by extreme heat. High temperatures at the wrong time inhibit crop yields as well. Economic costs in transportation, agriculture, production, energy, and infrastructure. These direct costs could impact many other economic sectors indirectly.</p> <p>Most of the state would likely be impacted by extreme heat, but urban areas pose special risks. The stagnant atmospheric conditions of the heat wave trap pollutants in urban areas and add to the stresses of hot weather.</p> <p>Economic costs in transportation, agriculture, production, energy and infrastructure. These direct costs could impact many other economic sectors indirectly.</p> <p>During past occurrences of this hazard coupled with advanced notice from weather reports has illustrated the importance of utilizing existing shelter systems set up around the state to protect vulnerable populations.</p>	3
<i>WARNING TIME</i>	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
<i>DURATION</i>	The definition of an extreme heat event is an occurrence of 90+ degree weather for a minimum of 3 days. There is a likelihood it could exceed one week in duration based on a review of past extreme heat events in the state.	3
	WEIGHTED SCORE	10

F. Mitigation

New Storm Shelter/ cooling or heating shelter	
Program/Project Description	Construction of comprehensive storm shelter to Tornado Safe Room standards to serve as a temporary shelter for multiple hazards as often a Church, Community Center, Legion Hall, City Hall, and School are currently utilized as needed
Anticipated Cost	Moderate to high – grant dependent
Timeline/Schedule	Long Term (5+yrs)
Responsible Agency	Albia City Council, County BOS
Mitigation Category	Structural project
Related Goals/Objectives	1.1, 1.3, 2.2, 3.1, 3.3- See also page 31 or Appendix 17

Addresses High Risk Hazard?	Yes - Flash Flooding, thunderstorm / lightning, infrastructure failure, severe winter storm, hazardous materials, Windstorm/High Wind Event tornado, hailstorm, sink hole, earthquake
Jurisdictions	Albia, Unincorporated county

Public Education and Outreach	
Description	Develop hazard education and outreach program to help Monroe county residents understand meaning of hazard warnings and self-protection measures
Estimated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	ADLM (emergency management), First Responders,
Mitigation Category	Public Education and Awareness
Related Goals/Objectives	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes -Flash Flooding, thunderstorm / lightning, Infrastructure Failure, severe winter storm hazardous materials incident, transportation incident, Windstorm/High Wind Event, grass / wildfire, river flooding, tornado, hailstorm, dam failure, sink hole, extreme heat, human disease incident, earthquake, drought
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Maintenance of Heating / Cooling Systems	
Description	Encourage property owner maintenance of heating and cooling systems and maintenance of heating and cooling systems in community buildings
Estimated Cost	Minimal to moderate
Timeline/Schedule	Short Term (1-2yrs)
Responsible Entity	Property Owners, Albia city Maintenance Dept
Mitigation Category	Prevention, Public Education and Awareness
Related Goals/Objectives	1.1, 1.3, 2.1, 2.2, 2.3, 2.4, 3.3, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Severe Winter Storm, infrastructure failure, Extreme Heat
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

18. Hazard Profile – Grass or Wild Land Fire

WILDFIRE: An uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures (FEMA).

GRASS FIRE: An uncontrolled fire in a grassy area.

A grass or wild land fire is an uncontrolled fire that threatens life and property in either a rural or 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.

A. Description.

According to FEMA, fire is the fourth largest accidental killer in the United States and the most common disaster experienced by Americans. Most fire deaths occur as a result of fires beginning in the late evening, when people are sleeping. In addition, 84% of fires are accidental, the remaining percentage are set intentionally.

Fires may also occur as a secondary effect from an initial disaster, such as lightning, high winds, tornadoes, or transportation disasters.

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

B. Past Occurrences.

According to the National Interagency Fire Center, there have been 1,244 wildfires spanning 30,370 acres and 1,274 prescribed fires spanning 8,951 acres from 2002-May 31, 2010 in Iowa. These numbers, along with those reported in the Rocky Mountain region consist of only 3-4% of the reported national incidents and encompass 2-4% of total acres burned.

There have been no recorded grass or wildfires in the NCDC database in Monroe County currently; however the risk does exist especially if droughts affect the area. Anecdotal evidence suggests that there have been grass or wildfires in Monroe County despite the lack of documentation. Committee members spoke with their respective fire departments and discovered that many have heard stories of Grass fires long ago but none are able to recall recent occurrences within the past 20 years nor find documentation to support it.

C. Vulnerable locations/buildings.

The table below summarized the maximum population and building exposure to Grass or Wildfire. Older structures with dated electrical systems that are not built to fire codes are at a particular risk. When a fire is occurring, it was acknowledged by the HMGP committee, that elderly, children and people with disabilities are at greatest risk of death due to the fire. There have been no recorded grass or wildfires in the NCDC database in Monroe County currently; however the risk does exist especially if droughts affect the area. Anecdotal evidence suggests that there have been grass or wildfires in Monroe County despite the lack of documentation. Committee members spoke with their fire departments and discovered that many have heard stories of Grass fires long ago but none are able to recall recent occurrences within the past 20 years or find documentation to support.

It was agreed by committee members that a grass fire can happen anywhere but that those structures on the edge of the city limits (near open grass plains) would be at a higher risk. It was estimated that approximately 25% of each community could be included in that description.

Exposure in Albia due to Grass/Wild Land Fire

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	1379	345	25%	\$96,081,043	\$24,020,261	25%	3766	942	25%
Commercial	166	25	10%	\$16,085,504	\$1,608,550	10%			
Industrial	14	1	10%	\$5,634,100	\$563,410	10%	-	-	-
Agricultural			-				-	-	-
Religious / Non-profit									
Government									
Education	6	1							
Utilities	-	-							

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		
Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrellgas	121 10 th St			X				\$15,933	
USDA Office	1709 S B St			X	X				
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the school’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office. Insured value is according to the hospital’s insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value	Occupancy or capacity
Monroe Co Hospital	6580 165 th St	X	X	X	X					

Exposure in Lovilia due to Grass or Wild Land Fire:

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Planning Area	% in Planning Area	\$ in City	\$ in Planning Area	% in Planning Area	# in City	# in Planning Area	% in Planning Area
Residential	217	54	25%	\$9,760,486	\$2,440,122	25%	538	135	25%
Commercial	27	7	25%	\$759,126	\$189,782	25%			100%
Industrial	0	0	0%	0	0	25%	-	-	-
Agricultural	8	2	25%	\$1,049,936	\$262,484	-	-	-	-
Religious / Non-profit	1	0	0%						
Government	3								
Education									
Utilities	-	-	-	-	-	-	-	-	-

Lovilia’s critical asset that can be affected by Grass or Wild Land Fire:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	\$ 125,537	\$257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	\$ 68,840	\$ 97,500
Community Bldg	608 W 17 th St				X				
Water plant	606 W 17 th St	X					1088 sq ft	\$ 43,700	\$ 49,070
Water tower	606 W 17 th St	X					--	\$ 285,600	--
City Maintenance/ Storage	1611 E Ave So				X		1239 sq ft	\$ 54,838	\$ 22,000

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Lagoon	6057 115 th Trail	X					375 sq ft	\$ 132,490	--
Casey's	1807 Highway 5						1962sq ft	\$102,125	
Lovilia Head Start	302 S H Ave			X					

MELROSE – exposure due to Grass or Wild Land Fire

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	58	12	20%	\$2,007,801	\$401,560	20%	112	22	20%
Commercial	8	1	5%	\$120,915	\$6,045	5%			
Industrial	1	1	5%	\$141,977	\$7,099	5%	-	-	-
Agricultural	-	-	-		-	-	-	-	-
Religious / Non-profit	2	0	0						
Government	2	0	0						
Education									
Utilities									

Melrose's critical asset that can be affected by Grass or Wild Land Fire:

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Sewer Lift Station		X							
Quality Ag	502 Erin Ave			X				\$141,977	
Melrose Market	115 Erin St								

UNINCORPORATED COUNTY AREA – exposure due to Grass or Wild Land Fire

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in Unincorp	# in Planning Area	% in Planning Area	\$ in Unincorp area	\$ in Planning Area	% in Planning Area	# in Unincorp	# in Planning Area	% in Planning Area
Residential	1,379	690	50%	\$125,076,897	\$62,538,449	50%	3554	1777	50%
Commercial	63	32	50%	\$5,287,024	\$2,643,512	50%			
Industrial	15	8	50%	\$174,113,751	\$87,056,876	50%	-	-	-
Agricultural	905	453	50%	\$57,938,330	\$28,969,165	50%	-	-	-
Religious / Non-profit	4	2	50%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
Lake Miami Campground	N Hwy 5		X					
Lake Miami dam	N Hwy 5				X			
Lazy-Daz Ranch (91 structures)	Melrose		X		X			\$2,058,658
Green Acres Mobile homes (108 structures)	Melrose		X		X			\$3,467,566
Lazy Daz Ranch Estates(21 structures)	Melrose		X		X			\$758,831
Willow Park	Melrose		X		X			\$169,790

D. Loss Estimates.

County-wide damage was established from the NCDC data base from the past 65 years and are shown in Appendix 12. The most recent five years events are listed in "Past Occurrence". Loss factors were developed specific to the attributes of Grass or wild Land Fire_ throughout the region. These factors were able to provide an annual damage estimate by dividing the total loss by number of years of data. Per event damage calculated by dividing total loss by number of events. There are no NCDC events documented. Local information indicates that an estimated event at \$450 to activate a fire department. Expense beyond activation would be calculate by the duration of the fire.

E. Hazard Scoring & Ranking.

<i>Hazard Score Calculation</i>				
Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
1	2	4	3	10

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	No events have been reported has been historically significant wildfire; due to the nature of this hazard the SHMT 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 by the National Interagency Fire Center (none are on record since the first recorded event in 1804). The information for Monroe County is similar to the state and there are no documented events. This had the local HMP committee to evaluate the probability as unlikely.	1
<i>MAGNITUDE / SEVERITY</i>	<p>While wildfires have proven to be most destructive in the Western States, they have become an increasingly frequent and damaging phenomenon nationwide. People choosing to live in wild-land settings are more vulnerable to wildfires, and the value of exposed property is increasing at a faster rate than population. Iowa is less vulnerable to wild land fire because of the extremely large percentage of land that is developed. Grass fires are often more easily contained and extinguished before there is damage to people or developed property. Fires often burn large portions of field crops in the fall when the crops are dry and the harvesting equipment overheats or throws sparks. This can be quite costly to the farmer in terms of lost production.</p> <p>Most grass fires are contained to highway right-of-way and rail right-of-way ditches and are less than a few acres in size. High winds can turn a small flame into a multi-acre grassfire within a matter of minutes. The extent is dependent upon conditions such as land use/land cover, moisture, and wind.</p> <p>According to the National Interagency Fire Center, there have been 1,244 wildfires spanning 30,370 acres and 1,274 prescribed fires spanning 8,951 acres from 2002-May 31, 2010 in Iowa. These numbers, along with those reported in the Rocky Mountain region consist of only 3-4% of the reported national incidents and encompass 2-4% of total acres burned.</p>	2

	<p>City operations could be impacted if facilities are damaged by a grass or wildfire or if electrical transmission lines are damaged.</p> <p>Damage to property, facilities, and infrastructure can range from minor smoke damage to incineration. Grass and wildfires pose a threat to crops and livestock as well as structures.</p> <p>Grass and wildfires may be of particular concern in Monroe County due to the presence of old coal mines. Not all of these mines were exhausted of coal, most abandoned as coal mining technology changed in the early part of the 20th Century. A fire spreading to coal mines could lead to mine collapse and the associated impacts.²</p> <p>Economic impacts would be most significant on the agricultural community unless such a fire were to spread into a settled community. Insurance policies may or may not cover grass or wildfire damage.</p>	
<i>WARNING TIME</i>	<p>As mentioned above, most grass fires occur without warning and travel at moderate rates. This situation depends upon conditions at the time such as moisture, wind and land cover.</p> <p>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.</p>	4
<i>DURATION</i>	The majority of Iowa wild land fires occur in short duration on areas of brush and forest lands with approximately half of the fires being prescribed fires and controlled burns supervised by trained experts.	3
	WEIGHTED SCORE	10

F. Mitigation.

Public Education and Outreach	
Description	Develop hazard education and outreach program to help Monroe county residents understand meaning of hazard warnings and self-protection measures
Estimated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	ADLM (emergency management), Albia, Lovilia, Melrose First Responders,
Mitigation Category	Public Education and Awareness
Related Goals/Objectives	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes -Flash Flooding, thunderstorm / lightning, Infrastructure Failure, , severe winter storm, hazardous materials incident, transportation incident, Windstorm/High Wind Event, grass / wildfire, river flooding, tornado, hailstorm, dam failure, sink hole, extreme heat, human disease incident, earthquake, drought
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Community Emergency Response Team	
Description	Encourage and support development of volunteer community emergency response team of residents who have access to equipment and training to respond if emergency services are unable to meet all of the immediate needs following disasters as well as checking in on elderly or disabled residents to ensure their safety
Estimated Cost	Volunteer
Timeline/Schedule	Short Term (1-2yrs)
Responsible Entity	ADLM- emergency management, Albia, Lovilia, Melrose First Responders,

Mitigation Category	Public Education and Awareness, Emergency Services
Related Goals/Objectives	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.4, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes -Flash Flooding, thunderstorm / lightning, Infrastructure Failure, severe winter storm, hazardous materials incident, transportation incident, Windstorm/High Wind Event, grass / wildfire, river flooding, tornado, hailstorm, dam failure, sink hole, extreme heat, human disease incident, earthquake, drought
Jurisdictions	Albia, Lovilia, Melrose & Unincorporated County

Burning Restrictions	
Description	Develop, implement, and enforce burning restrictions for trash and yard waste within each city's boundaries
Estimated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	Albia, Lovilia, Melrose City Councils
Mitigation Category	Prevention
Related Goals/Objectives	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Infrastructure Failure, Hazardous Materials
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

19. Hazard Profile – Expansive Soils

Soils and soft rock that tend to swell or shrink excessively due to changes in moisture content.

A. Description.

The effects of expansive soils are most prevalent in regions of moderate to high precipitation, where prolonged periods of drought are followed by long periods of rainfall. The hazard occurs in many parts of the Southern, Central, and Western United States. Recent estimates put the annual damage from expansive soils as high as \$7 billion. However, because the hazard develops gradually and seldom presents a threat to life, expansive soils have received limited attention, despite their costly effects.

B. Past Occurrences.

The availability of data on expansive soils varies greatly. In or near metropolitan areas and at dam sites, abundant information on the amount of clay generally is available. However, for large areas of the U.S., little information is reported other than field observations of the physical characteristics of the clay.

C. Vulnerable locations/buildings.

Albia – exposure due to Expansive Soils

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	1379	690	50%	\$96,081,043	\$48,040,522	50%	3706	1853	50%
Commercial	166	83	50%	\$16,085,504	8,042,752	50%			
Industrial	14	7	50%	\$5,634,100	\$2,817,050	50%	-	-	-
Agricultural		-	-				-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-	-	-	-	-	-	-

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		
Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrellgas	121 10 th St			X				\$15,933	
USDA Office	1709 S B St			X	X				
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office. Insured value is according to the school's insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office. Insured value is according to the hospital's insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value	Occupancy or capacity
Monroe Co Hospital	6580 165 th St	X	X	X	X					

LOVILIA – exposure due to Expansive Soils

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	217	109	50%	\$9,760,486	\$4,880,243	50%	538	269	50%
Commercial	27	14	50%	\$759,126	\$379,563	50%			
Industrial	0		0%	0		0%	-	-	-
Agricultural	8		-	\$1,049,9360		-	-	-	-
Religious / Non-profit	1	1	100%						
Government	3								
Education									
Utilities	-								

At one point in history, there were 8 coal mining operations in or around Lovilia. Documents state approximate location of mines during that era but mapping is unclear as to the exact location of each mine shaft but it is believed that much of the community could be at risk of a potential sink hole due to mine shafts collapsing.

Lovilia’s critical asset that can be affected to expansive soils:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	\$ 125,537	\$257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	\$ 68,840	\$ 97,500
Community Bldg	608 W 17 th St				X				
Water plant	606 W 17 th St	X					1088 sq ft	\$ 43,700	\$ 49,070
Water tower	606 W 17 th St	X					--	\$285,600	--
City Maintenance/ Storage	1611 E Ave So				X		1239 sq ft	\$ 54,838	\$22,000
Lagoon	6057 115 th Trail	X					375 sq ft	\$132,490	--
Casey’s	1807 Highway 5						1962sq ft	\$102,125	

MELROSE – exposure due to Expansive Soils

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	58	29	50%	\$2,007,801	\$1,003,901	50%	112	56	50%
Commercial	8	4	50%	\$120,915	\$60,458	50%			
Industrial	1	0	0%	\$141,977	0	0%	-	-	-
Agricultural	-	-	-		-	-	-	-	-
Religious / Non-profit	2	2	0						
Government	2	2	0						
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by Expansive Soils:

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Quality Ag	502 Erin Ave			X				\$141,977	
Melrose Market	115 Erin St								

UNINCORPORATED COUNTY AREA - exposure due to Expansive Soils

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in region	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in region	# in Hazard Area	% in Hazard Area
Residential	1,379	621	45%	\$125,076,897	\$56,284,604	45 %	3554	1599	45%
Commercial	63	28	45%	\$5,287,024	\$2,379,161	45%			
Industrial	15	7	45%	\$174,113,751	\$78,351,188	45%	-	-	-
Agricultural	905	407	45%	\$57,938,330	\$26,072,249	45%	-	-	-
Religious / Non-profit	4		100%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
Electrical Substations (4)	Scattered locations	X						\$1M/ea
IDOT roads maintenance shop	South Hwy 5			X				
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X				\$80,026,460
Wacker Chemical Corp	NE corner of county			X	X			\$5,114,095
Ajinomoto Heartland, LLC	NE corner of county			X	X			\$29,733,719
Ajinomoto USA Inc/ Ajinomoto Food	NE corner of the county			X	X			\$22,895,026

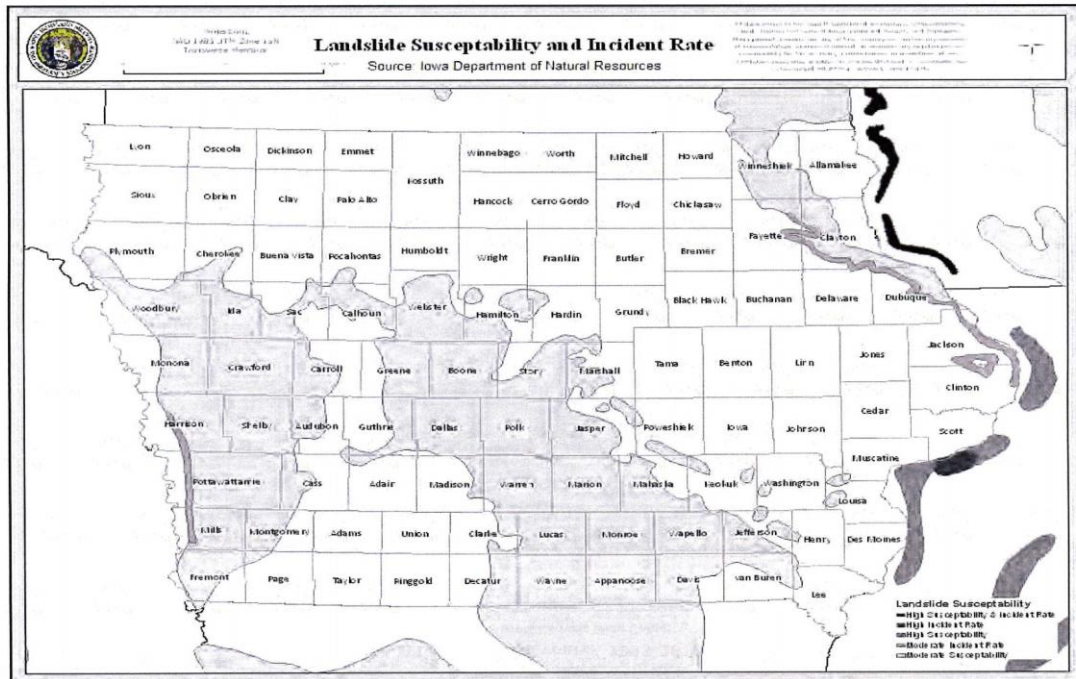
D. Loss Estimate.

There are no documented results of loss due to expansive soils. The local HMP committee indicated that the only local expense they could justify would be the road repairs that are required in the winter. Often the cracks in the pavement allow moisture to seep under and when the ground freezes to expand the liquid back to ice, it creates "boils" in the asphalt. The broken material must then be repaired or replace at the expense of the county/city. This is a common occurrence in Monroe County and can account for more than \$2,000 in materials and labor a year.

E. Hazard Scoring & Ranking.

<i>Hazard Score Calculation</i>				
Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
3	3	4	4	14

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	Probability and frequency analyses have not been prepared because of the nature of occurrence of this hazard. This is consistent with other geologic hazards that occur slowly over time. It is difficult to predict probability without adequate data to support it. The local HMP committee evaluated the probability of future expansive soils events in Monroe County as likely but with only minimal damage.	3
<i>MAGNITUDE / SEVERITY</i>	<p>Little if any direct human impacts. Impacts commonly involve swelling clays beneath areas covered by buildings and slabs of concrete and asphalt, such as those used in construction of highways, walkways, and airport runways.</p> <p>The availability of data on expansive soils varies greatly. In or near metropolitan areas and at dam sites, abundant information on the amount of clay generally is available. However, for large areas of the US, little information is reported other than field observations of the physical characteristics of clay.</p> <p>The most extensive damage occurs to highways and streets. Houses and one-story commercial buildings are more apt to be damaged by the expansion of swelling than are multi-story buildings, which usually are heavy enough to counter swelling pressures.</p>	3
<i>WARNING TIME</i>	The warning time for expansive soils is consistent with other geological hazards that occur slowly over time.	4
<i>DURATION</i>	The response to this hazard is limited in Iowa with most severe cases being washed out roads and access routes to rural towns. Although prolonged periods of drought are a primary indicator of risk followed by forecasted periods of precipitation, the response to expansive soils in Iowa is limited and is in large part, coupled with response to flash flooding or river flooding.	4
	WEIGHTED SCORE	14



F. Mitigation.

HAZARD OCCURRENCE DATA COLLECTION	
DESCRIPTION	RECORD OCCURRENCES OF HAZARDS, LOSS ESTIMATES, POPULATIONS IMPACTED, AMOUNT OF AREA IMPACTED, AND OTHER RELEVANT INFORMATION FOR UPDATES TO THIS PLAN AND FOR IMPROVED EMERGENCY RESPONSE INFORMATION
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	ADLM EMERGENCY MANAGEMENT, COUNTY PUBLIC HEALTH DEPARTMENT,
MITIGATION CATEGORY	PREVENTION, PUBLIC EDUCATION AND AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.2, 2.3, 2.4, 2.5, 3.1, 3.5, 3.6- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- ALL
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

20. Hazard Profile – Landslide

Landslides occur when susceptible rock, earth, or debris moves down a slope under the force of gravity and water.

A. Description.

Landslides can be very small or very large can move at slow to very high speeds. A natural phenomenon, small scale landslides have been occurring in slide-prone areas of Iowa long before human occupation. New landslides can occur because of rainstorms, fires, earthquakes, and various activities that modify slope and drainage.

B. Past Occurrences.

There have been numerous small-scale landslide events in Iowa, none resulting in injury or death. The geographic extent of the historic events has been limited to less than a city block in size and has “run out” over the stretch of less than 100 yards.

C. Vulnerable Locations/Buildings.

The City of Lovilia & City of Albia is situated on flat land and is not at risk of a landslide.

MELROSE – exposure due to Landslide

The south quarter of Melrose includes a steep hillside that could potential experience a small landslide when qualifying conditions are met.

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	58	15	25%	\$2,007,801	\$501,950	25%	112	17	15%
Commercial	8	2	25%	\$120,915	\$30,229	25%			
Industrial	1	1	100%	\$141,977	\$141,977	100%	-	-	-
Agricultural	-	-	-		-	-	-	-	-
Religious / Non-profit	2	2	100%						
Government	2	2	100%						
Education									
Utilities	-	-	-	-	-	-	-	-	-

Melrose’s critical asset that can be affected by Landslide:

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Sewer Lift Station		X							
Quality Ag	502 Erin Ave			X				\$141,977	
Melrose Market	115 Erin St								

UNINCORPORATED COUNTY AREA – exposure due to Landslide

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in region	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in region	# in Hazard Area	% in Hazard Area
Residential	1,379	69	5%	\$125,076,897	\$6,253,845	5%	3554	178	5%
Commercial	63	3	5%	\$5,287,024	\$264,351	5%			
Industrial	15	1	5%	\$174,113,751	\$8,705,688	5%	-	-	-
Agricultural	905	45	5%	\$57,938,330	\$2,896,917	5%	-	-	-
Religious / Non-profit	4	1	5%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
Cargill (Ag & Industrial)	N Hwy 34 Eddyville			X				\$40,013,230
Wacker Chemical Corp	NE corner of county			X	X			\$2,557,048
Ajinomoto Heartland, LLC	NE corner of county			X	X			\$14,866,860

Ajinomoto USA Inc/ Ajinomoto Food	NE corner of the county			X	X			\$11,447,513
-----------------------------------	-------------------------	--	--	---	---	--	--	--------------

D. Loss Estimate.

There are no documented events in Monroe County to compare to. The loss estimate would be less should an event occur in a rural field verses in Melrose. The southern third of the city is situated on a hillside. This would place possibly 15 homes at risk of damage, the city hall, post office and one business. Estimates of loss could be near \$670,000 for a significant landslide event in Melrose.

E. Hazard Scoring & Ranking.

<i>Hazard Score Calculation</i>					
	Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
Comprehensive Scoring	2	2	4	3	11
Melrose	1	3	4	3	11
Unincorporated County	2	2	4	3	11

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	<p>A portion of the state is moderately susceptible to landslides: in northeastern Iowa, along the Silurian Escarpment you can find blocks of dolomite slumped onto the underlying Maquoketa Shale and, in the hilly terrain of central Iowa; areas of Pennsylvanian Shale are susceptible to slides where it is overlain by loess or till. Lastly, susceptible area are found along the adjacent steep terrain associated with the major river valleys of Mississippi, Missouri, Des Moines, and Iowa River valleys and in the Loess Hills area of western Iowa.</p> <p>The best available data was personal knowledge of the participants. The group discussed known occurrences around the state but no known agency documents historical data landslides. Committee members believe that the likelihood of a landslide in Monroe County is very low but yet it could happen where large hills exist.</p>	2
<i>MAGNITUDE / SEVERITY</i>	<p>Those occupying structures that overlook river valleys and steep ravines are most vulnerable. These constitute a very small number of homes and commercially occupied structures in the state.</p> <p>The geographic extent of the historic events has been limited to less than a city block in size and has “run out” over the stretch of less than 100 yards. The maximum extent is very limited because of Iowa’s gently rolling hills as opposed to steeper slopes.</p> <p>Very limited. Injuries and deaths are very unlikely except in the case of undetected slope failure warning signs in structures overlooking steep slopes.</p>	2
<i>WARNING TIME</i>	<p>Landslides are often involved in or triggered by other natural hazards. Landslides and flooding are often related because precipitation, runoff, and ground saturation combine to destabilize soil and rock. For this reason, landslide can be detected if high potential landslide areas are monitored.</p>	4
<i>DURATION</i>	<p>The response to the effects of landslides are limited and mainly associated with restoration of public infrastructure routes (roads, bridges, etc.)</p>	3
	WEIGHTED SCORE	11

F. Mitigation.

HAZARD OCCURRENCE DATA COLLECTION	
DESCRIPTION	RECORD OCCURRENCES OF HAZARDS, LOSS ESTIMATES, POPULATIONS IMPACTED, AMOUNT OF AREA IMPACTED, AND OTHER RELEVANT INFORMATION FOR UPDATES TO THIS PLAN AND FOR IMPROVED EMERGENCY RESPONSE INFORMATION
ESTIMATED COST	MINIMAL
TIMELINE/SCHEDULE	SHORT TERM (1-2YRS)
RESPONSIBLE ENTITY	ADLM EMERGENCY MANAGEMENT, COUNTY PUBLIC HEALTH DEPARTMENT,
MITIGATION CATEGORY	PREVENTION, PUBLIC EDUCATION AND AWARENESS
RELATED GOALS/OBJECTIVES	1.1, 1.3, 2.2, 2.3, 2.4, 2.5, 3.1, 3.5, 3.6- SEE ALSO PAGE 31 OR APPENDIX 17
ADDRESSES HIGH RISK HAZARDS?	YES- ALL
JURISDICTIONS	ALBIA, LOVILIA, MELROSE, UNINCORPORATED COUNTY

21. Hazard Profile – Dam Failure

A dam failure is the uncontrolled release of impounded water resulting in downstream flooding, which can affect life and property. Flooding, earthquakes, blockages, landslides, lack of maintenance, improper operation, and poor construction, vandalism, or terrorism cause dam failures. Dams are constructed for a variety of uses, including flood control, erosion control, water supply impoundment, hydroelectric power generation and recreation.

A. Description.

Dams are classified into three (3) categories based on the potential risk to people and property should a failure occur. The classification may change over time because of development downstream from the dam since its construction. Older dams may not have been built to the standards of its new classification. Below are the hazard classifications defined by Iowa Department of Natural Resources (DNR):

- High Hazard – A structure shall be classified as high hazard if located in an area where failure may create a serious threat of loss of human life or result in serious damage to residential, industrial, or commercial areas, important public utilities, public buildings or major transportation facilities.
 - Local High Hazard dams – Appanoose 1, Lucas 1
 - Federal dams identified in State Major Dam Inventory – Lake Rathbun in Appanoose County.
- Moderate (Significant) Hazard – A structure shall be classified as moderate hazard if located in an area where failure may damage isolated home or cabins, industrial or commercial buildings, moderately traveled roads or railroads, interrupted major utility services, but without substantial risk of loss of human life. In addition, structures where the dam and its impoundment are of themselves of public importance, such as dams associated with public water supply systems, industrial water supply or public recreation, or which are an integral feature of a private development complex, shall be considered moderate hazard for design and regulatory purposes unless a higher hazard class is warranted by downstream conditions;
 - Local Significant Hazard dams – Appanoose 3, Lucas 3, Monroe 2
- Low Hazard – A structure shall be classified as a low hazard dam if located in an area where damages from a failure would be limited to loss of the dam, loss of livestock, damages to farm outbuildings, agricultural lands, and lesser used roads, and where loss of human life is considerably unlikely.

Dam hazard potential classifications have nothing to do with the material condition of the dam, only the potential for death and/or destruction due to the size of the dam, the size of the impoundment, and the characteristics of the area downstream from the dam. The Iowa Department of Natural Resources (DNR) tracks all dams in Iowa with a height of 25 feet or a total storage of at least 50 acre feet of water. The inventory excludes all dams less than six (6) feet high regardless of storage capacity and dams less than fifteen (15) feet of storage regardless of height.

B. Past Occurrences.

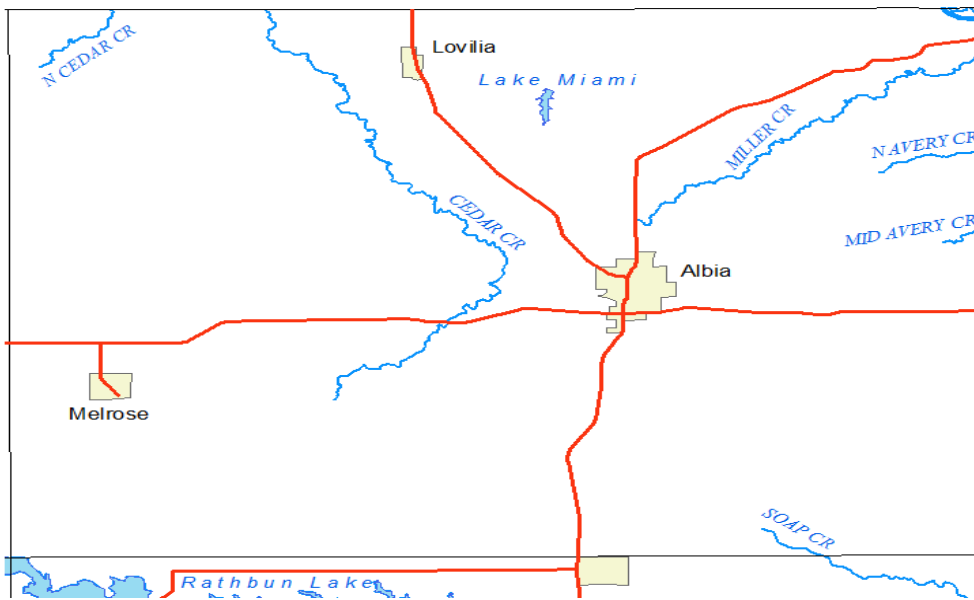
There have been two historical occurrences in the State of Iowa; one event occurred in 1968 in Waterloo when the Virden Creek Dam failed. The incidence claimed one life, and the dam is no longer in existence. There was concern during the very wet period of 1993 that water would overtop Saylorville Reservoir. With the outfall flowing at full capacity and water flowing out of the spillway, the reservoir did not overtop the dam. The second occurrence happened when the Lake Delhi dam failed in July of 2010. The 92 year old dam was breached at nine mile long lake that was owned by a local homeowner's recreation association. The breach occurred at a 300 foot section of the earthen portion of the dam near the concrete structure. The breach caused significant property loss, an evacuation of as many as 700 near the dam, as well as severe economic impacts to the tourism industry in the area.

C. Vulnerable Locations/Buildings.

The following chart summarizes the maximum population and building exposure to dam failure. Dam failure is the uncontrolled release of impounded water resulting in downstream flooding which can affect life and property. Flooding, earthquakes, blockages, lack of maintenance, improper operation and poor construction, vandalism, or terrorism cause dam failures. Dams are constructed for a variety of uses, including flood control, erosion control, water supply impoundment, hydroelectric power generation and recreation. The most direct impact of a dam failure of Lake Miami would be one a section of the unincorporated region of Monroe County. It is also recognized as a "Significant Hazard Dam" in the State of Iowa Mitigation plan. A significant hazard dam is determined if it's located in an area where failure may dam failure may damage isolated homes or cabins, industrial/commercial buildings, moderately traveled roads or railroads, interrupts major utility services, but without substantial risk of loss of human life. In addition, structures where the dam and its impoundment are of themselves of public importance, such as dams associated with public water supply systems, public recreation, etc. The topography of the area between Albia and the lake would dissipate the water. The only structure at risk of damage would be a rural bridge located downstream.

There are 45 low hazard dams identified throughout the county, but primary damage would occur to the unincorporated region of the county. A Low Hazard dam is defined if it is located in an area where damages from a failure would be limited to loss of the dam, loss of livestock, damages to farm outbuildings, agricultural lands and lesser used roads and where loss of human life is considered unlikely. Maximum risk would be to the roadways and bridges throughout the county. For example, a breach of Albia Reservoir dam would release water to a rural region of the county. A larger concern would be the impact that could occur to highway 34 and a few rural homes. Monroe county LEPC specifically sites the locations of Middle Avery Creek along "Smokey Hollow"; White Creek Valley; and Cedar Creek Valley in the rural regions of the county are particularly vulnerable to flash flooding. Primary damage along these valleys result in roadway and agriculture damage. Also, Cedar Creek commonly experiences flash flooding as it flows north to south and crosses approximately 75% the county's length. This creek can solely affect 5 villages in the unincorporated region.

Figure 8: Waterbodies in Monroe County



Source: IA DNR GIS data compiled by Chariton Valley Planning and Development

UNINCORPORATED COUNTY AREA – exposure due to Dam Failure

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in region	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in region	# in Hazard Area	% in Hazard Area
Residential	1,379	14	1%	\$125,076,897	\$1,250,767	1%	3554	355	1%
Commercial	63	1	1%	\$5,287,024	\$52,870	1%			1%
Industrial	15	1	1%	\$174,113,751	\$1,741,137	1%	-	-	-
Agricultural	905	90	10%	\$57,938,330	\$5,793,833	10%	-	-	-
Religious / Non-profit	4	0	0%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory – The primary damage would be too agricultural land.

D. Loss Estimate.

There have been no dam failures in Monroe County to calculate an estimated loss. The loss would vary upon the extend of the dam failure and location. Damage would include crops, roads, bridges, and a great expense would occur for cleanup.

E. Hazard Scoring & Ranking.

<i>Hazard Score Calculation</i>					
	Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
Unincorporated County	1	3	4	4	12

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	With increased attention to sound design, quality construction and continued maintenance and inspection, dam failure probability can be reduced. It is important to consider that by 2020, 85% of the dams in the United States will be	1

	<p>more than 50 years old (the design life of a dam). In Iowa, 41% of dams by 2020 will be more than 50 years old. This reflects the need to consider and encourage dam failure emergency action plans for high and significant hazard dams in the State.</p> <p>There are 3787 dams on the State of Iowa Dam Inventory. 270 are classified as “major dams” subject to periodic inspections. Major dams are all high hazard dams, plus significant hazard dams that have a permanent storage volume exceeding 100 acre-feet or a total water storage volume to the top of the dam exceeding 250 acre-feet, and low hazard dams with a product of storage (acre-feet) time’s height (feet) which exceeds 30,000 acre ft. The height and storage of volumes are measured at the emergency spillway crest unless there is not an emergency spillway then they are measured at the top of the dam. In addition, the DNR identified 17 federally owned dams as falling within the “major dam” classification. Federally owned dams are not subject to state inspection.</p> <p>The local HMP committee evaluated the probability that a dam failure in Monroe County as low chance of occurrence in any given year.</p>	
<i>MAGNITUDE / SEVERITY</i>	<p>The severity of damage could be similar to flash flooding impacts.</p> <p>Operations could be affected by communication loss, critical facility damage/destruction, etc. Depends upon the downstream property, facilities, and infrastructure. Worst case scenario could involve whole subdivisions being swept away by the fast flowing water.</p> <p>Property can be impacted either by being damaged by the force of flowing water, water damage inside buildings, and compromises to structural integrity due to erosion</p> <p>Dam failure would 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.</p> <p>Hazards of fire, health and transportation accidents, and contamination of water supplies are likely effects of flooding situations which could occur from dam failure. Materials swept away by flood waters can contaminate and leave a lasting impact on the environment.</p> <p>Most impacts are indirect due to disruption of business and damage to infrastructure on which industry and services rely upon.</p>	3
<i>WARNING TIME</i>	<p>A dam failure can be immediate and catastrophic leaving little or no time to warn those downstream of the imminent hazard. With maintenance and monitoring, weak areas and possible failure points can be identified allowing time for evacuation and securing the dam. Most dams are only inspected periodically thus allowing problems to go undetected until a failure occurs.</p>	4
<i>DURATION</i>	<p>Response to the effects of a dam failure are extensive and require wide-ranging recovery efforts for reconstruction of the original flood control structures.</p>	4
	WEIGHTED SCORE	12

F. Mitigation.

Continuity of Operations Planning	
Program/Project Description	City and City Departments work to develop procedures of what do when hazards occur including who has keys to shelters, contact list for city and emergency response personnel, priorities for what facilities to restore following disasters, how to direct Monroe County residents to minimize injuries, as well as (off-site) backups of important City documents and files
Anticipated Cost	Minimal
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Agency	ADLM (emergency management) County BOS
Mitigation Category	Property protection
Related Goals/Objectives	1.1, 1.2, 2.2, 2.3, 2.4, 3.2, 3.4, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazard?	Yes - Flash flood, thunderstorm / lightning, Infrastructure Failure, severe winter storm, hazardous materials incident, transportation incident, Windstorm/High Wind Event, river flooding, tornado, hailstorm, dam failure, sink hole, human disease incident, earthquake,
Jurisdictions	Unincorporated county

Community Emergency Response Team	
Description	Encourage and support development of volunteer community emergency response team of residents who have access to equipment and training to respond if emergency services are unable to meet all of the immediate needs following disasters as well as checking in on elderly or disabled residents to ensure their safety
Estimated Cost	Volunteer
Timeline/Schedule	Short Term (1-2yrs)
Responsible Entity	ADLM- emergency management, County BOS
Mitigation Category	Public Education and Awareness, Emergency Services
Related Goals/Objectives	1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.4, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes -Flash Flooding, thunderstorm / lightning, Infrastructure Failure, severe winter storm, hazardous materials incident, transportation incident, transportation incident, Windstorm/High Wind Event, grass / wildfire, river flooding, tornado, hailstorm, , dam failure, sink hole, extreme heat, human disease incident, earthquake, drought
Jurisdictions	Unincorporated county

Evaluate/maintain/repair area dams	
Description	Establish an inspection, maintenance & enforcement program to help continue structural integrity of Monroe County Dams and levees. Plan would also include emergency plans to develop access roads, pumping, etc.
Estimated Cost	Moderate to High
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	County BOS
Mitigation Category	Prevention, Natural Resource Protection, Structural Project
Related Goals/Objectives	1.1, 1.3, 2.1, 2.4, 2.5, 3.5- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, Infrastructure Failure, River Flooding, Dam Failure
Jurisdictions	Unincorporated County

Evacuation Plans	
Description	Develop evacuation plans for school, community buildings, and for town
Estimated Cost	Minimal to moderate
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	ADLM-Emergency Management, Albia Fire department, County BOS
Mitigation Category	Prevention, Emergency Services
Related Goals/Objectives	1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.4, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, Infrastructure Failure, Hazardous Materials Incident, Transportation Incident, River Flooding, Dam Failure, Sink Holes
Jurisdictions	Unincorporated county

Search and Rescue Training for First Responders	
Description	Training Firefighters and other local emergency responders best practices in search and rescue operations
Estimated Cost	Minimal to moderate
Timeline/Schedule	Medium Term (3-5yrs)
Responsible Entity	Albia Fire Department& First responders, County BOS
Mitigation Category	Emergency Services
Related Goals/Objectives	1.1, 1.2, 1.3, 2.2, 2.3, 3.1, 3.4, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- Flash Flooding, Structural Failure, Severe Winter Storm, Hazardous Materials Incident, Transportation Incident, River Flooding, Tornado, Windstorm/High Wind Event /, Dam Failure, Sink Holes, Earthquake, Landslide
Jurisdictions	Unincorporated county

22. Hazard Profile – Sinkholes

The loss of surface elevation due to the removal of subsurface support defines a sinkhole. Sinkholes range from broad, regional lowering of the land surface to localized collapse. The primary causes of most subsidence are human activities: Underground mining of coal, groundwater or petroleum withdraw, and drainage of organic soils. In addition, this is due to the erosion of limestone of the subsurface.

A. Description.

Land subsidence occurs slowly and continuously over time or on occasion abruptly, as in the sudden formation of sinkholes. Sinkholes can aggravate flooding potential, collapses such as the sudden for formation of sinkholes or the collapse of an abandon mine may destroy buildings, roads and utilities.

B. Past Occurrences.

While there are no recorded sinkholes in or immediately surrounding the incorporated cities, there is a possibility of subsidence occurring. The prevalence of mines under a large proportion of the communities provides the potential of large areas within the county being damaged by mine cave-ins. However, anecdotal evidence suggests that the railroads in the area have had some problems from sinkholes impacting their infrastructure.

The Iowa Department of Natural Resources monitors and maps sinkholes and mines in Iowa. Not all of the mines under Monroe County are fully mapped; the extents of some mines are estimated. Based on these mapping limitations, the condition of at least some of the mines is presumably not fully known. Given the prevalence of mines under Albia, Lovilia, and Melrose and in the surrounding area, subsidence may well be of concern for the area. The maximum threat of subsidence would be if one or more of the underlying mines were to collapse damaging homes, businesses, and infrastructure.

C. Vulnerable Locations/Buildings.

The table below displays the maximum population and building exposure at risk with sink holes. In the late 1880' and the turn of the century there were as many as 288 coal mines operating throughout Monroe County (“**Historical Sketch Book of Albia & Monroe County**”, Albia Centennial Corp 1859-1959.) Historical data collected and recent Iowa DNR mapping gives estimated locations of such mines but it is difficult to identify precise areas. The estimated mapping of the county can be seen in Appendix 7.

Sinkholes, also known as subsidence, come in two primary forms in Iowa, Karst subsidence and Mine subsidence. Mines subsidence occurs when a mine or part of a mine collapses causing surface land to create a basin or hole. Karst subsidence occurs as water dissolves underlying rock creating a gap that ultimately collapses. Most of Iowa's sinkholes occur in rural areas where their main impact is rendering some land unsuitable for row-crop agriculture. Sinkholes have also resulted in the failure of farm and other types of ponds, roads, and one sewage-treatment lagoon. As sinkholes sometimes allow surface runoff to directly enter bedrock aquifers, their presence has a potential impact on groundwater quality.

The prevalence of mines under a large proportion of the communities provides the potential of large areas within the county being damaged by mine caveins. The Iowa Department of Natural Resources monitors and maps sinkholes and mines in Iowa. Not all of the mines under Monroe County are fully mapped; the extents of some mines are estimated. Based on these mapping limitations, the condition of at least some of the mines is presumably not fully known. Historical documents state that there were mines surrounding the community of Melrose, however, there are not precise mine shafts located under the community.

UNINCORPORATED COUNTY AREA – exposure due to Sink Holes

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in region	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in region	# in Hazard Area	% in Hazard Area
Residential	1,379	414	30%	\$125,076,897	\$37,523,069	30%	3554	1422	30%
Commercial	63	19	30%	\$5,287,024	\$1,586,107	30%			
Industrial	15	5	30%	\$174,113,751	\$52,234,125	30%	-	-	-
Agricultural	905	272	30%	\$57,938,330	\$17,381,499	30%	-	-	-
Religious / Non-profit	4	1	30%						
Government									
Education									
Utilities	-	-	-	-	-	-	-	-	-

Unincorporated County Structural Inventory

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value
Electrical Substations (4)	Scattered locations	X						\$1M/ea
Rural Water towers (3)	Scattered location	X						\$1M/ea
IDOT roads maintenance shop	South Hwy 5			X				
Halley’s Trailer Park (35 homes)	East Hwy 34		X					\$68,890 land \$90,041 bldgs
Lazy-Daz Ranch (91 structures)	Melrose		X		X			\$2,058,658
Green Acres Mobile homes (108 structures)	Melrose		X		X			\$3,467,566
Monroe County Fairgrounds (land& structures)	North Hwy 5			X				\$310,613
Lazy Daz Ranch Estates(21 structures)	Melrose		X		X			\$758,831
Willow Park	Melrose		X		X			\$169,790

Albia – exposure due to Sink Holes

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	1379	621	45%	\$96,081,043	\$43,236,469	45%	3766	1695	45%
Commercial	166	75	45%	\$16,085,504	\$7,238,477	45%			
Industrial	14	6	45%	\$5,634,100	\$2,535,345	45%	-	-	-
Agricultural			-				-	-	-
Religious / Non-profit									
Government	5								
Education	6								
Utilities	-	-	-				-	-	-

Critical Facilities: Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Albia Public Library	203 Benton Ave			X		X	6936sq ft	\$123,696	
Monroe Co Historical Museum	114 A Ave East			X		X	8678sq ft	\$46,951	
Albia City Hall/Community Center	120 S A St	X			X		3332sq ft	\$223,574	\$45,026
Brees Rest Home	210 Washington Ave		X				2686sq ft	\$43,280	
Monroe Co Care Center	120 N 13 th St		X				22,076sq ft	\$1,069,175	
Oakwood Nursing & Rehab	200 16 th Ave East		X				24,570sq ft	\$690,971	
Parkview Cottage	645 8 th St		X				4469sq ft	\$289,093	
Monroe co Medical Clinic	Avery Rd		X				8830sq ft	Included in hosp	
Albia Fire station	115 2 nd Ave	X			X		6000sq ft	\$121,692	
Monroe Co Sheriff's office/Albia Police Dept	103 2 nd Ave	X			X		4608sq ft	\$122,331	
Benton Place Apts	520 Benton Ave West		X				33,586sq ft	\$852,280	
First Responder bldg (Ambulance)							3399sq ft	\$115,215	
Sewage Disposal Plant	120 S A St	X							
Albia Sewage Lagoon	Hwy 137	X					2100sq ft	\$282,548	\$30,000
Albia Sewer	Hwy 137	X					486sq ft	\$145,954	\$90,000
Monroe Co Courthouse	10 Benton Ave East			X		X	18,669sq ft		
Albia Municipal waterworks	120 S A St	X						\$99,190	
Chariton Valley Electric Coop	2090 Hwy 5 South	X		X			13,779sq ft	\$599,315	
Lift stations	SE/NE/ SW/ NW	X						\$115,627	
Iowa Telecommunications	202 Washington Ave East	X		X			5076sq ft		
Quality Ag Services	6385 196 th St			X				\$277,260	
Casey's	1117 S Clinton Ave			X			2376 sq ft	\$207,933	
Kum & Go	204 S Main St			X			2052sq ft	\$120,278	

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg In Square feet	Replacement Value	Content Value
Casey's	122 N Main St			X			1920 sq ft	\$124,832	
Albia Amoco	21 A Ave East			X			1869sq ft	\$105,170	
Albia Stop & Shop	300 N Hwy 5			X			2981sq ft	\$100,236	
Smith Grain & Fertilizer	805 N Hwy 5			X					
Ferrellgas	121 10 th St			X				\$15,933	
USDA Office	1709 S B St			X	X				
McGee Sanitation	16 Washington Ave	X		X			12,144sq ft	\$65,985	
Relco-Locomotives	1 Relco Ave			X				\$7,092,511	
Burlington Northern-Santa Fe Railway	300 A St N			X					
Dollar General	900 Princeton Dr			X			10,458sq ft	\$306,453	
Jim & Charlie's AFF Foods	121 N Clinton			X			8592sq ft	\$111,294	
Hy-Vee	Hwy 34			X			19,927sq ft	\$733,530	
Pamida	Hwy 34			X			26,817sq ft	\$495,770	
Snack Shack	906 S Clinton St			X			1200sq ft	\$67,975	
Vitko's Sinclair	113 Benton Ave W			X			2031sq ft	\$82,014	
Preferred Wholesale	201 S Main St			X					
Trailer court	South Hwy 5		X						
Albia Historic Square	Hwy 5 & Benton Ave					X			
Albia Industrial park (8 businesses)	South Hwy 5			X					

ALBIA PUBLIC SCHOOL BUILDINGS

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office. Insured value is according to the school's insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value
Albia High School	503 B Ave East, Albia		X				60,830sq ft	\$1,122,999	\$17.5M
Albia Jr. High School	505 C Ave East, Albia		X				35,454sq ft	In HS	Included in HS
Lincoln Center	222 N 2 nd St, Albia		X				40,723sq ft	\$1,562,453	\$7.5M
Grant Elementary	520 S Clinton St, Albia		X				17,622sq ft	\$729,989	\$4.5M
Kendall Elementary	701 Washington Ave, Albia		X				10,574sq ft	\$369,581	\$2.0M
Albia School of Success	503 B Ave		X						

MONROE COUNTY HOSPITAL FACILITIES

****Estimates of Square footage and Replacement Value provided by Monroe County Assessor's Office. Insured value is according to the hospital's insurance policy.**

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Insured value	Occupancy or capacity
Monroe Co Hospital	6580 165 th St	X	X	X	X					

LOVILIA – exposure due to Sink Holes

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	217	109	50%	\$9,760,486	\$4,880,243	50%	538	269	50%
Commercial	27	14	50%	\$759,126	\$379,563	50%			
Industrial	0		0%	0		0%	-	-	-
Agricultural	8		-	\$1,049,9360		-	-	-	-
Religious / Non-profit	1	1	100%						
Government	3								
Education									
Utilities	-								

At one point in history, there were 8 coal mining operations in or around Lovilia. Documents state approximate location of mines during that era but mapping is unclear as to the exact location of each mine shaft but it is believed that much of the community could be at risk of a potential sink hole due to mine shafts collapsing.

Lovilia’s critical asset that can be affected to sink holes:

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	1613 South E St				X		3186 sq ft	125,537	257,760
Fire Hall	605 W 17 th St	X			X		1600 sq ft	68,840	97,500
Community Bldg	608 W 17 th St				X				
Water plant	606 W 17 th St	X					1088 sq ft	43,700	49,070
Water tower	606 W 17 th St	X					--	285,600	--
City Maintenance/ Storage	1611 E Ave So				X		1239 sq ft	54,838	22,000
Lagoon	6057 115 th Trail	X					375 sq ft	132,490	--
Casey’s	1807 Highway 5						1962sq ft	\$102,125	

Melrose – exposure to sinkholes

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in Hazard Area	% in Hazard Area	\$ in City	\$ in Hazard Area	% in Hazard Area	# in City	# in Hazard Area	% in Hazard Area
Residential	58	29	50%	\$2,007,801	\$1,003,901	50%	112	56	50%
Commercial	8	4	50%	\$120,915	\$60,458	50%			
Industrial	1	0	0%	\$141,977	0	0%	-	-	-
Agricultural	-	-	-		-	-	-	-	-
Religious / Non-profit	2	1	50%						
Government	2	1	50%						
Education									

Melrose’s critical asset that can be affected by Sinkholes:

**Estimates of Square footage and Replacement Value provided by Monroe County Assessor’s Office

Name of Asset	Location	Critical Facility	Vulnerable population	Economic Asset	Special Consideration	Historic/ Other	Size of Bldg	Replacement Value	Content Value
City Hall	117 Shamrock				X				
Fire Hall	100 Shamrock				X				
Quality Ag	502 Erin Ave			X				\$141,977	
Melrose Market	115 Erin St								

D. Loss Estimate.

It is difficult to determine a potential loss estimate because there no documented events to compare to. The history of the region indicates there were over 288 mines in this county and that could place many structures and infrastructure at risk of damage in a sink hole. The loss could be minimal in a rural field or could become very costly should an event happen in a community that could affect it’s infrastructure and critical facilities.

E. Hazard Scoring & Ranking.

	<i>Hazard Score Calculation</i>				
	Probability	Magnitude/Severity	Warning Time	Duration	Weighted Score
Comprehensive Score	1.25	2	4	2.25	9.5
Unincorporated County	2	2	4	3	11
Albia	1	3	4	3	11
Lovilia	1	1	4	1	7
Melrose	1	2	4	2	9

EVALUATION CRITERIA	DESCRIPTION	SCORE
<i>PROBABILITY</i>	<p>Historic inventories estimate 2,596 sinkholes in the Upper Iowa River Watershed. However, there is no central collection point for this information. Land subsidence occurs slowly and continuously over time or on occasion abruptly, as in the sudden formation of sinkholes.</p> <p>Land subsidence occurs slowly and continuously over time or on occasion abruptly, as in the sudden formation of sinkholes. The major risk associated with sinkholes in Iowa is threatened infrastructure such as roads, bridges, and public buildings.</p> <p>The prevalence of mines under a large proportion of the communities provides the potential of large areas within the county being damaged by mine caveins. The Iowa Department of Natural Resources monitors and maps sinkholes and mines in Iowa. Not all of the mines under Monroe County are fully mapped; the extents of some mines are estimated. Based on these mapping limitations, the condition of at least some of the mines is presumably not fully known. Historical documents state that there were mines surrounding the communities of Melrose and Lovilia, however, there are not precise mine shafts located under the communities. The history of Monroe County indicates that the county flourished in the early 1900’s due to the mining industry. The 2013 Iowa State Hazard Mitigation indicated that there were 288 mines in this county. The local HMP committee believes there is a likelihood that a sinkhole due to mining could occur any given year.</p>	2
<i>MAGNITUDE / SEVERITY</i>	<p>Sinkholes, also known as subsidence, come in two primary forms in Iowa, Karst subsidence and Mine subsidence. Mines subsidence occurs when a mine or part of a mine collapses causing surface land to create a basin or hole. Karst subsidence occurs as water dissolves underlying rock creating a gap that ultimately collapses.</p> <p>Most of Iowa's sinkholes occur in rural areas where their main impact is rendering some land unsuitable for row-crop agriculture. Sinkholes have also resulted in the failure of farm and other types of ponds, roads, and one sewage-treatment lagoon. As sinkholes sometimes allow surface runoff to directly enter bedrock aquifers, their presence has a potential impact on groundwater quality.</p> <p>Damage consists primarily of direct structural damage and property loss and depreciation of land values, but also includes business and personal losses that accrue during periods of repair.</p> <p>Generally, land subsidence possess a greater risk to property than to life. Damage to property, facilities and infrastructure would only occur if the event undermined foundations.</p>	2

<i>WARNING TIME</i>	Regional lowering occurs gradually over time, while the collapse of abandoned mines can occur suddenly. Collapse is one that can be properly mitigated provided that measures are taken structurally below the ground to compensate for the presents of mine caverns.	4
<i>DURATION</i>	The response tied to sinkholes is related to securing the immediate threat to life and property including immediate reroute of traffic from the affected infrastructure and search and rescue in the case of structural collapse.	3
WEIGHTED SCORE		11

F. Mitigation.

Expanded Hazard Area Mapping and Mine Evaluation	
Description	Record areas where hazards occur to aid in hazard mapping, encourage detailed evaluation of the structural integrity of mines under each community, encourage detailed floodplain mapping, seek funds to develop more detailed multi-hazard area maps
Estimated Cost	Minimal to moderate
Timeline/Schedule	Short Term (1-2yrs) (hazard recording) to Long Term (5+yrs) (mine evaluation)
Responsible Entity	Albia City Council, Lovilia & Melrose City council, County BOS and Albia First Responders, County BOS
Mitigation Category	Prevention
Related Goals/Objectives	1.1, 1.2, 2.2, 2.3, 2.4, 3.1, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes-Flash Flooding, Hazardous Materials Incident, Transportation Incident, , Grass / Wildfires, River Flooding, Dam Failure, Sink Holes
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

Hazard Occurrence Data Collection	
Description	Record occurrences of hazards, loss estimates, populations impacted, amount of area impacted, and other relevant information for updates to this plan and for improved emergency response information
Estimated Cost	Minimal
Timeline/Schedule	Short Term (1-2yrs)
Responsible Entity	ADLM Emergency Management, County Public Health Department,
Mitigation Category	Prevention, Public Education and Awareness
Related Goals/Objectives	1.1, 1.3, 2.2, 2.3, 2.4, 2.5, 3.1, 3.5, 3.6- See also page 31 or Appendix 17
Addresses High Risk Hazards?	Yes- all
Jurisdictions	Albia, Lovilia, Melrose, Unincorporated county

F. Prioritized Mitigation Strategies and Implementation

During the meeting, previous mitigation actions were being evaluated and jurisdictions updated local accomplishments and challenges. A full chart of strategies and progress is provided in Appendix 14. Some of the main accomplishments include: installation of storm sheds at Lake Miami Campground, Public Health office and at the Secondary Roads location; Albia installed two additional early storm warning systems; active shooter trainings have occurred at schools and businesses in the county; and FREE Radon Testing Kits are now available at the local Environmental Health office.

The existing mitigation strategies were reviewed and the committee felt were still pertinent for the hazards identified. The mitigation actions considered by the committee were included in this plan and were then prioritized based on several criteria, whether or not they address a high risk hazard, how many hazards they address, what kind of priority each strategy is, the estimated timeline, and the estimated cost. The logic of this was much like ranking the hazards, the actions with the broadest positive impact would be naturally raised to the top of the list while those that would be costly or be limited in impact would naturally fall to the bottom.

This would mean that the actions toward the top of the list should be where the County's mitigation efforts should be directed, however where opportunities to pursue lower ranked actions arise, they should be taken so long as they do not preclude taking an action with a more broad positive impact is possible. For example, if grant funds for a project are available that would address an action ranked near the middle of the spectrum then the County or any jurisdiction should pursue the grant opportunity. If such a grant opportunity is presented and it could be used for two or more identified actions, then it should be directed toward the highest ranked of the potential projects where practicable.

Each action is profiled along similar lines as the hazards. Each action profile contains a description of the action, estimated cost with either an approximate dollar amount or listed as voluntary, minimal, moderate, or high. These categories are loosely defined as follows;

- Voluntary – reliant on donated time or resources
- Minimal – little or no cost, may be a nominal increase in day-to-day activities
- Moderate – would likely require outside funds potentially from multiple sources or potential tax / fee increases
- High – would require outside funds such as in the form of grant programs through State or Federal agencies

Prevention: Government administrative or regulatory measures or processes that influence the way land and buildings are developed and built. These measures also include public actions to reduce hazard losses to property and human health impacts. Examples include:

- Hazard mapping
- Studies/data collection and analysis to support prevention measures
- Floodplain regulations
- Multi-jurisdictional agreements that reduce hazard risks
- Other regulatory measures or processes that reduce hazard risks

Property Protection: Measures that involve modifying existing buildings or structures to protect them from a hazard, or removing buildings or structures from the hazard area, or providing insurance to cover potential losses. Examples include:

- Acquisition, elevation, or relocation of hazard-prone property
- Safe room/storm shelter retrofits
- Critical facility protection
- Risk reduction retrofits (modifications) to hazard prone properties
- Studies/data collection and analysis to develop property protection measures
- Continued National Flood Insurance Program (NFIP) participation

Public Education and Awareness: Measures to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples include:

- Programs to improve awareness of hazard risk

- Programs to improve awareness of hazard risk prevention and reduction
- Education programs directed toward specialized audience, i.e. buildings, developers, and hazard prone neighborhoods

Natural Resource Protection: Measures that, in addition to minimizing hazard losses, preserve or restore the functions of natural systems. Examples include:

- Sensitive areas ordinance (development restrictions)
- Stream corridor restoration, watershed management
- Forest and vegetation management
- Wetland restoration and preservation

Emergency Services: Measures taken before, during and after a hazard event to protect people, and property; although these measures are not typically considered “mitigation, they significantly minimize the events impact and preserve the community’s health and safety. Examples include:

- Emergency response facilities and personnel
- Hazard warning systems and equipment
- Health, safety, environmental risk prevention or reduction
- Emergency response infrastructure, equipment, planning, or training
- Emergency response services studies and data collection
- Emergency response communication systems

Structural Projects: These are measures that involve the construction and maintenance of structures and infrastructure that will reduce the impact of a hazard or redirect the impact away from people and property. Examples include:

- Channel modification/maintenance
- Dam and reservoir construction/maintenance
- Levee and floodwall construction and maintenance
- Safe room or storm shelter construction
- Infrastructure construction and maintenance
- Studies and data collection to develop structural projects

Prioritized Mitigation Activities

Mitigation actions were evaluated by various factors as previously mentioned; each of the factors was assigned a numerical value to aid in ranking the actions according to their anticipated positive impacts and drawbacks. The numerical values that were substituted in for estimated cost and timelines are as follows;

Number of Hazard:

- Number of hazards that the mitigation strategy applies to and each it is worth one point toward that strategy.

Cost:

- Voluntary (+1) – reliant on donated time or resources
- Minimal (0)– little or no cost, may be a nominal increase in day-to-day activities
- Moderate (-1) – would likely require outside funds potentially from multiple sources or potential tax / fee increases
- High (-2)– would require outside funds such as in the form of grant programs through State or Federal agencies

Priority:

- High priority +2pt
- Medium priority +1pt
- Low priority 0

Timeline:

- Ongoing (+1) – activities that are currently in practice or are suspected to have been implemented previously
- Short Term (1-2yrs) (0) – relatively low cost, low complexity activities that may be implemented in the next year

- Medium Term (3-5yrs) (-1)– low to modest cost activities that may require more effort and / or time to properly implement such as review of regulatory measures for effectiveness or development of new regulations or programs, implementable within a period of 5 years and likely within 2-3 years
- Long Term (5+yrs) (-2)– high cost and time-intensive activities that require outside funds, significant administrative investment (temporary or permanent), and generally involve construction, anticipated to take 5 years or more from time of initial planning to securing funding to completion of activity

Require Political Support?

- Yes Opts
- No +1pt

Protect Life and/or Prevent Injuries?

- Yes +1pt
- No 0pt

Will it reduce or eliminate damage to structures or infrastructure?

- Yes +1pt
- No 0pts

This ranking system is crude, but it helps to organize the actions in a way that begins to show a prioritization of what can provide the biggest positive impact for the effort required to implement them. A more sophisticated ranking system may include weighting for various factors depending on community priorities and concerns.

The composite ranking of mitigation actions is as follows;

Monroe County Mitigation Action Ranking

Public Education & Outreach of warnings & self-protection	18
Develop Emergency Response Team post-disaster	14
Continuity of Operations Plan for post-disaster	12
Weather Radios for citizens	10
Maintain current Evacuation Plans for buildings, schools & cities	10
Search & Rescue Training for First Responders	10
Flood proofing by homeowners	8
Maintain a current plan for Mass Casualty Preparation & Up-to-date training	7
Encourage Smoke/ Fire/ Carbon Monoxide Detectors & sprinkler systems	7
New Storm Shelter- Heating/cooling Shelter	6
Flood Insurance by property owners	6
Maintenance of Heating/ cooling systems	6
Collection & Protection of Vital Records by private residents	6
Digging hotline/ pipeline safety regulations of pipelines education	6
Participation in Community Rating System for Flooding	6
NFIP Participation	5
Immunization plans – scheduled & emergency situations	5
Hazard Occurrence Data Collection & reporting	5
Tree Management/ Trimming by homeowners, utilities & county	5
Temporary Debris Disposal Plan	5

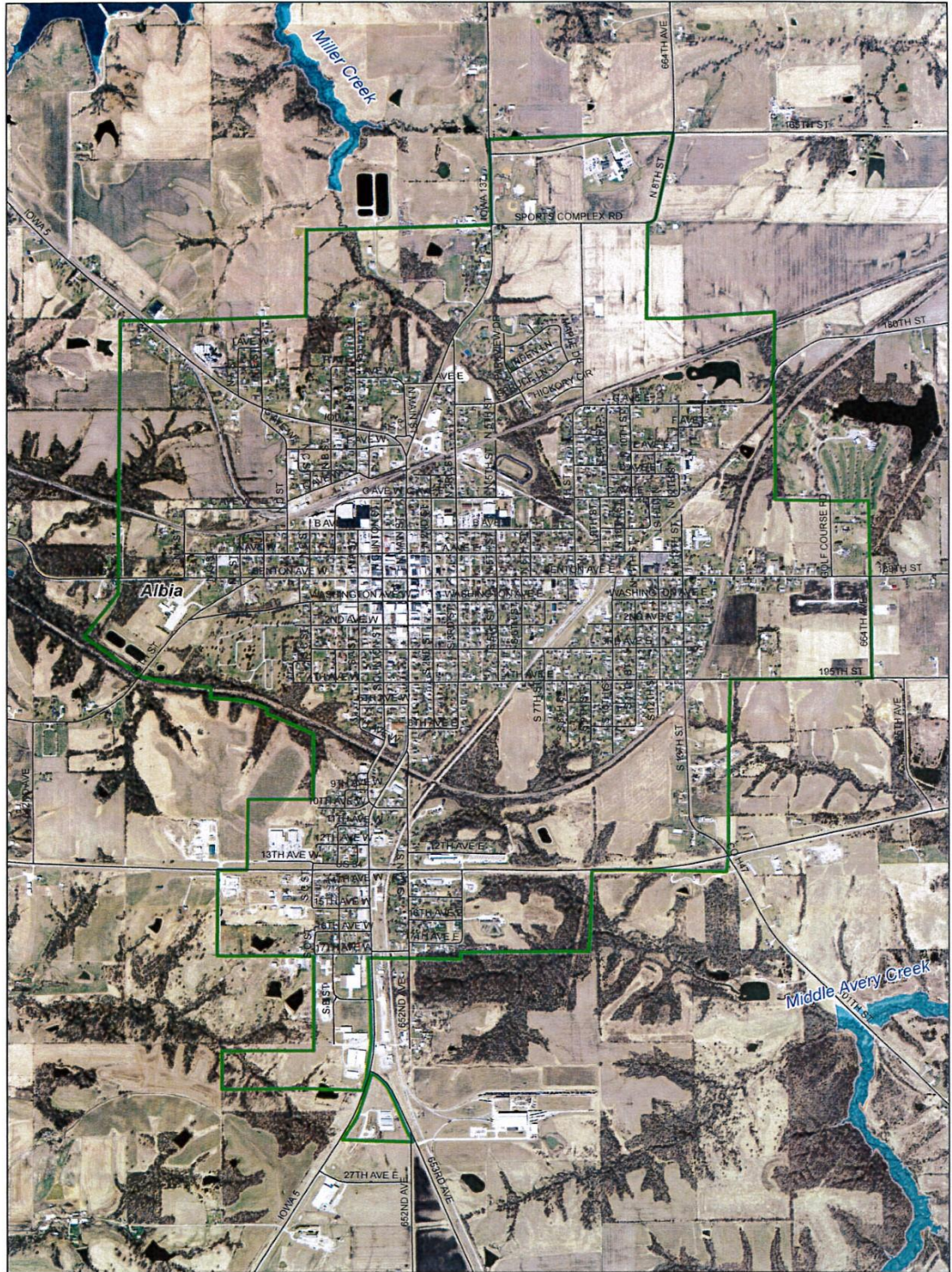
Surge Protection/ Lightning Protection	5
Generators for shelters/public facilities	4
Acquisition & Installation of Storm Warning System	4
Review Floodplain Managements & Enforcement for Effectiveness	4
Evaluate/ maintain/ repair area dams	4
Burning Restrictions	4
Fireplace Maintenance	4
Waste Disposal Enforcement	4
Manufactured Home Tie-Downs regulation/ordinance	4
Building Code Enforcement	3
Critical Infrastructure Protection from Terrorism	3
Pest Management by cities through regulations of property maintenance.	3
Radon/Lead Mitigation	3
Water Storage Saving Plan – reduce usage	3
Storm water Management ordinance	3
Hazardous Materials Protection for Storm Shelters	3
Snow Fences/ Barriers	2
Assessment Risk for Terrorism	1
Hazardous Material Disposal Program	1
Rehabilitate Older Bldgs – rehabilitate	1
Establish Local Hazardous Materials Capabilities	1
Bury Powerlines	1
Acquisition or relocation of buildings in floodplains	1
Safe Rooms in schools, Mobile home parks, campgrounds, fairgrounds, etc	1
Secure Funding for vacant /collapsed buildings to remove or repair	0
Expand Hazard area for mapping & mine evaluation	-1

Mitigation Alternatives:

Below is a listing of the mitigation alternatives considered and where applicable, which jurisdictions they would be for.

Constraints

In the planning committee’s discussion of mitigation alternatives, certain constraints exist to the implementation of the various alternative strategies. One of the major constraints is availability of funding as the communities of Monroe County are small and lack the resources available in other areas of Iowa. The criteria for a positive impact includes greater overall benefits than the costs of the alternative, local capabilities to fund, administer, or obtain funds for the alternative, and public acceptance of the alternative.



Iowa Draft Flood Hazard Products



The digital spatial files of the Preliminary Flood Hazard Information for Monroe County, IA, will be released upon your understanding and concurrence to the following conditions:

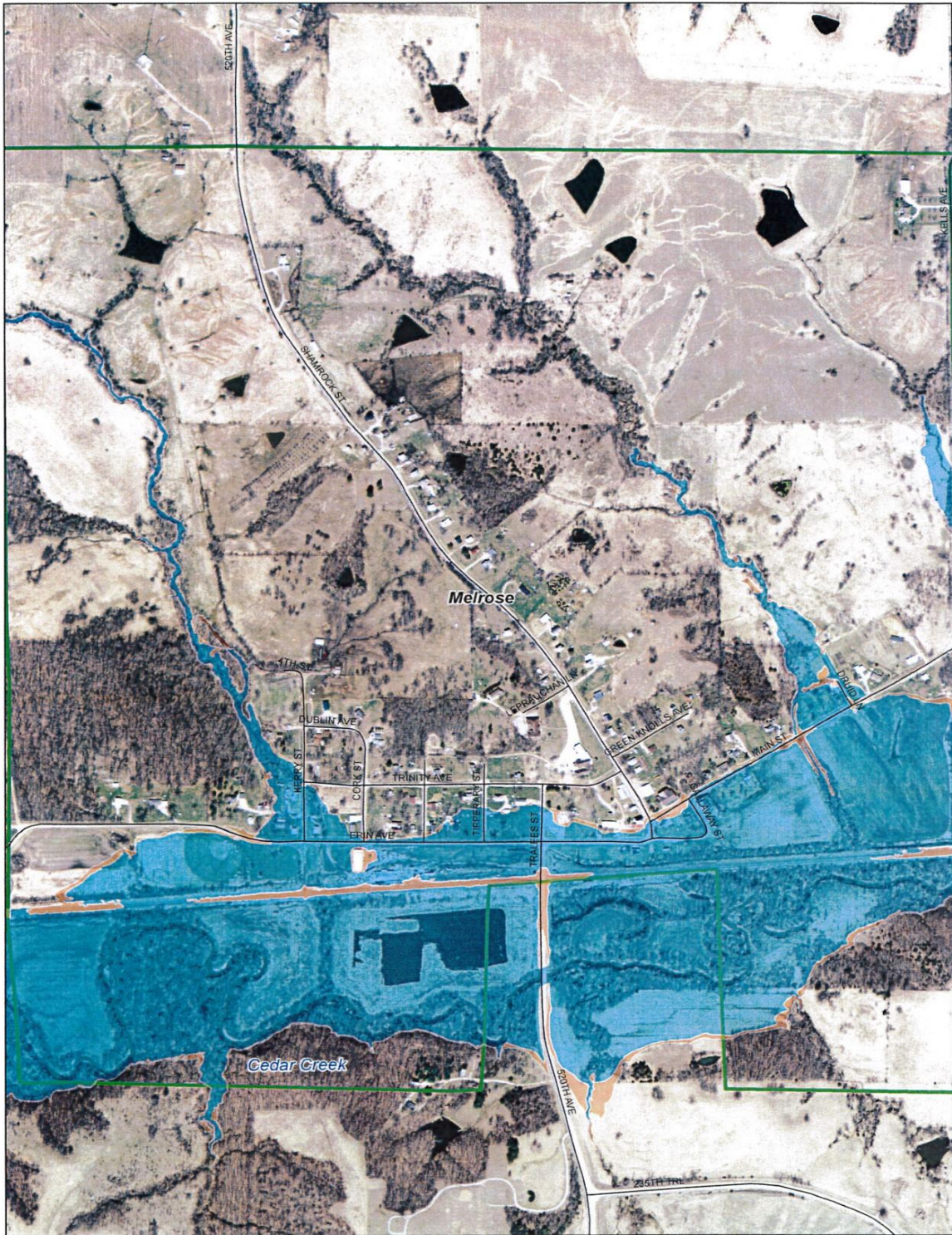
- *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
- *This flood hazard information is preliminary and subject to revision.
- *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
- *This flood hazard information should not be distributed.
- *The flood hazard information should not be used for mandatory flood insurance requirement purposes.

DRAFT
City of Albia
 1 inch = 1,250 feet

Flood Zone Legend

- A - 1 PCT ANNUAL CHANCE
- AE - 1 PCT ANNUAL CHANCE
- 0.2 PCT ANNUAL CHANCE








Iowa Draft Flood Hazard Products



The digital spatial files of the Preliminary Flood Hazard Information for Monroe County, IA will be released upon your understanding and concurrence to the following conditions:
 *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
 *This flood hazard information is preliminary and subject to revision.
 *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
 *This flood hazard information should not be distributed.
 *The flood hazard information should not be used for mandatory flood insurance requirement purposes.

DRAFT
City of Melrose
 1 inch = 500 feet

Flood Zone Legend
 A - 1 PCT ANNUAL CHANGE
 AE - 1 PCT ANNUAL CHANGE
 0.2 PCT ANNUAL CHANGE





Iowa Draft Flood Hazard Products



The digital spatial files of the Preliminary Flood Hazard Information for Monroe County, IA will be released upon your understanding and concurrence to the following conditions:

- *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
- *This flood hazard information is preliminary and subject to revision.
- *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
- *This flood hazard information should not be distributed.
- *The flood hazard information should not be used for mandatory flood insurance requirement purposes.

INDEX MAP

A1	A2	A3	A4	A5
B1	B2	B3	B4	B5
C1	C2	C3	C4	C5

DRAFT

Map A1

1 inch = 3,000 feet

- Flood Zone Legend**
- A - 1 PCT ANNUAL CHANCE
 - AE - 1 PCT ANNUAL CHANCE
 - 0.2 PCT ANNUAL CHANCE





Iowa Draft Flood Hazard Products



The digital spatial files of the Preliminary Flood Hazard Information for Monroe County, IA will be released upon your understanding and concurrence to the following conditions:
 *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
 *This flood hazard information is preliminary and subject to revision.
 *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
 *This flood hazard information should not be distributed.
 *The flood hazard information should not be used for mandatory flood insurance requirement purposes.

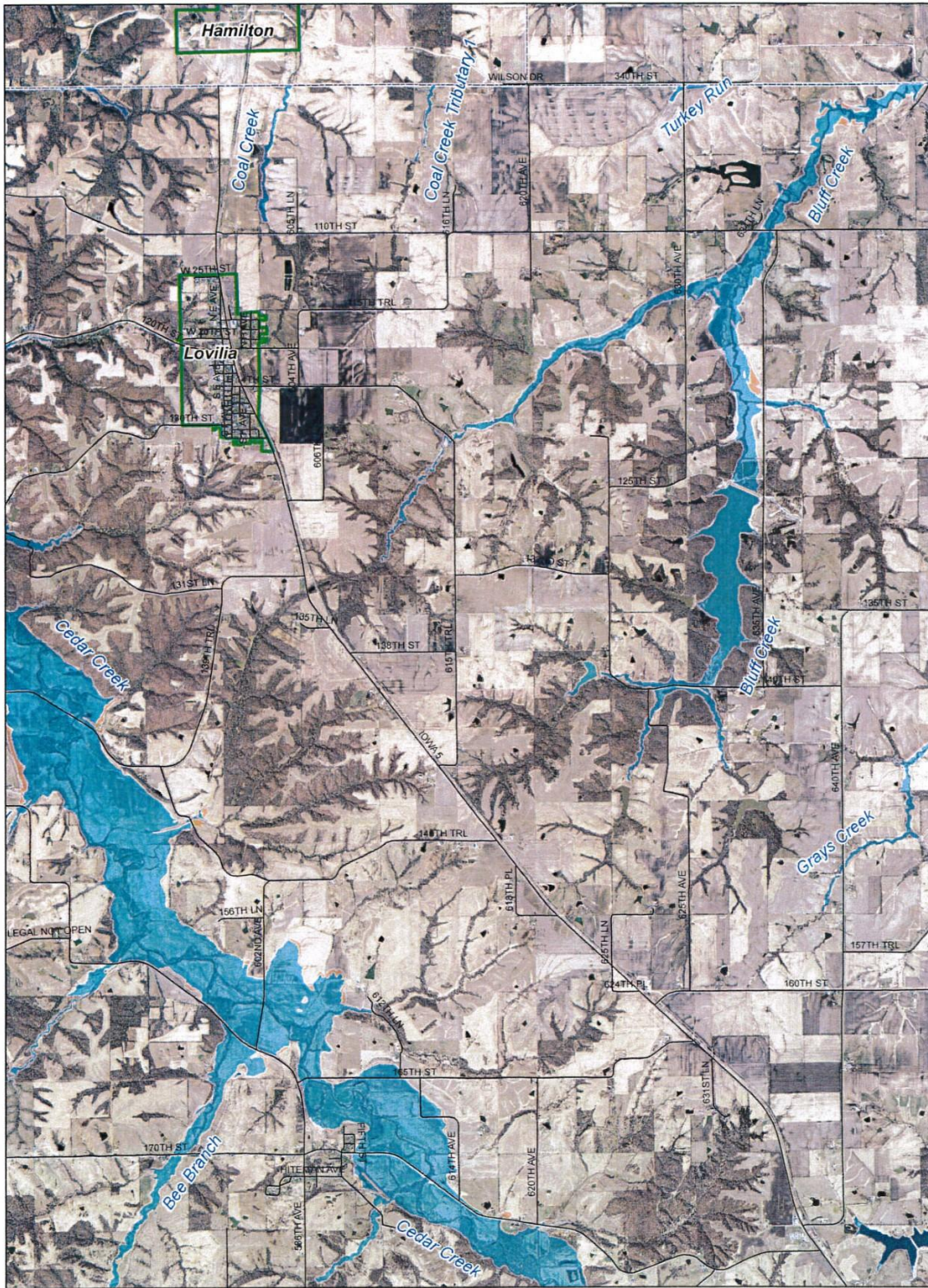
INDEX MAP

A1	A2	A3	A4	A5
B1	B2	B3	B4	B5
C1	C2	C3	C4	C5

DRAFT
Map A2
 1 inch = 3,000 feet

Flood Zone Legend
 A - 1 PCT ANNUAL CHANCE
 AE - 1 PCT ANNUAL CHANCE
 0.2 PCT ANNUAL CHANCE





Iowa Draft Flood Hazard Products



The digital spatial files of the Preliminary Flood Hazard Information for Monroe County, IA will be released upon your understanding and concurrence to the following conditions:

- *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
- *This flood hazard information is preliminary and subject to revision.
- *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
- *This flood hazard information should not be distributed.
- *The flood hazard information should not be used for mandatory flood insurance requirement purposes.

INDEX MAP

A1	A2	A3	A4	A5
B1	B2	B3	B4	B5
C1	C2	C3	C4	C5

DRAFT
Map A3
 1 inch = 3,000 feet

- Flood Zone Legend**
- A - 1 PCT ANNUAL CHANCE
 - AE - 1 PCT ANNUAL CHANCE
 - 0.2 PCT ANNUAL CHANCE





Iowa Draft Flood Hazard Products



The digital spatial files of the Preliminary Flood Hazard Information for Monroe County, IA will be released upon your understanding and concurrence to the following conditions:

- *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
- *This flood hazard information is preliminary and subject to revision.
- *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
- *This flood hazard information should not be distributed.
- *The flood hazard information should not be used for mandatory flood insurance requirement purposes.

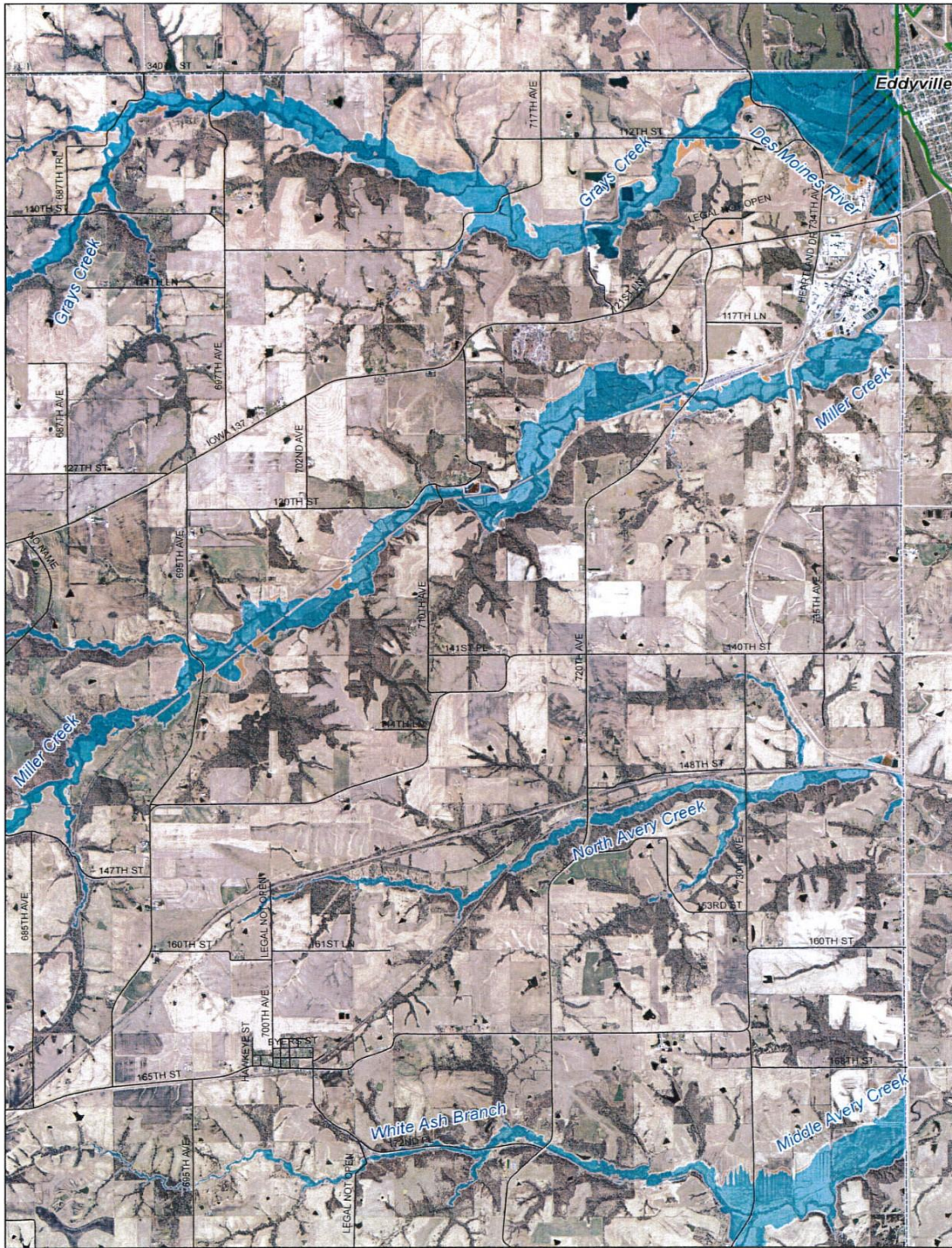
INDEX MAP

A1	A2	A3	A4	A5
B1	B2	B3	B4	B5
C1	C2	C3	C4	C5

DRAFT
Map A4
 1 inch = 3,000 feet

- Flood Zone Legend
- A - 1 PCT ANNUAL CHANCE
 - AE - 1 PCT ANNUAL CHANCE
 - 0.2 PCT ANNUAL CHANCE





Iowa Draft Flood Hazard Products



The digital raster files of the Preliminary Flood Hazard Information for Monroe County, IA will be released upon your understanding and concurrence to the following conditions:

- *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
- *This flood hazard information is preliminary and subject to revision.
- *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
- *This flood hazard information should not be distributed.
- *The flood hazard information should not be used for mandatory flood insurance requirement purposes.

INDEX MAP

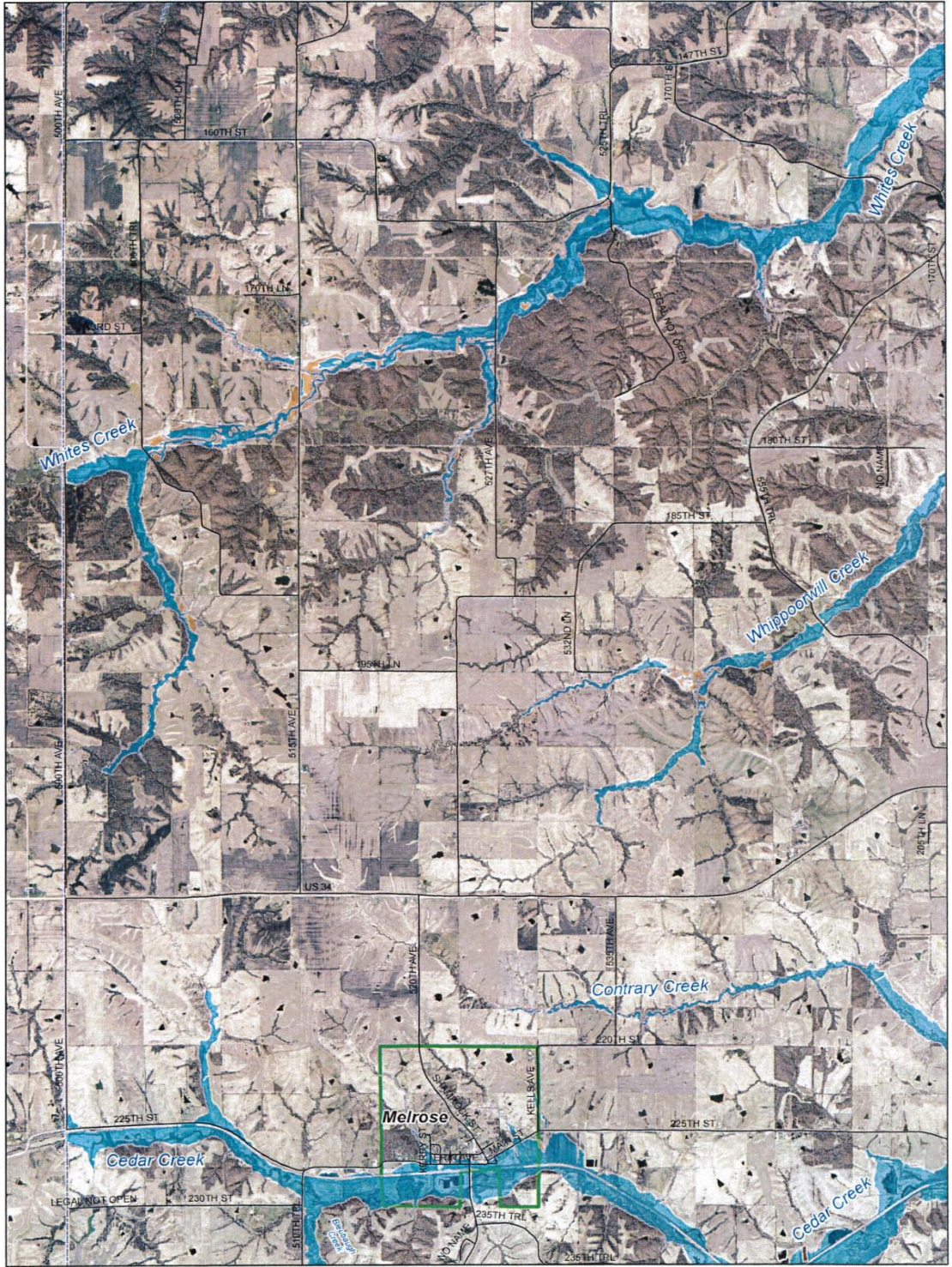
A1	A2	A3	A4	A5
B1	B2	B3	B4	B5
C1	C2	C3	C4	C5

DRAFT
Map A5
 1 inch = 3,000 feet

Flood Zone Legend

- A - 1 PCT ANNUAL CHANCE
- AE - 1 PCT ANNUAL CHANCE
- 0.2 PCT ANNUAL CHANCE





Iowa Draft Flood Hazard Products



The digital spatial files of the Preliminary Flood Hazard Information for Monroe County, IA will be released upon your understanding and concurrence to the following conditions:

- *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
- *This flood hazard information is preliminary and subject to revision.
- *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
- *This flood hazard information should not be distributed.
- *The flood hazard information should not be used for mandatory flood insurance requirement purposes.

INDEX MAP

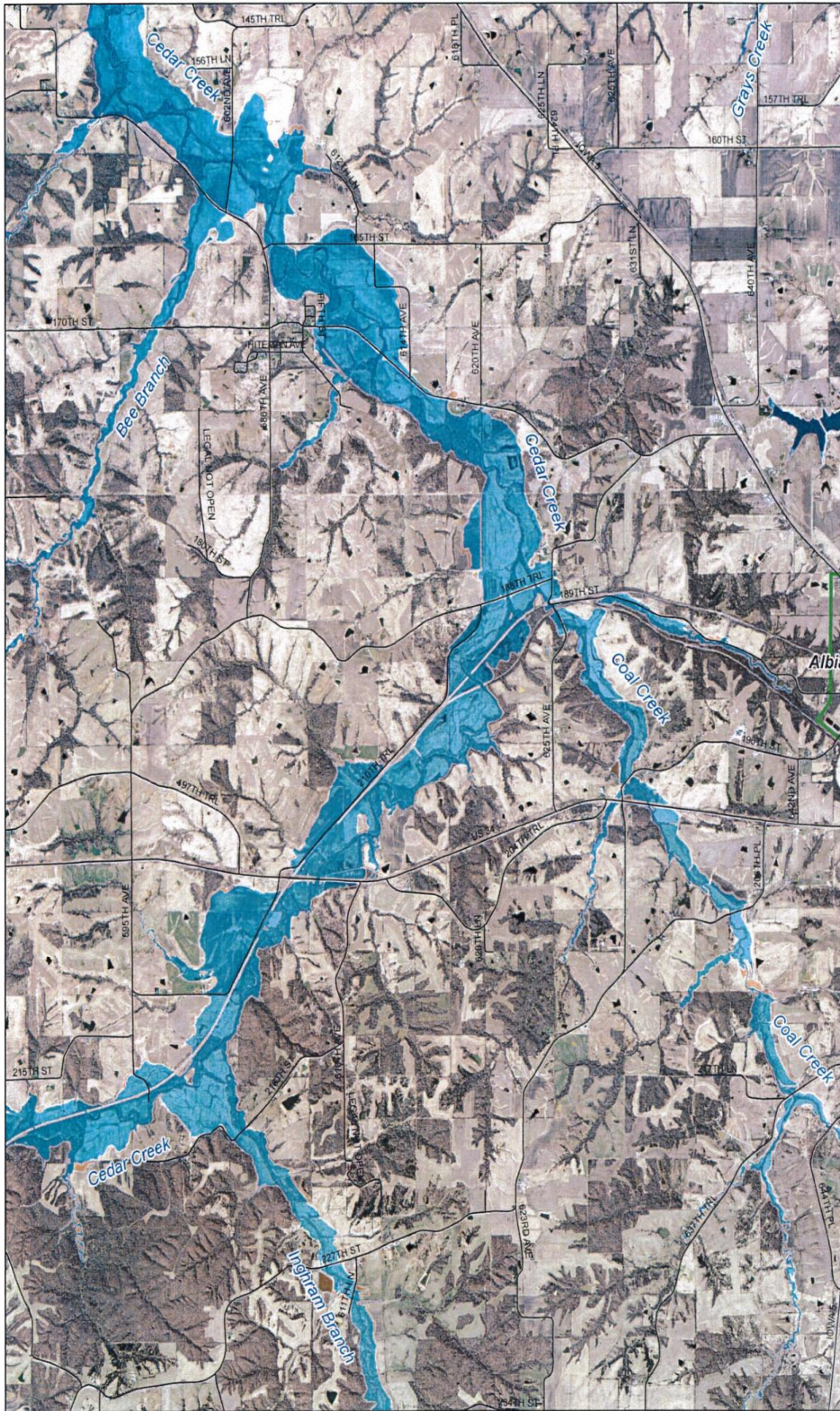
A1	A2	A3	A4	A5
B1	B2	B3	B4	B5
C1	C2	C3	C4	C5

DRAFT
Map B1
 1 inch = 3,000 feet

Flood Zone Legend

- A - 1 PCT ANNUAL CHANCE
- AE - 1 PCT ANNUAL CHANCE
- 0.2 PCT ANNUAL CHANCE





Iowa Draft Flood Hazard Products



The digital spatial files of the Preliminary Flood Hazard Information for Monroe County, IA will be released upon your understanding and concurrence to the following conditions:

- *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
- *This flood hazard information is preliminary and subject to revision.
- *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
- *This flood hazard information should not be distributed.
- *This flood hazard information should not be used for mandatory flood insurance requirement purposes.

INDEX MAP

A1	A2	A3	A4	A5
B1	B2	B3	B4	B5
C1	C2	C3	C4	C5

DRAFT
Map B3
 1 inch = 3,000 feet

- Flood Zone Legend
- A - 1 PCT ANNUAL CHANCE
 - AE - 1 PCT ANNUAL CHANCE
 - 0.2 PCT ANNUAL CHANCE





Iowa Draft Flood Hazard Products



The digital spatial files of the Preliminary Flood Hazard Information for Monroe County, IA will be released upon your understanding and concurrence to the following conditions:

- *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
- *This flood hazard information is preliminary and subject to revision.
- *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
- *This flood hazard information should not be distributed.
- *This flood hazard information should not be used for mandatory flood insurance requirement purposes.

INDEX MAP

A1	A2	A3	A4	A5
B1	B2	B3	B4	B5
C1	C2	C3	C4	C5

DRAFT
Map B4
 1 inch = 3,000 feet

- Flood Zone Legend
- A - 1 PCT ANNUAL CHANCE
 - AE - 1 PCT ANNUAL CHANCE
 - 0.2 PCT ANNUAL CHANCE





Iowa Draft Flood Hazard Products



The digital spatial files of the Preliminary Flood Hazard Information for Monroe County, IA will be released upon your understanding and concurrence to the following conditions:
 *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
 *This flood hazard information is preliminary and subject to revision.
 *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
 *This flood hazard information should not be distributed.
 *The flood hazard information should not be used for mandatory flood insurance requirement purposes

INDEX MAP

A1	A2	A3	A4	A5
B1	B2	B3	B4	B5
C1	C2	C3	C4	C5

DRAFT

Map B5

1 inch = 3,000 feet

- Flood Zone Legend**
- A - 1 PCT ANNUAL CHANCE
 - AE - 1 PCT ANNUAL CHANCE
 - 0.2 PCT ANNUAL CHANCE





Iowa Draft Flood Hazard Products



The digital spatial files of the Preliminary Flood Hazard Information for Monroe County, IA will be released upon your understanding and concurrence to the following conditions:
 *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
 *This flood hazard information is preliminary and subject to revision.
 *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
 *This flood hazard information should not be distributed.
 *The flood hazard information should not be used for mandatory flood insurance requirement purposes

INDEX MAP

A1	A2	A3	A4	A5
B1	B2	B3	B4	B5
C1	C2	C3	C4	C5

DRAFT
Map B5
 1 inch = 3,000 feet

- Flood Zone Legend**
- A - 1 PCT ANNUAL CHANCE
 - AE - 1 PCT ANNUAL CHANCE
 - 0.2 PCT ANNUAL CHANCE





Iowa Draft Flood Hazard Products



The digital spatial files of the Preliminary Flood Hazard Information for Monroe County, IA will be released upon your understanding and concurrence to the following conditions:

- *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
- *This flood hazard information is preliminary and subject to revision.
- *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
- *This flood hazard information should not be distributed.
- *The flood hazard information should not be used for mandatory flood insurance requirement purposes.

INDEX MAP

A1	A2	A3	A4	A5
B1	B2	B3	B4	B5
C1	C2	C3	C4	C5

DRAFT
Map C1
 1 inch = 3,000 feet

Flood Zone Legend

- A - 1 PCT ANNUAL CHANCE
- AE - 1 PCT ANNUAL CHANCE
- 0.2 PCT ANNUAL CHANCE





Iowa Draft Flood Hazard Products



The digital spatial files of the Preliminary Flood Hazard Information for Monroe County, IA, will be released upon your understanding and concurrence to the following conditions:

- *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
- *This flood hazard information is preliminary and subject to revision.
- *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
- *This flood hazard information should not be distributed.
- *This flood hazard information should not be used for mandatory flood insurance requirement purposes.

INDEX MAP

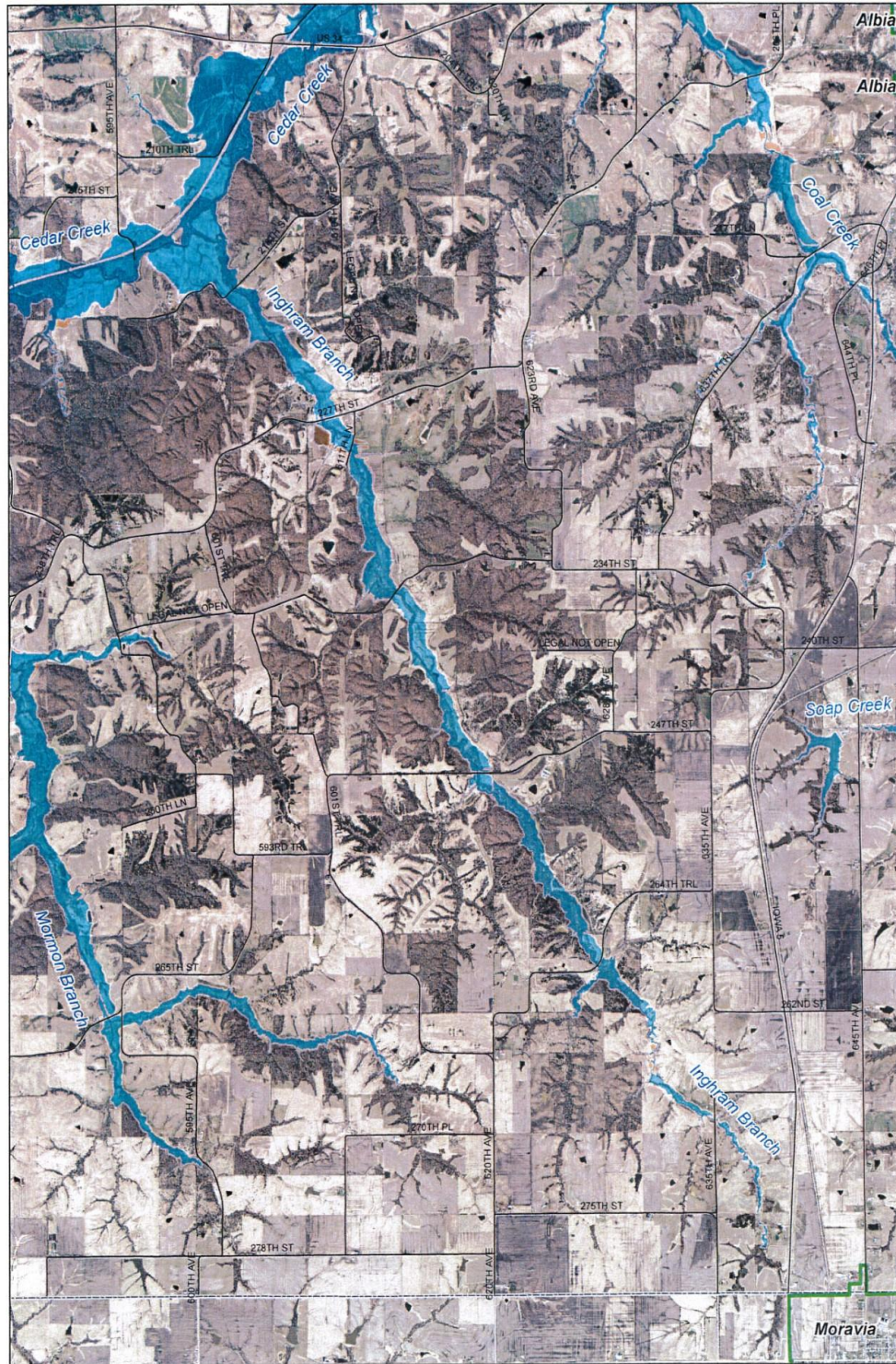
A1	A2	A3	A4	A5
B1	B2	B3	B4	B5
C1	C2	C3	C4	C5

DRAFT
Map C2
 1 inch = 3,000 feet

Flood Zone Legend

- A - 1 PCT ANNUAL CHANCE
- AE - 1 PCT ANNUAL CHANCE
- 0.2 PCT ANNUAL CHANCE





Iowa Draft Flood Hazard Products



The digital spatial files of the Preliminary Flood Hazard Information for Monroe County, IA will be released upon your understanding and concurrence to the following conditions:
 *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
 *This flood hazard information is preliminary and subject to revision.
 *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
 *This flood hazard information should not be distributed.
 *The flood hazard information should not be used for mandatory flood insurance requirement purposes.

INDEX MAP

A1	A2	A3	A4	A5
B1	B2	B3	B4	B5
C1	C2	C3	C4	C5

DRAFT
Map C3
 1 inch = 3,000 feet

- Flood Zone Legend
- A - 1 PCT ANNUAL CHANCE
 - AE - 1 PCT ANNUAL CHANCE
 - 0.2 PCT ANNUAL CHANCE





Iowa Draft Flood Hazard Products



The digital spatial files of the Preliminary Flood Hazard information for Monroe County, IA, will be released upon your understanding and concurrence to the following conditions:

- *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
- *This flood hazard information is preliminary and subject to revision.
- *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
- *This flood hazard information should not be distributed.
- *This flood hazard information should not be used for mandatory flood insurance requirement purposes.

INDEX MAP

A1	A2	A3	A4	A5
B1	B2	B3	B4	B5
C1	C2	C3	C4	C5

DRAFT
Map C4
 1 inch = 3,000 feet

Flood Zone Legend

- 1 PCT ANNUAL CHANCE
- 1 PCT ANNUAL CHANCE
- 0.2 PCT ANNUAL CHANCE





Iowa Draft Flood Hazard Products



The digital spatial files of the Preliminary Flood Hazard Information for Monroe County, IA will be released upon your understanding and concurrence to the following conditions:

- *This flood hazard information is preliminary and for outreach, advisory and review purposes only.
- *This flood hazard information is preliminary and subject to revision.
- *This flood hazard information should not be used for regulation, enforcement or insurance rating purposes.
- *This flood hazard information should not be distributed.
- *This flood hazard information should not be used for mandatory flood insurance requirement purposes.

INDEX MAP

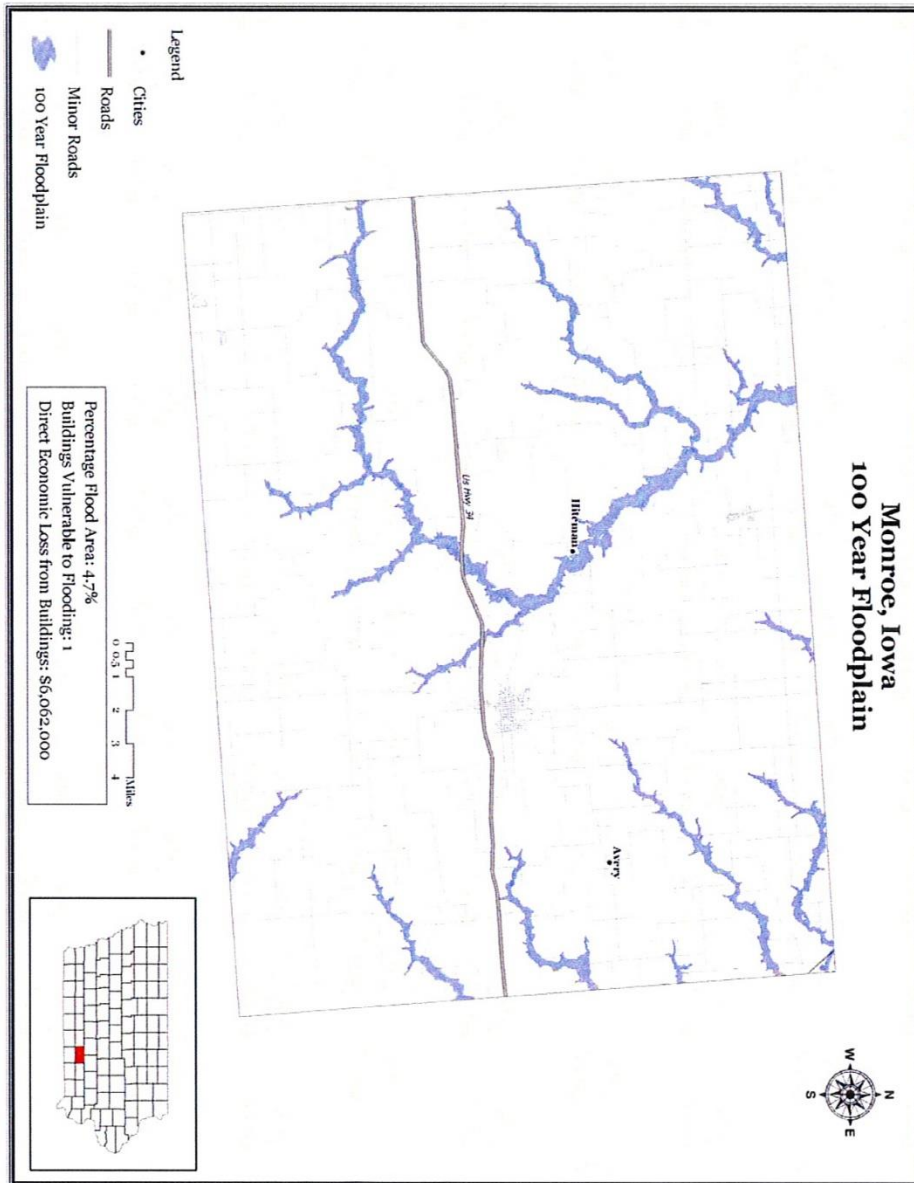
A1	A2	A3	A4	A5
B1	B2	B3	B4	B5
C1	C2	C3	C4	C5

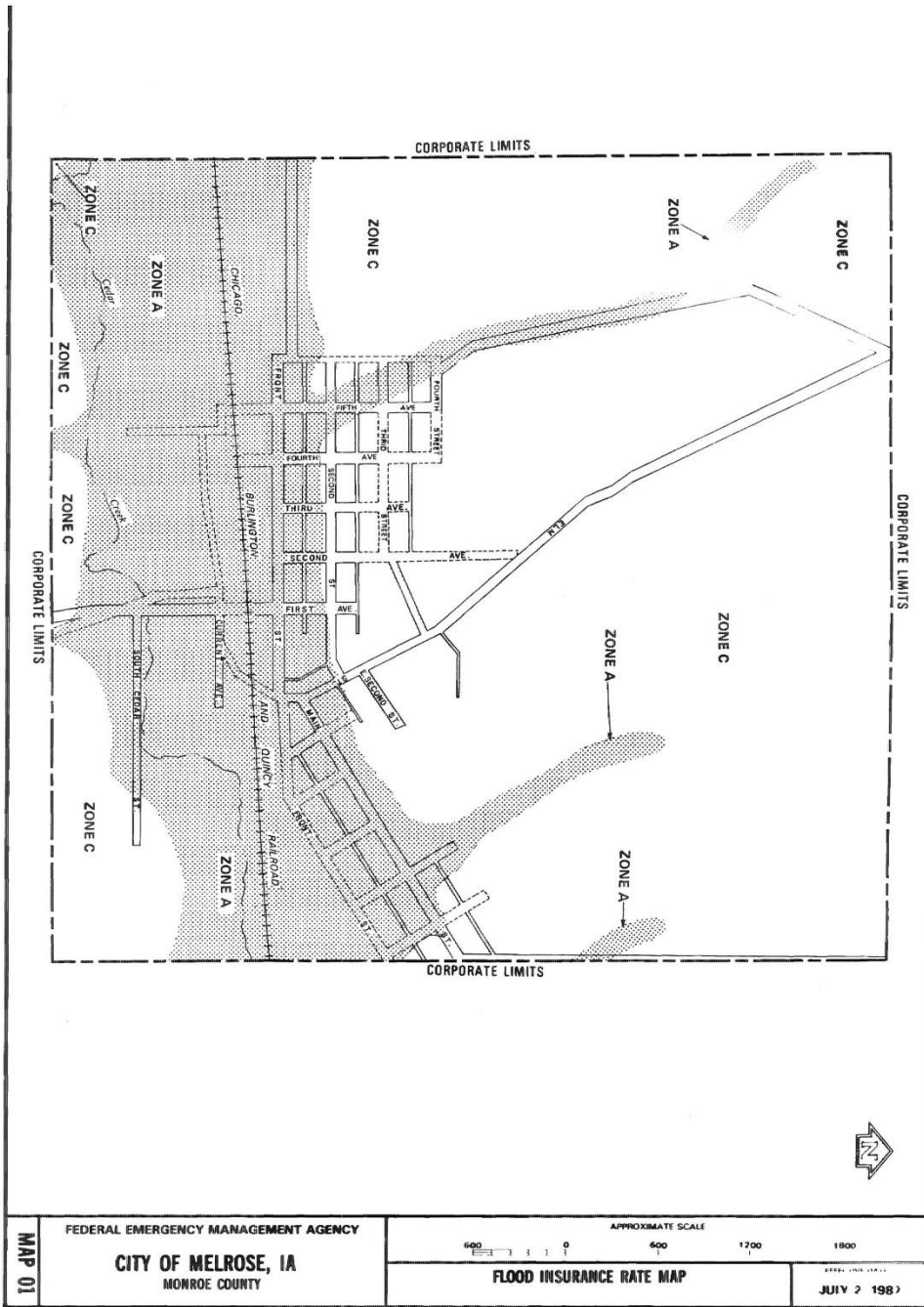
DRAFT
Map C5
 1 inch = 3,000 feet

Flood Zone Legend

- A - 1 PCT ANNUAL CHANGE
- AE - 1 PCT ANNUAL CHANGE
- 0.2 PCT ANNUAL CHANGE







Appendix 3: Modified Mercalli Scale for Earthquake Intensity

- I. Not felt except by a very few under especially favorable conditions. (Micro)
- II. Felt only by a few persons at rest, especially on upper floors of buildings. (Micro)
- III. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated. (Minor)
- IV. Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably. (Light)
- V. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop. (Moderate)
- VI. Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight. (Strong)
- VII. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken. (Major)
- VIII. Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. (Great)
- IX. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations. (Great)
- X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent. (Great)
- XI. Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly. (Great)
- XII. Damage total. Lines of sight and level are distorted. Objects thrown into the air. (Great)

Source: Iowa Department of Natural Resources, Geological Survey. Modified Mercalli Intensity Scale from National Earthquake Information Center. <<http://www.igsb.uiowa.edu/Browse/earthqua/MERCALLI.HTM>>.

Appendix 4: Alternate Facilities Valuation Estimate Tools

Average Building Replacement Value per Square Foot

Occupancy Class	Total \$/sq. ft.
Single Family Dwelling	77
Mobile Home	52
Multi-family Dwelling	98
Temporary Lodging	102
Institutional Dormitory	98
Nursing Home	89
Retail Trade	67
Wholesale Trade	53
Personal/Repair Services	92
Professional/Tech. Services	87
Banks	151
Hospital	145
Medical Office/Clinic	112
Entertainment & Recreation	131
Theaters	98
Parking	30
Heavy Industrial	69
Light Industrial	69
Food/Drugs/Chemicals	69
Metals/Minerals Processing	69
High Technology	69
Construction	69
Agriculture	26
Church/Non-Profit Offices	113
General Services	88
Emergency Response	130
Schools	91
Colleges/Universities	115

Source: HAZUS

Contents Value as Percentage of Building Replacement Value

Occupancy Class	Contents Value (%)
Residential (including temporary lodging, dormitory, and nursing homes)	50
Commercial (including retail, wholesale, professional, services, financial, entertainment & recreation)	100
Commercial (including hospital and medical office/clinic)	150
Commercial Parking	50
Industrial (including heavy, light, technology)	150
Industrial Construction	100
Agriculture	100
Religion/Non-Profit	100
Government Emergency Response	150
Government General Services	100
Education Schools/Libraries	100
Education Colleges/Universities	150

Source: HAZUS

Example 1

To find the annual sales from a 15,000 square foot grocery store, you would multiply the structure size by \$30 per square foot (from the table at right).

$$15,000 \times \$30$$

The annual sales would be \$450,000.

Example 2

If a public library will be lost for three months due to damage from a 100-year flood, you could determine the damages from the loss of function by multiplying the monthly budget of the library (overhead, rent, staff salaries, etc.) by three months.



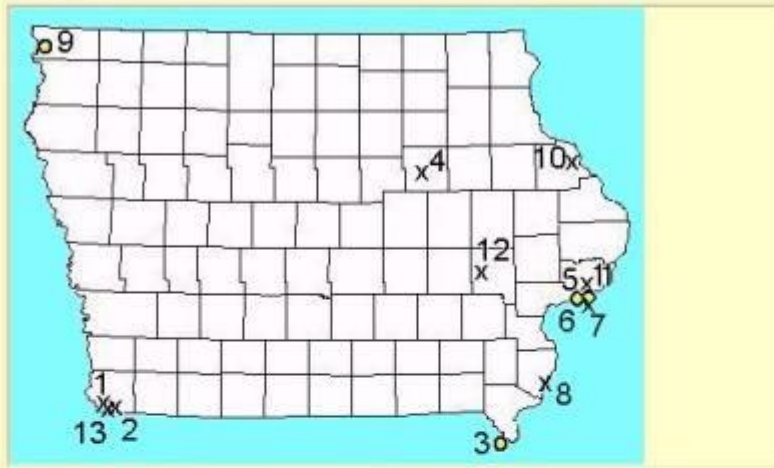
Annual Gross Sales or Production (Dollars per Square Foot)

Occupancy Class	Annual Sales (\$ / ft ²)
Commercial	
Retail Trade	30
Wholesale Trade	43
Industrial	
Heavy	400
Light	127
Food/Drugs/Chemicals	391
Metals/Minerals Processing	368
High Technology	245
Construction	431
Agriculture	
Agriculture	83

Source: HAZUS

IOWA EARTHQUAKES

HISTORIC EARTHQUAKES WITH EPICENTERS IN IOWA



Number	Date	Nearest Town	Mercalli Intensity
1.	Apr. 28, 1867	Sidney (IA) / Nebraska City (NE)	IV
2.	Dec. 09, 1875	Sidney (IA) / Nebraska City (NE)	III
3.	April 13, 1905 **	Wayland (MO) / Keokuk (IA)	IV-V
4.	Jan. 26, 1925	Waterloo (IA)	II
5.	Nov. 12, 1934	Davenport (IA) / Rock Island (IL)	VI
6.	Jan. 05, 1935 **	Rock Island (IL) / Davenport (IA)	IV
7.	Jan. 05, 1935 **	Rock Island (IL) / Davenport (IA)	III
8.	Feb. 26, 1935	Burlington (IA)	III
9.	Oct. 11, 1938	Inwood (IA)	V
10.	Nov. 08, 1938	Dubuque (IA) *	~II
11.	Nov. 24, 1939	Davenport (IA) / Rock Island (IL)	II-III
12.	Apr. 20, 1948	Oxford (IA)	IV
13.	July 16, 2004	Shenandoah (IA)	III

Red identifies Iowa's largest earthquake

* Dubuque experienced three shocks

** Epicenter probably just outside Iowa

Appendix 6: TORRO Hailstorm Intensity Scale

	Intensity Category	Typical Hail Diameter (mm)*	Probable Kinetic Energy, J-m ²	Typical Damage Impacts
H0	Hard Hail	5	0-20	No damage
H1	Potentially Damaging	10-15	>20	Slight general damage to plants, crops
H2	Significant	10-20	>100	Significant damage to fruit, crops, vegetation
H3	Severe	20-30	>300	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	25-40	>500	Widespread glass damage, vehicle bodywork damage
H5	Destructive	30-50	>800	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	40-60		Bodywork of grounded aircraft dented, brick walls pitted
H7	Destructive	50-75		Severe roof damage, risk of serious injuries
H8	Destructive	60-90		(Severest recorded in the British Isles) Severe damage to aircraft bodywork
H9	Super Hailstorms	75-100		Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	>100		Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

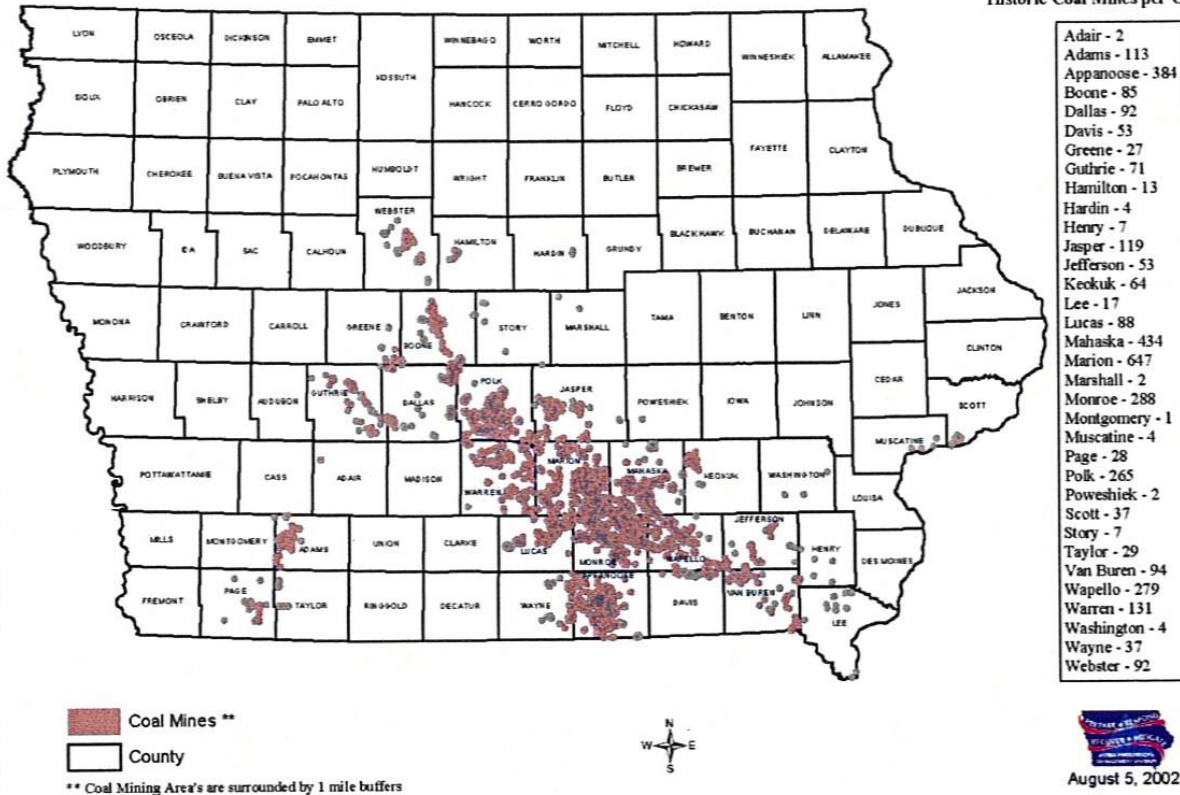
* Approximate range (typical maximum size in bold), since other factors (e.g. number and density of hailstones, hail fall speed and surface wind speeds) affect severity.

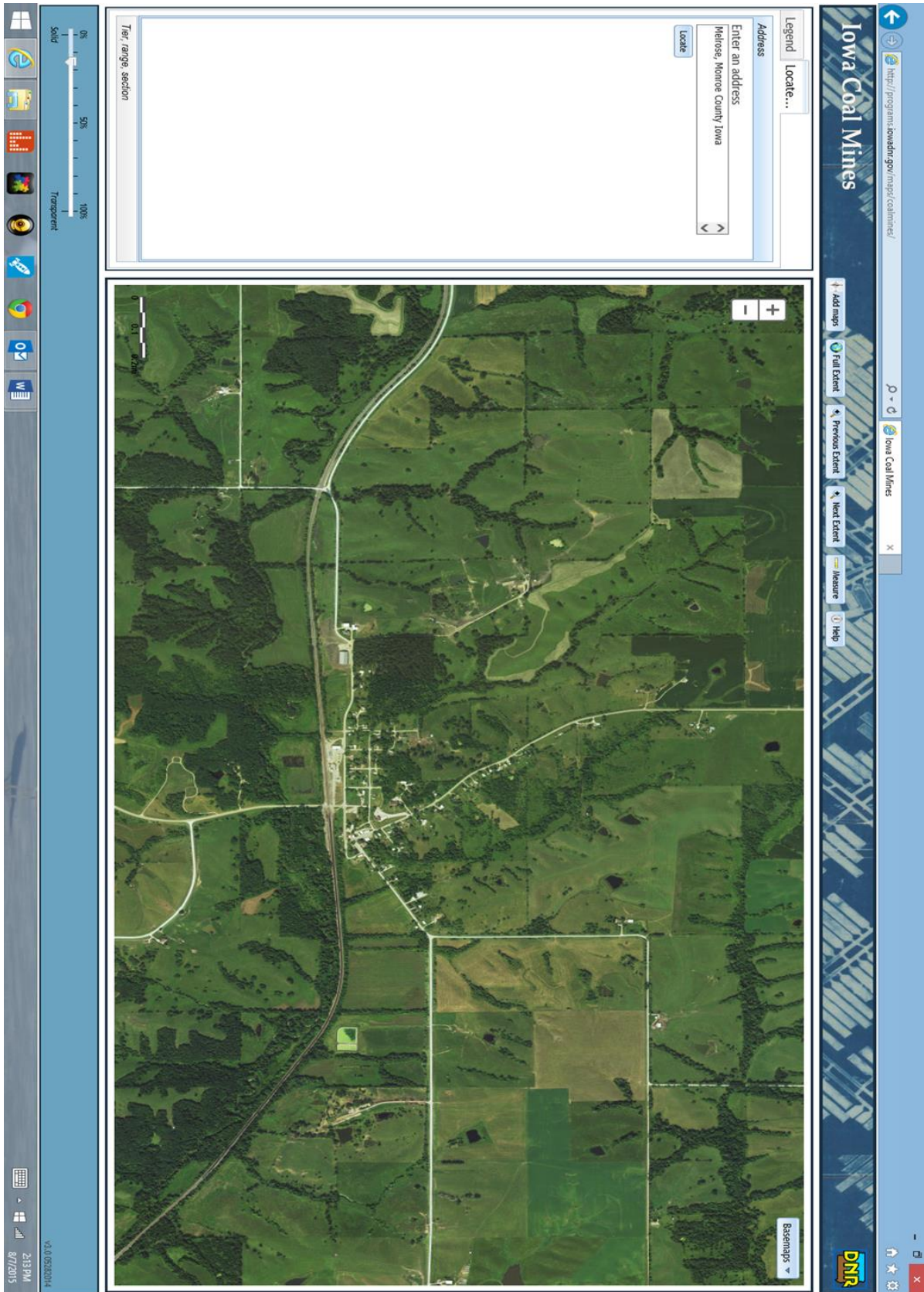
Maximum Diameter (mm)	Description
5-9	Pea
10-15	Mothball
16-20	Marble, grape
21-30	Walnut
31-40	Pigeon's egg > squash ball
41-50	Golf ball > Pullet's egg
51-60	Hen's egg
61-75	Tennis ball > cricket ball
76-90	Large orange > Soft ball
91-100	Grapefruit
>100	Melon

Source: FEMA and Tornado and Storm Research Organization
<http://www.torro.org.uk/TORRO/severeweather/hailscale.php>

Identified Historic Coal Mining Areas in Iowa

Historic Coal Mines per County





<http://programs.iowadnr.gov/mispl/coalmines/> Iowa Coal Mines

+ Add map | Full Extent | Previous Extent | Next Extent | Measure | Help

Iowa Coal Mines

Legend Locate:...

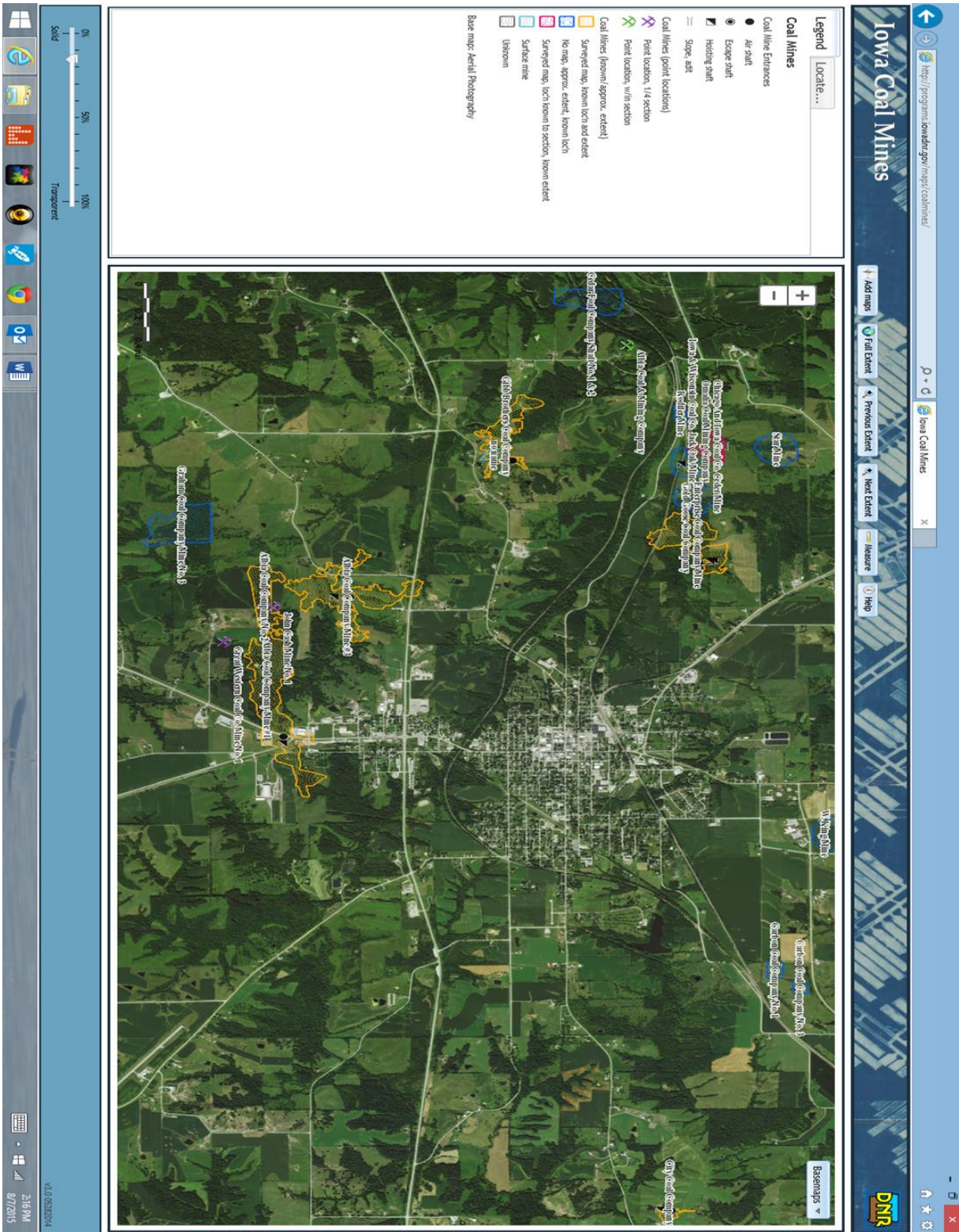
Coal Mines

- Coal Mine Entrances
 - Air shaft
 - Escape shaft
 - Holding shaft
 - Slope, airt
- Coal Mines (point locations)
 - Point location, 1/4 section
 - Point location, w/1/4 section
- Coal Mines (brown/approx. extent)
 - Surveyed map, known both and extent
 - No map, approx. extent, known both
 - Surveyed map, both known to section, known extent
 - Surface mine
 - Unknown

Base map: Aerial Photography

0ft 250ft 500ft 1000ft
 Scale Translucent

2:15 PM 8/7/2015



Iowa Coal Mines

http://programs.iowadnr.gov/maps/coalmines/

Full Extent Previous Extent Next Extent Measure Help

Legend Locate...

Coal Mines

- Coal Mine (point location)
- Point location, 1/4 section
- Point location, with section
- Coal Mine (known/ approx. extent)
- Surveyed map, known both and extent
- No map, approx. extent, known both
- Surveyed map, both known to section, known extent
- Surface mine
- Unknown

Base map: Aerial Photography

Basemaps

0 250 500 1000
Solid Transparent






v1.0.05262014 2:18 PM 8/7/2015


Appendix 8: Enhanced Fujita Parameters and Damage Details

Source: Wikipedia, retrieved June 24, 2009 (www.wikipedia.org)

Parameters

The six categories for the EF Scale are listed below, in order of increasing intensity. Although the wind speeds and photographic damage examples are updated, the damage descriptions given are those from the Fujita scale, which are more or less still accurate. However, for the actual EF scale in practice, one must look up the damage indicator (the type of structure which has been damaged) and consult the degrees of damage associated for that particular indicator.

Scale	Wind speed		Relative frequency	Potential damage	
	mph	km/h			
EF0	65–85	105–137	53.5%	<p>Light damage.</p> <p>Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.</p> <p>Confirmed tornadoes with no reported damage (i.e. those that remain in open fields) are always rated EF0.</p>	
EF1	86–110	138–178	31.6%	<p>Moderate damage.</p> <p>Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.</p>	
EF2	111–135	179–218	10.7%	<p>Considerable damage.</p> <p>Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.</p>	
EF3	136–165	219–266	3.4%	<p>Severe damage.</p> <p>Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.</p>	
EF4	166–200	267–322	0.7%	<p>Devastating damage.</p> <p>Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.</p>	

EF5	>200	>322	<0.1%	Exploding damage.	
				Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (300 ft); steel reinforced concrete structure badly damaged; high-rise buildings have significant structural deformation; incredible phenomena will occur.	
				So far there have been two EF5 tornadoes recorded since the Enhanced Fujita Scale was introduced on February 1, 2007. The most recent one occurred in Parkersburg, Iowa on May 25, 2008 and leveled half the city.	

Damage Indicators and Degrees of Damage

The EF Scale currently has 28 Damage Indicators (DI), or types of structures and vegetation, with a varying number of Degrees of Damage (DOD) for each.

DI No.	Damage Indicator (DI)	Degrees of Damage (DOD)
1	Small Barns or Farm Outbuildings (SBO)	<u>8</u>
2	One- or Two-Family Residences (FR12)	<u>10</u>
3	Manufactured Home – Single Wide (MHSW)	<u>9</u>
4	Manufactured Home – Double Wide (MHDW)	<u>12</u>
5	Apartments, Condos, Townhouses [3 stories or less] (ACT)	<u>6</u>
6	Motel (M)	<u>10</u>
7	Masonry Apartment or Motel Building (MAM)	<u>7</u>
8	Small Retail Building [Fast Food Restaurants] (SRB)	<u>8</u>
9	Small Professional Building [Doctor’s Office, Branch Banks] (SPB)	<u>9</u>
10	Strip Mall (SM)	<u>9</u>
11	Large Shopping Mall (LSM)	<u>9</u>
12	Large, Isolated Retail Building [K-Mart, Wal-Mart] (LIRB)	<u>7</u>
13	Automobile Showroom (ASR)	<u>8</u>
14	Automobile Service Building (ASB)	<u>8</u>
15	Elementary School [Single Story; Interior or Exterior Hallways] (ES)	<u>10</u>
16	Junior or Senior High School (JHSH)	<u>11</u>

17	Low-Rise Building [1–4 Stories] (LRB)	7
18	Mid-Rise Building [5–20 Stories] (MRB)	10
19	High-Rise Building [More than 20 Stories] (HRB)	10
20	Institutional Building [Hospital, Government or University Building] (IB)	11
21	Metal Building System (MBS)	8
22	Service Station Canopy (SSC)	6
23	Warehouse Building [Tilt-up Walls or Heavy-Timber Construction] (WHB)	7
24	Electrical Transmission Lines (ETL)	6
25	Free-Standing Towers (FST)	3
26	Free-Standing Light Poles, Luminary Poles, Flag Poles (FSP)	3
27	Trees: Hardwood (TH)	5
28	Trees: Softwood (TS)	5

Appendix 9: Hazards by Jurisdictions

		MONROE COUNTY- Unincorp	ALBIA	LOVILIA	MELROSE	ALBIA COMMUNITY SCHOOL	MONROE COUNTY HOSPITAL
Natural Hazards	HAZARDS						
	Flash Flooding	X	X	X	X	X	X
	Tornado	X	X	X	X	X	X
	Windstorms	X	X	X	X	X	X
	Extreme Heat	X	X	X	X	X	X
	Hailstorm	X	X	X	X	X	X
	Grass / Wild land fire	X	X	X	X	X	X
	Sink Holes	X	X	X	X	X	X
	River Flooding	X			X		
	Severe Winter Storm	X	X	X	X	X	X
	Drought	X	X	X	X	X	X
	Earthquake	X	X	X	X	X	X
	Landslide	X	X	X	X		
	Expansive Soils	X	X	X	X	X	X
	Thunderstorm / Lightning	X	X	X	X	X	X
Dam Failure	X						
Levee Failure							
Human Caused / Combination Hazards							
	Human Disease	X	X	X	X	X	X
	Hazardous Materials	X	X	X	X	X	X
	Transport. Incident	X	X	X	X	X	X
	Infrastructure Failure	X	X	X	X	X	X
	Terrorism	X	X	X	X	X	X
	Radiological	X	X	X	X	X	X
Animal/plant/crop disease	X	X	X	X	X	X	

Hazard Mitigation Planning

Hazard Planning Before a Disaster

Monroe County LEPC & Mitigation Planning

Tuesday, September 09, 2014 at 11:00 AM

Albia City Hall
120 South A Street
Albia, Iowa 52531

Mitigation planning is the process of determining what hazards are present or what disasters can potentially influence a community. Actions (mitigation measures) are identified to reduce or eliminate the impact of disasters and emergency situations in the area. Once the hazards are identified and critical facilities, the county and communities are able to apply for possible grant funding through FEMA and state funding sources to reduce or remove the impact of these hazards on the area.



Hazard Mitigation Plan Update Sample Agendas

1st Meeting – Work with participating jurisdictions to better understand the purpose of mitigation planning, the planning process, composition of the committee & the importance of public involvement. Jurisdictions will be identified and their participation is required to be eligible for disaster mitigation or recovery funding. Representatives from business, education, health services, other organizations, & neighboring communities will also be invited to attend any HMP meeting. Begin discussion of hazard analysis/risk assessment process for each jurisdiction. Previous jurisdictions identified in the original plan will have the opportunity to review their community profile information to make adjustments, updates, and changes.

2nd Meeting – Identify hazards that may impact communities/jurisdictions. Information regarding previous selected hazards will be provided for reference. Representatives will complete the hazard analysis/risk assessment following the Iowa Hazard Analysis Risk Assessment (HARA) guidelines.

3rd Meeting – Rate hazards using a scale consistent with the one contained in the Iowa HARA guidelines. This will help to give all identified hazards a ranking. Identify goals and objectives. Discuss current mitigation strategies for each hazard by jurisdiction.

4th Meeting – Select mitigation strategies for further review & evaluation in each jurisdiction. Complete a STAPLEE to evaluate the mitigation measures. Representatives will select mitigation measures to recommend for each city. The planning agency will provide committee members with draft goals, objectives, hazards and mitigation strategies for each jurisdiction to share with officials to get their review and comment.

5th Meeting – Modifications provided by cities/jurisdictions will be incorporated into a revised draft document. One month following after gathering this information the draft document will be available for public review and comment at each county seat and at the office of Chariton Valley Planning & Development COG.

Monroe County LEPC
Appanoose Davis Lucas Monroe Counties
Emergency Management Agency
12307 Highway 5, P.O. Box 399, Moravia, Iowa 52571

Minutes – September 23rd, 2014 Meeting

TO: All members of the Monroe County Local Emergency Management Planning Committee (LEPC)

SUBJECT: Monroe County LEPC Meeting Minutes

A meeting of the Monroe County LEPC was scheduled for September 23rd 2014 at Albia City Hall at 2pm

I. The following LEPC membership was in attendance:

- | | |
|-------------------|---------------------------------|
| 1. Mike Lamb | ADLM-EMA |
| 2. Jeremiah Selby | Monroe Co. Engineer |
| 3. Ray Vitko | Monroe Co. Disaster Coordinator |
| 4. Dan Johnson | Monroe Co. Sheriff |
| 5. Brad Leedom | Monroe County Hospital |
| 6. Kim Hugen | Monroe Co. Public Health |
| 7. Sherry Lutz | ADLM Environmental Health |
| 8. Tom Murphy | Mayor City of Albia |
| 9. Gene Rouze | Eddyville FD. Rep. |
| 10. Zach Randall | Lovilla FD. Chief |

II. <> 11:05am Mike Lamb called the meeting to order.

<> Item #2 Approval of agenda

Motion made by Johnson. Second by Rouze to approve the agenda. Motion carried all in favor. None opposed

<> Item #3 Approval of minutes of the July 15th meeting.

Motion made by Hugen. second by Rouze. Motion carried all in favor. None opposed

<> Item #4 Old Business:

- a. Discussed additional HMEP training moneys received/spent for an electric vehicle extrication course held at AFD August 21st.

<> Item #5 New Business:

- b. ADLM Emergency Management staffing changes. Discussed Misty's resignation
- c. Special Election for Chair and Vice Chair if attendance permits.
 - Jeremiah Selby elected chair, Gene Rouze Vice Chair.
- d. Multi-Jurisdictional Hazard Mitigation Plan update with Chariton Valley Planning and Development. Nichole/Julie (please see attachment #1 for complete minutes)
- e. Open Discussion:

<> Item #6 Next meeting: Oct 21st, and Nov 18th. Night meeting scheduled for Oct 29th 6:30 pm at the ADLM building in Moravia.)

Motion by Johnson. 2nd by Murphy. All in favor Meeting adjourned.

The minutes of the Monroe County LEPC meeting were prepared by Mike Lamb ADLM EMA Coordinator

















1

HMP – Kick off Meeting Minutes – Monroe County 2014

Information was shared about what hazard mitigation planning is and why it is important to the region. Chariton Valley Planning & Development Council of Governments (CVPD) staff held a “kickoff session” at the September LEPC committee meeting for the work to begin on the Monroe County Hazard Mitigation Plan update. The approved plan is reviewed by the county annually and an official update is required every five years. The original plan was developed and reviewed by both Iowa Homeland Security and FEMA during that process. FEMA approved the plan in 2011 and notes the required update must be completed and approved by 2016. It was emphasized that participation by all jurisdictions is critical in order to have a comprehensive plan and to have communities eligible for disaster funding. It was explained that some of the requirements in the document have changed and therefore much of the initial planning work will need to be completed again. Information was shared about what hazard mitigation planning is and why it is important to the region. Nichole Moore and Julie Pribyl with CVPD provided numerous handouts to refresh all participants as to the importance of this plan to the jurisdictions in the region. Discussions included: “What is Hazard Mitigation Planning?”; the current “Goals & Objectives” of the plan; previous participating jurisdictions and potential new participants (possibly include the Monroe County Conservation Board, Monroe County Hospital, Welcome Home Solider and including the Lazy Days/Green Acres); it was asked for any other additional participants to be identified and brought to the next meeting. The condensed 23 hazards identified in the 2010 State of Iowa Plan versus the 40+ potential hazards from the previous planning session; 2010 Monroe County hazard rankings and the corresponding mitigation strategies. Members had the opportunity to ask questions about the process and their required involvement. CVPD distributed electronic versions of the current plan for members to review before the next working session in October. Committee members were provided with a schedule of the monthly working sessions through December and were also provided with a flyer announcing a regional HMP planning meeting on October 29, 2014 at 6:30pm at ADLM. It was encouraged to share any/all information with citizens to emphasize that every meeting is intended for all members of the public to participate in the planning process.

Monroe County LEPC
updated 2014

5 of 23 2014

Organization	Position	Name	Signature	Phone	Email
Monroe County	Supervisor	Dennis Ryan		641-932-7706	supervisors@monroecola.us
Board of Supervisors	Coordinator	Mike Lamb		641-724-3223/641-895-0407	admema@iowatelecom.net
Emergency Mgmt	Director	Mike Lamb		641-724-3223	admema@iowatelecom.net
Emergency Mgmt	Disaster Coordinator	Ray Vitko		641-799-8867	custodian@monroecola.us
Monroe Co	County Engineer	John Soble		641-932-7123	msoble@monroecola.us
Monroe Co	Sheriff	Daniel Johnson		641-932-7815	monroecos0681@iowatelecom.net
Monroe County Hospital	Emergency Services Administrator	Brad Leedom		641-932-1636	bleedom@mhchiba.com
Monroe County Hospital	Administrator	Kathy Welch		641-932-7191	kweish@monroecola.us
Monroe Co Public Health	Nurse	Adwin Kim Hugen		641-932-7191	Kim Hugen (khuugen@monroecola.us)
Environmental Health	Env. Pub. Health Dir.	Dianna Daly-Husted		641-724-3511/777-7512	Dhusted@adimcounties.com
ADLHM Emergency Mgmt	Env. Pub. Health Officer	Leo Adams		641-724-3511	stutz@adimcounties.com
Albia	Mayor	Tom Murphy		(641) 932-2129 cell 777-5235	albiacity@iowatelecom.net
Elected Official	Chief of Police	Jay Andrews		641-932-7815 cell 777-6768	landrews6811@iowatelecom.net
Law Enforcement	Albia Chief	Mike Gray		641-777-0034	mike_albiator@hotmail.com
Fire Fighting					
Eddyville	Eddyville Rep.	Gene Rouze		641-969-4870 cell 670-7916	eddyville1a@iowatelecom.net
Fire Fighting					
Lovilla	Lovilla Chief	Zach Randall			lovillard@sirsonline.com
Fire Fighting					
Melrose	Melrose Rep.				backhoer04@yahoo.com
Fire Fighting					

**Monroe County LEPC
updated 2014**

Organization	Position	Name	Signature	Phone	Email
SIRG Haz Mat	Ottumwa Fire Chief	Tom Miller	_____	641-683-0667	miller@ci.ottumwa.ia.us
Carroll, Inc	Environmental Coordinator	Bruce Popowitz	_____	641-969-7023	bruce_popowitz@carroll.com
Monroe Co. Care Center	Administrator	Shelley Bear	_____	641-932-2125	monroecare@windstream.net

Hazard Planning Before a Disaster

Monroe County LEPC & Mitigation Planning

Tuesday, October 21, 2014 at 11:00 AM
Albia City Hall
120 South A Street
Albia, Iowa 52531

Mitigation planning is the process of determining what hazards are present or what disasters can potentially influence a community. Actions (mitigation measures) are identified to reduce or eliminate the impact of disasters and emergency situations in the area. Once the hazards are identified and critical facilities, the county and communities are able to apply for possible grant funding through FEMA and state funding sources to reduce or remove the impact of these hazards on the area.



Monroe County LEPC
Appanoose Davis Lucas Monroe Counties
Emergency Management Agency (ADLM-EMA)
12307 Hwy. 5, P.O. Box 399
Moravia, IA 52571

To: All members of the Monroe County Local Emergency Planning Committee:
There will be a meeting of the Monroe County LEPC on:

Date: October 21st, 2014
Time: 11:00 a.m.
Location: Albia City Hall

Proposed Agenda:

1. Call meeting to order
2. Approve agenda
3. Minutes of September 23rd, 2014 meeting
4. Old business
 - a. ADLM Staffing Changes- Misty
 - b. Revisit Election results from last meeting (Jeremiah -Chair, Gene-Vice)
5. New Business:
 - a. Monroe LEPC HMEP planning/training grant NOI acceptance.
 - b. Second Monroe County Multi-Jurisdictional Hazard Mitigation Plan update session with Chariton Valley Planning and Development. Nichole/Julie.
 - c. Open Discussion
6. Reminder of next meeting dates: (Nov 18th. Night meeting scheduled for Oct 29th 6:30 pm at the ADLM building in Moravia.)
7. Adjourn

Next Meeting:

Date: Nov 18th.
Location: Albia City Hall
Time: 11am

The above proposed agenda was prepared by Mike Lamb ADLM-EMA Coordinator.

HMP work session plans: Risk Assessment & Scoring

1. Review the 23 hazards identified by the State of Iowa Hazard Mitigation Plan.
 - a. Use definitions to determine whether to include all hazards in the local plan.
 - b. Do we want to include all 23 hazards? Are there any additional hazards to include?
2. Complete the "Hazards by Jurisdiction" Chart.
 - a. Marked boxes indicated if the hazard was identified in the 2010 planning. Yellow boxes are the blank/vacant areas that the committee needs to consider if applies.
 - i. Can use historical data & state plan as additional resources to make decision.
3. Complete the Hazard Scoring chart using Hazard Analysis Risk Assessment guidelines. The scoring criteria is given on a separate form but there is also a summary caption on the side of the chart. Each form will be for a separate jurisdiction. Be sure to review the "Hazards by Jurisdiction" chart previously completed to make sure the hazards are included for the corresponding jurisdiction.

IF THERE'S TIME – Review the jurisdiction profiles from the approved plan. Is the information still accurate? Any new certifications by emergency personnel, emergency equipment purchased, disaster plans created/changed, etc.?

- NEXT STEPS:
1. Jurisdictions/community profile data review if not completed.
 2. Review existing Goals & Objectives for the HMP plan. Recommendations/Approval.
 3. Existing mitigation strategies for each jurisdiction. Are there changes, additions, and goals to achieve?

Monroe County LEPC / Hazard Mitigation Planning
October 21, 2014
11:00 AM

The committee members were provided with the definition of the current 23 hazards identified by the State of Iowa. It was explained that there were over 40 hazards included in the previous mitigation planning. Many of them are now combined and the "Hazard Definition" handout will clarify the new categories. Discussion was held regarding which hazards could impact Monroe County. Members quickly agreed that all 23 hazards need to be included in the overall local plan because each has the potential to affect any area of the region.

Members then began to work on hazards by jurisdiction. ADLM representative, Misty Rosenburg, read a comment statement from the Emergency Management Coordinator, Mike Lamb to spark discussion about the potential that every jurisdiction could be impacted every type of disaster listed. Discussion among community representatives, the police & emergency personnel were able to provide historical information to illustrate how specific disaster has impacted the area. All members agreed that the seven Human Caused/Combination Hazards of Human Disease, Hazardous Materials, Transportation Incident, Infrastructure Failure, Terrorism, Radiological, & Animal/Plant/Crop Disease were applicable to every participating jurisdiction.

CVPD reviewed the 16 Natural Hazards that will be identified in the new update. Dien Judge, interim Monroe County Supervisor, pointed out that all 16 natural hazards of Flash Flooding, Tornado, Windstorm, Extreme Heat, Hailstorm, Grass or Wild land fire, Sink Holes, Severe Winter Storm, Drought, Earthquake, Landslide, Expansion Soils, Dam Failure, Levee Failure, River Flooding and Thunderstorm/Lightning could have a way of directly or indirectly effecting every jurisdiction participating in the plan.

Judge made a motion to show all 23 Hazards be shown as having the potential to directly or indirectly impact all participating jurisdictions. Jeremiah Selby, Monroe County Engineer, second the motion. All members then agreed to with this approach. CVPD also reminded that each city's full council will have opportunity to review and approve or make changes.

It was recognized that 3 of the natural hazards that may have a limited impact area. Nichole Moore of CVPD out that three of the hazards were really dependent on location to a jurisdiction – Levee Failure, Dam Failure, and River Flooding. Members discussed that River Flooding can indirectly affect all areas of the county, the school and the hospital in respect transportation. It was recommended to include the hazard of River Flooding to could potentially affect the livelihood of all residents so it will should be included in all jurisdiction hazards. It was pointed out that the previous plan identified the following jurisdictions impact only the following locations:



Levee Failure: Unincorporated Monroe County
Dam Failure: Unincorporated Monroe County
River Flooding: Unincorporated Monroe County

Committee members reviewed information from the FEMA approved Monroe County Hazard Mitigation Plan for the 3 hazards above and agreed the same jurisdictions were directly affected, but the members were concerned about the indirect effects. It was recommended that CVPD proceed with all 23 hazards for every jurisdiction unless otherwise directed from City Councils or Homeland Security.

Community/jurisdiction representatives then were given a Hazard Risk Assessment Scoring chart. Each jurisdiction representative was then provided with a chart of the 23 hazards and the explained out to score each hazard by probability, severity/magnitude, warning time, and duration of any given event. Members worked individually to provide accurate data for each area. Questions by members were addressed on an individual basis. As participants finished the task, CVPD provided each community representative with the current jurisdiction profile that is the approved plan. Representatives were asked to take the profile home to share with other community members and make any appropriate changes, updates, and accomplishments of the entity.

Monroe County LEPC updated 2014

10/24/14
10/21/14

Organization	Position	Name	Signature	Phone	Email
Monroe County					
Board of Supervisors	Supervisor	Bennis Ryan		641-932-7706	supervisors@monroecola.us
Emergency Mgmt	Coordinator	Mike Lamb		641-724-3223/641-895-0407	admrema@iowatelecom.net
Monroe Co	Disaster Coordinator	Ray Vitko		641-799-8867	custodian@monroecola.us
Monroe Co	County Engineer	Jeremiah Selby		641-932-7123	jselby@monroecola.us
Monroe Co	Sheriff	Daniel Johnson		641-932-7815	monroecos081@iowatelecom.net
Monroe County Hospital	Emergency Services	Brad Leedom		641-932-1636	bleedom@mchalia.com
Monroe Co Public Health	Administrator	Kim Hugen		641-932-7191	khugen@monroecola.us
Environmental Health	Env. Pub. Health Dir.	Dianna Daly-Husted		641-724-3511/777-7512	Dhusted@admcountries.com
ADLM Emergency Mgmt	Env. Pub. Health Officer	Sherry Lutz		641-724-3511	slutz@admcountries.com
Albia					
Elected Official	Mayor	Tom Murphy		(641) 932-2129 cell 777-5235	albiacity@iowatelecom.net
Law Enforcement	Chief of Police	Jay Andrews		641-932-7815 cell 777-6768	landrews681@iowatelecom.net
Fire Fighting	Albia Chief	Mike Gray		641-777-0034	mike_albiator@hotmail.com
Eddyville					
Fire Fighting	Eddyville Rep.	Gene Rouze		641-969-4870 cell 670-7916	eddyvillerep@iowatelecom.net
Lovilla					
Fire Fighting	Lovilla Chief	Zach Randall			lovillafd@sirisonline.com
Melrose					
Fire Fighting	Melrose Rep.				backhoer04@yahoo.com
Organization	Position	Name	Signature	Phone	Email

Hazard Mitigation Regional Meeting

October 29, 2014 6:30pm

This regional meeting was held for all jurisdictions and residents in Appanoose, Lucas, and Monroe Counties in Iowa. The purpose for this meeting was to educate the region on the importance of Hazard Mitigation Planning. Chariton Valley Planning & Development (CVPD) Council of Governments has been contracted by the counties to develop this document. This meeting was an opportunity for CVPD & ADLM Emergency Management to share information about the planning process and for the community representatives to have a chance to express needs/desires of a jurisdiction.

The meeting began at 6:30 PM with introductions and a few housekeeping items. Nichole Moore, with Chariton Valley Planning & Development, reviewed the agenda and began explaining what "Hazard Mitigation" is. Moore discussed how each of the three counties have a current FEMA approved Hazard Mitigation plan from 2010. The plan was originally developed to identify hazards this region could potentially face and how we can reduce the impact of each hazard. Respective county LEPC committees participated for two years to develop this plan. It is now a federal requirement to update the document and this process has recently begun with the LEPC committees in each county. The updating process will again take approximately two years until completion.

This plan is intended to be a working document that will assist communities and counties in preparation of a disaster. Moore continued to explain that this document is also essential for any jurisdiction to apply for disaster preparedness grant funds and/or disaster recovery funds after an event occurs. "This document is the cornerstone for disaster recovery" states Mike Lamb, ADLM Emergency Management Coordinator of all three counties. "When applying for any type of FEMA funding, the federal government will ask upfront if you have a Hazard Mitigation Plan, is this type of event identified and did the affected community participate in this plan?", Mike continued. Moore pointed out these are the exact reasons it is essential to have all communities participate in this process.

Mike Lamb explained there are different funding sources available to individuals, communities, and counties depending on the type of disaster. The distinct difference can be whether it is deemed a "proclamation or declaration". A disaster proclamation is deemed by the state after an event occurs and a declaration is declared by the President to release federal funds after an incident occurs. Jay Dillard of Centerville asked several questions on how can communities know that things are in order to ensure a limited impact, a quick recovery and know there is a recovery system developed. Lamb explained that each county has a "Disaster Recovery Plan" that details out the approach and partnerships with organizations to handle potential disasters. Julie Pribyl of Chariton Valley Planning explained that the plans have two separate intentions. The Disaster Recovery Plan deals with what occurs after the event happens, whereas, the Mitigation Planning is intended to identify the potential disasters and how we can lessen the impact of any event before it occurs. She gave the example of a city identifying the risk of river flooding on the edge of a community and therefore developing an ordinance that restricts individuals from building in this floodplain. Lamb invited all attendees to LEPC meetings to further discuss the Recovery Plans.

Moore continued to describe the updating process. Currently, information is being gathered by the participating residents attend the local LEPC meetings in each county. The next few meeting dates were shared and all attendees were encouraged to attend. Posters were hanging to show the current participating jurisdictions in each county.

Appanoose County: Unincorporated County, Centerville, Cincinnati, Exline, Moravia, Moulton, Mystic, Numa, Plano, Rathbun, Udell, Unionville, Lake Rathbun, Centerville Public Schools, Moravia Community School, Indian Hills Community College (new this update), Mercy Medical Center (new this update), & Moulton Community Schools (new this update).

Lucas County: Unincorporated County, Chariton, Derby, Lucas, Russell, Williamson (new this update), Chariton Public Schools, Lucas County Health Center.

Monroe County: Unincorporated County, Albia, Lovilia, Melrose, Albia Community Schools, & Monroe County Hospital (new this update).

Members discussed if it were necessary to include all state parks since Lake Rathbun is included. Also, they wondered if it's necessary to include Stephens Forrest where people can camp or congregate? CVPD staff made note of the questions and will consult with Iowa Homeland Security for guidance.

The previously approved Goals & Objectives were shared as a handout to each representative. Consensus of all attendees was that the established would still be applicable for this update and such recommendation will be shared at the next LEPC planning meetings. The Goals & Objectives for all three counties are as follows:

Goal 1: Protect critical facilities, infrastructure, and other community assets from the impacts of hazards

- Objective 1.1** Seek mitigation projects that provide the highest degree of hazard protection at the least cost.
- Objective 1.2** Strengthen partnerships and collaboration of jurisdictions, as well as, invite corporate partners, education systems, agencies and faith based representatives to participate in emergency planning and recovery.
- Objective 1.3** Utilize public funds/grant opportunities to protect critical facilities, public services & transportation entities.

Goal 2: Protect the health, safety & quality of life for Appanoose/Lucas/Monroe County residents by minimizing the vulnerability of people and property in Lucas County.

- Objective 2.1** Ensure that property owners can maintain & improve their properties.
- Objective 2.2** Ensure that disaster recovery can proceed promptly following a disaster.
- Objective 2.3** Provide back-up energy supplies in all vital assets identified in this plan.
- Objective 2.4** Promote improving zoning codes, building codes, nuisance abatement, and health codes, especially in relation to areas with older buildings.
- Objective 2.5** Continued participation in NFIP
- Objective 2.6** Review the protocol, education & necessary medications/interventions to deal with airborne & human transmitted hazards that directly deal with impact of health & life.

Goal 3: Reduce losses due to natural and man-made hazards.

- Objective 3.1** Educate members of the county about hazards, how to be prepared, & shelter locations.
- Objective 3.2** Review & upgrade warning systems and communications for sufficient coverage
- Objective 3.3** Provide certified shelters/safe rooms
- Objective 3.4** Provide adequate training, equipment and exercises to train responding emergency personnel.
- Objective 3.5** Maintain current & create new planning and exercises related to any terrorism event.
- Objective 3.6** Identify and map locations of accidents in an annual public report in order to determine locations where improvements are necessary.

Moore presented the 23 hazards identified by the State of Iowa and shared that the three counties have chosen to include all 23 as potential hazards to the respective area.

Those include the Natural Disasters of: Flash Flood, Tornadoes, Windstorms, Extreme Heat, Hailstorms, Grass or Wild Land Fire, Sinkholes, River Flooding, Severe Winter Storms, Drought, Earthquake, Landslide, Expansive Soils, Thunderstorm & Lightning, Dam Failure and Levee Failure.

The Human Caused/ Combination Hazards of: Human Disease, Hazardous Materials, Transportation Incident, Infrastructure Failure, Terrorism, Radiological, & Animal/Plant/Crop Disease.

Dien Judge, Interim Monroe County Supervisor, pointed out that all 23 hazards can affect all three counties but that each hazard may not affect every community. It may "indirectly" affect the well-being of residents but each jurisdiction should evaluate whether the effects are worth addressing in the plan. Lamb led a discussion that if there is an outside chance an event can occur in a community then it's best to have it included in this document. CVPD personnel responded that we can proceed with including all the hazards if each jurisdiction recommends that and can provide the justification that would be included in the plan.

Pribyl handed out the preliminary hazard rankings that have been made by each jurisdiction representative at the past meeting. Emphasis was made that the information provided has not been approved but rather is ready for review and input from other members. Participants were again encouraged to come to the next LEPC meeting.

Moore explained the next steps in the planning process is to pair hazards with an acceptable mitigation strategy. The strategies will vary by community and their capabilities. Handouts were given to show the current mitigation strategies identified each city and the priority strategy the communities had identified to work on. Participants were encouraged to take the documents home and review to make changes, updates and show accomplishments. Also given was the list of critical facilities given for each jurisdiction and the estimated value of it if it were to be lost in a disaster.

Due to time restrictions, the work sessions were and the documents were given to the participants and asked to return them to CVPD in the next two weeks. Moore explained that once the information and data is collected, it will be compiled into a comprehensive document. The draft document will be ready for review next summer and submission to Iowa Homeland Security / FEMA next fall for recommendations. Once all revisions are complete, FEMA will offer final acceptance for the plan. The last critical step is for all participating jurisdictions to adopt/approve by resolution.

All participants were encouraged to contact Mike at ADLM for any disaster related questions. All Hazard Mitigation Planning questions can be directed to CVPD. The meeting was dismissed at 7:50 PM.

Regional Hazard Mitigation Planning - Appanoose, Lucas and Monroe Counties
 Date: October 29, 2014
 Location: ADLW/EMA, 12307 Highway 5, Moravia, Iowa 52571

Name	Title	County, City, Agency	Email	Address	City	State	Zip	Phone/Cell phone	Signature
Marionna Raley-Husted	ADLW ADLW/EMA Public Health	ADLW ADLW/EMA Public Health	drh@husted.com marionna@husted.com	P.O. Box 399	Moravia	IA	52571	641-777-7512	Marionna Raley-Husted
Mike Lamb	ADLW/EMA	ADLW/EMA	eml@husted.com	Box 399	Moravia	IA	52571	641-724-3223	[Signature]
Jean Judge	MONROE BOA	MONROE Co.	clj@judgeoficial.com	12075 Hwy A	Albia	IA	52537	641-875-828	[Signature]
Debbie Olin	MONROE BOA	MONROE Co.	debo@husted.com	10472 Hwy A	Centerville	IA	52534	641-845-0115	Debbie Olin
Frank Collins	Treasurer	Monroe Fire Dept	fc@husted.com	16472 Hwy A	Centerville	IA	52534	641-875-3617	Frank Collins
Carl Clark	Mayor	myrtle Iowa	cc@husted.com	304 W. Main	Myrtle	IA	52574	641-995-722	Carl Clark
Gene Kaurz	Eddyville BOA	Eddyville IA	edk@husted.com	Box 57	Eddyville	IA	52553	641-670-7714	Gene Kaurz
Fody McNamee	Appanoose BOA	Appanoose	fm@husted.com						Fody McNamee
James Brooks	Appanoose BOA	Appanoose	jb@husted.com						James Brooks
Jacary Cole	Appanoose BOA	Appanoose	jc@husted.com						Jacary Cole
George Robinson	Appanoose BOA	Appanoose	gr@husted.com						George Robinson
Dave Waldras	Appanoose BOA	Appanoose	daw@husted.com						Dave Waldras
Jay Dillard	Appanoose BOA	Appanoose	jd@husted.com						Jay Dillard

Press Release

-For Immediate Release-

September 19, 2014

Contact: Chariton Valley Planning & Development Council of Governments
308 North 12th Street
Centerville, Iowa 52544
Phone: 641-437-4359 or Fax: 641-437-1161

Multi-Jurisdictional Hazard Mitigation Plan Updates Planning Before the Disaster

Centerville, Iowa --- Mitigation planning is the process of determining what hazards are present or what disasters can potentially influence a community. After the concerns have been determined, actions (mitigation measures) are identified to reduce or eliminate the impact of disasters and emergency situations in the area. Once the hazards are identified and critical facilities, the county and communities are able to apply for possible grant funding through FEMA and state funding sources to reduce or remove the impact of these hazards on the area.

The hazard mitigation plans for Appanoose, Lucas and Monroe counties were originally written and prepared by Chariton Valley Planning & Development (CVPD) Council of Governments. Those documents were approved by Iowa Homeland Security and Federal Emergency Management Agency (FEMA) in 2011.

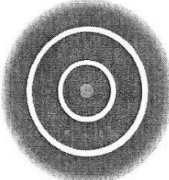
FEMA requires that the Multi-Jurisdictional Hazard Mitigation Plan to be reviewed annually by local governments and the community and formally update every five years. Appanoose, Lucas and Monroe counties have recently contracted with CVPD Council to begin the updating process. The work will be a collaborated effort with the Emergency Management Coordinator at ADLM as well as county and community representatives. The public is invited to participate in the update development by attending the local LEPC meetings in each county and dates are provided below. The committees will evaluate hazards, recent occurrences, provide new mitigation strategies to be implemented locally, and determine further mitigation plans to benefit the region. It is critical to have all communities within the counties participate on behalf of their citizens. Community representatives must have documented involvement during the development to be eligible for potential grants funds or for the maximum disaster recovery assistance funds after a disaster occurs.

The hazard mitigation plans are available for review at the respective County Board of Supervisor's offices in the county courthouses or Chariton Valley Planning & Development Council of Governments office, 308 North 12th Street, Centerville, Iowa. They are also available at www.charitonvalleyplanning.com.

Meetings for October and November have been set for each county and are as follows:

measure things such as pH, carbon dioxide, and soil moisture to name a few. The LabQuest units will allow the students to graph and analyze their experiments as they go.









Amplify Your Life.

Woodard Hearing Centers

For 70 years, Woodard has been Iowa's most trusted name in hearing healthcare.



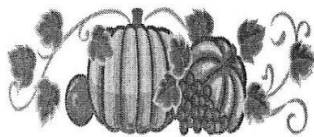
www.AmplifyYourLife.com
Chariton, Iowa  
(800) 233-4327 TOLL FREE

In your Compassion,
 Co
 A Very Special Thanks
 Wonderful Care during

 Sincerely,

MICK FURNITURE

7 South Clinton, Albia • 93
FREE DELIVERY IN CENTRAL IOWA

Mick's Furniture
Appliances in Albia
served southern Iowa for
50 years. Trust in the
brands of Whirlpool, Maytag,
Amana, Frigidaire, True
Tempur-pedic, Chron




The Chariton Leader

Published by Chariton
Newspapers, Inc.
Vol. 147 No. 43
Tuesday, October 21, 2014
Chariton, Ia. 50049-0651
Phone 641-774-2137
USPS 100-440

Dave Paxton.....Publisher
 Bill Howes.....Associate Editor
 Susan Smith.....Advertising Director
 Jeff.....Advertising Rep
 Sandy McGee.....Composition
 Jewell Martin.....Composition/Office
 Ronda Fee.....Driver

The Chariton Leader is published each Tuesday
 by Lucas County Newspapers, Inc., P.O. Box 651, 815
 Braden Ave., Chariton, IA 50049-0651. Serving since
 1857, official newspaper of Lucas County. Member
 Iowa Newspaper Association, National Advertising
 Representative, American Newspapers Representa-
 tives, Inc., 84 S. Sixth St., Minneapolis, MN 55402.
 Periodicals class postage paid at Chariton, IA., POST-
 MASTER: Send change of address to: The Chariton
 Leader, P.O. Box 651, 815 Braden, Chariton, IA
 50049-0651.

ANNUAL SUBSCRIPTION RATES:
 In Iowa - \$44.00 Outside Iowa - \$55.00
 In Combination with Chariton Herald-Patriot
 In Iowa \$44.00; Outside Iowa \$55.00 for both
 Single Copy - 75 Cents • No refund on subscriptions.

PLAN TO ATTEND Preparing for disasters



Please join Chariton Valley Planning & Development Council of Governments along with ADLM Emergency Management in the preparation & update of information for the Appanoose, Lucas & Monroe counties Multi-Jurisdictional Hazard Mitigation Plan on

**Wed., October 29 at 6:30 p.m. at the
ADLM Emergency Management Office
located at 12307 Highway 5, Moravia, Iowa**

*Become active in your county & community
for disaster preparedness.*

**Please contact Mike Lamb EMA at 641-724-3223
or email: admema@iowatelecom.net
if you have questions.**

The Chariton Leader
 10/21/14

Y (no gifts) AY

Fall OPEN HOUSE & CHECK-R-BOARD DAYS!

Saturday, October 25th
Lunch from 10 AM to 2 PM
Open House specials all day long!

- * Mineral specials up to \$120 off per ton
- * 10% off prepaid bagged and bulk feed

Centerville Produce
Animal Nutrition

CHECK-R-BOARD
Purdue Soybean Days

1209 S. 18th St Centerville, Iowa 641-856-3020

Dianne Ballard and Jeff Underwood
Tracy and Bill Morris and girls
Jim and Renee Ballard and boys

PLAN TO ATTEND

Preparing for disasters

Please join Chariton Valley Planning & Development Council of Governments along with ADLM Emergency Management in the preparation & update of information for the Appanoose, Lucas & Monroe counties Multi-Jurisdictional Hazard Mitigation Plan on **Wed, October 29 at 6:30 p.m.** at the **ADLM Emergency Management Office** located at 12307 Highway 5, Moravia, Iowa

Become active in your county & community for disaster preparedness.

Please contact Mike Lamb EMA at 641-724-3223 or email: admlemma@lowatelecom.net if you have questions.

Growing weeds or soybeans?

Merschman has been offering Liberty Link® soybeans from day one. Choose from 21 different varieties of LL Soybeans, including a dozen new options for 2015. Call or visit Smith Fertilizer & Grain to learn more.

Merschman Seeds Dealer

641-856-2828

1605 South 24th, Centerville, IA
www.sfgiowa.com

SFG
SMITH FERTILIZER & GRAIN


Merschman SEEDS
Expect the Best

1-800-848-7333

LibertyLink is a registered trademark of Bayer. Always read and follow label directions for additional product information call toll-free 1-800-848-7333 (1-800-848-5679) or visit our website at merchman.com.

VOTE

Tuesday, November 4, 2014
FOR
TEDDY WALKER
Appanoose County Recorder



Paid for by Walker for Recorder

Elise Campbell's Family
invites you to celebrate with her
on the day she turns

Thank you!
Rod Wolver and family would like to thank all who

2014 Chevrolet Impala

NO MONEY DOWN!

Pete's Price 4C112
\$25,864 or \$297/mo**



2014 Buick LaCrosse

MSRP \$34,955
Includes Buick owner loyalty.

\$7,000 OFF!!

14B15



2014 Chevrolet Silverado Crew Cab 4x4

MSRP \$44,105
Back up camera, remote start, trailer tow, power seat, locking rear differential.
Includes trade in allowance.

\$7,500 OFF!!!

Pete's Price 4C101
\$27,955 / \$7,000 OFF!



2014 Chevrolet Silverado Crew Cab 4x4

MSRP \$44,105
Back up camera, remote start, trailer tow, power seat, locking rear differential.
Includes trade in allowance.

\$7,500 OFF!!!

Pete's Price 4C101
\$36,605 / \$7,500 OFF!



Daily Lowegian - Ad Express 10/22/14

PLAN TO ATTEND

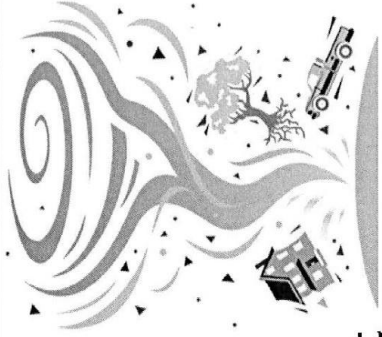
Preparing for disasters

Please join Chariton Valley Planning & Development Council of Governments along with ADLM Emergency Management in the preparation & update of information for the Appanoose, Lucas & Monroe counties Multi-Jurisdictional Hazard Mitigation Plan on

**Wed., October 29 at 6:30 p.m. at the
ADLM Emergency Management Office
located at 12307 Highway 5, Moravia, Iowa**

*Become active in your county & community
for disaster preparedness.*

**Please contact Mike Lamb EMA at 641-724-3223
or email: adlmema@iowatelecom.net
if you have questions.**





Regional Hazard Mitigation Planning



Are you ready for a disaster?

Please join Chariton Valley Planning & Development Council of Governments along with ADLM Emergency Management in the preparation and update of information for the Appanoose, Lucas and Monroe counties Multi-Jurisdictional Hazard Mitigation Plan updates. Each county has local emergency planning committees that meet monthly to discuss this topic.

Hazard Mitigation Plans are critical to each county in the preparation of disasters, disaster recovery and assisting in disaster funding. Plan to attend or become active in your county and community by attending an LEPC meeting. Every county/community needs to document public involvement and participation to receive federal funding. If you have questions please contact Mike Lamb EMA @ 641-724-3223 or email: adlmema@iowatelecom.net

September:

9/5 Appanoose Co. — Centerville City Hall @ 8:30 am

9/9 Lucas Co. — Lucas Co. Hospital @ 4 pm

9/16 Monroe Co. — Albia City Hall @ 11 am

October:

10/3 Appanoose Co. — Centerville City Hall @ 8:30 am

10/14 Lucas Co. — Lucas Co. Hospital @ 4 pm.

10/21 Monroe Co. — Albia City Hall @ 11 am

10/29 — Regional Hazard Mitigation Meeting — ADLM Office, Highway 5 @ 6:30 pm

November:

11/7 Appanoose Co. — Centerville City Hall @ 8:30 am

11/18 Lucas Co. — Lucas Co. Hospital @ 4 pm

11/18 Monroe Co. — Albia City Hall @ 11 am



Hazard Planning Before a Disaster

Monroe County LEPC & Mitigation Planning

Tuesday, November 18, 2014 at 11:00 AM
Albia City Hall
120 South A Street
Albia, Iowa 52531

Mitigation planning is the process of determining what hazards are present or what disasters can potentially influence a community. Actions (mitigation measures) are identified to reduce or eliminate the impact of disasters and emergency situations in the area. Once the hazards are identified and critical facilities, the county and communities are able to apply for possible grant funding through FEMA and state funding sources to reduce or remove the impact of these hazards on the area.



HMP – Monroe County

November 18, 2014

Agenda

1. Review and approve Goals & Objectives.

2. Preliminary Hazard Rankings from completed forms. Discussion.

3. Critical Facilities previously identified. Update with changes or additions.

HOMEWORK – Review Mitigation strategies previously identified. Indicate those accomplished and those that are still a goal.

Monroe County LEPC
Appanoose Davis Lucas Monroe Counties
Emergency Management Agency
12307 Highway 5, P.O. Box 399, Moravia, Iowa 52571

Minutes – November 18th, 2014 Meeting

TO: All members of the Monroe County Local Emergency Management Planning Committee (LEPC)

SUBJECT: Monroe County LEPC Meeting Minutes

A meeting of the Monroe County LEPC was scheduled for November 18th, 2014 at Albia City Hall at 11am

I. The following LEPC membership was in attendance:

- | | |
|--------------------------|-----------------------|
| 1. Dien Judge | Monroe Co BOS |
| 2. Mike Lamb | ADLM EMA |
| 3. Jeremiah Selby | Monroe Co. Engineer |
| 4. Kim Hugen | Monroe Co. Pub Health |
| 5. Tom Murphy | Mayor City of Albia |
| 6. Jay Andrews | Albia Police Chief |
| 7. Kevin Crall | ACSD Superintendent |
| 8. Gene Rouze | Eddyville FD. Rep. |
| 9. Zach Randall | Lovillia Fire |
| 10. Bruce Popowitz | Cargill Inc |
| 11. Christopher Sertterh | Cargill Inc |
| 12. Nichole Moore | CVPD |
| 13. Julie Pribyl | CPDV |

II. <> 11:05am Jeremiah Selby called the meeting to order.

<> Item #2 Approval of agenda

Motion made by Judge. Second by Rouze to approve the agenda. Motion carried all in favor. None opposed

<> Item #3 Approval of minutes of the Sept 23rdth meeting.

Motion made by Selby. second by Hugen. Motion carried all in favor. None opposed

<> Item #4 Old Business:

- a. Monroe LEPC HMEP planning/training grant NOI acceptance. Grant contracts to vendors now signed. Lamb explained that a contract for the 2015 HEMP has been let and accepted by Robyn Reese to continue the ESF-10 planning for the LEPC. Also explained that PRI Associates had signed the contract to provide the county wide Haz-Mat operations refresher training under the same grant.

<> Item #5 New Business:

- a. Alert Iowa update. Lamb explained that the process for application to the Alert Iowa system had begun but was not yet complete. Expected the completion date to be prior to the end of December.
- b. Third Monroe County Multi-Jurisdictional Hazard Mitigation Plan update session with Chariton Valley Planning and Development. Nichole & Julie. (See attachment 1. prepared by CVPD)
- c. Open Discussion: None

<> Item #6 Next meeting: February 17th.

1

Motion by Rouse. 2nd by Judge. All in favor Meeting adjourned.

The minutes of the Monroe County LEPC meeting were prepared by Mike Lamb ADLM EMA Coordinator

Attachment #1

Monroe County HMP Meeting minutes (3rd Meeting) – November 18, 2014

Moore presented Goals & Objectives that were previously approved for the Monroe County Hazard Mitigation Plan. A brief discussion was held to read over each item. Consensus from the group was that the information and intent for the plan was still accurate. Pribyl & Mike Lamb, ADLM Emergency Management coordinator pointed out that the goals and objectives were very similar to neighboring counties. Moore asked for a recommendation to use existing Goals & Objectives and the entire group consented.

















The preliminary hazard rankings were provided to the group based on the scoring sheets completed by the participants at last month's planning meeting. Representatives reviewed the information and there were questions if "it were a problem if all the cities have hazards ranked differently". Moore explained that it is acceptable and that different communities may be at different risks based on location but that as long as the list is comprehensive of the hazards that it could occur, the ranking may be irrelevant. Mike Lamb explained that the State and Federal representative are most concerned about the top five hazards or so and how much potential loss could occur in the area and recognize the other hazards may only be a slight risk. Members were asked to individually review the hazards on their respective jurisdictions and provide written comment as to if they felt the ranking was accurate and acceptable. Adjustments were recommended to the City of Albia by the Mayor and the changes will be made prior to the next meeting. Pribyl explained that the some of the hazards based on location (river flooding, levee failure, sinkholes, dam failure & landslide) will need to identify as specific susceptible areas, any structures that are at risk of each hazard and what the potential financial damage could be. This discussion will be held in upcoming meetings. Member completed their review of the preliminary rankings and there were very few comments made on individual jurisdiction handouts returned to CVPD. Each member was provided with the current list of "Critical Facilities" that are given in the Monroe County HMP. Individuals were asked to review such information and provide additional input. Examples of additions include: city sewer lift stations, rural water towers, or electrical booster stations Participants worked independently to provide comments and additions for jurisdictions.

Moore explained that the next steps will be to begin working on the selection of mitigation strategies that are paired back to the appropriate hazards. Although these meetings will not occur until after the first of the year, members were provided with copies of the current mitigation strategies identified in the plan and the priority strategies made by each jurisdiction. The documents were briefly reviewed and no questions were asked. The papers were intended to be as "homework" for members to return back to CVPD at the next meeting or could be mailed in. Everyone was asked to review the strategies and identify if any of them had been accomplished, if they were still relevant to the city's/jurisdiction's desires and any other additional comments.

During the holiday months of the end of November, December and January, CVPD will begin to compile the information already gathered at the planning meetings. Time will also be spent gathering data to create profiles of new jurisdictions that will be added in this update.

Monroe County LEPC
updated 2014

11-18-2014

Organization	Position	Name	Signature	Phone	Email
Monroe County	Supervisor	Dien Ludge		641-895-1826	dienludge@gmail.com
Board of Supervisors	Coordinator	Mike Lamb		641-724-3223/641-895-0407	admema@iowatelecom.net
Emergency Mgmt	Disaster Coordinator	Ray Vitko		641-799-8867	custodian@monroecola.us
Monroe Co	County Engineer	Jeremiah Selby		641-932-7123	iselby@monroecola.us
Monroe Co	Sheriff	Daniel Johnson		641-932-7815	monroecos0681@iowatelecom.net
Monroe Co	Emergency Services	Brad Leedom		641-932-1636	bleedom@mchabria.com
Monroe County Hospital	Administrator	Kim Hugen		641-932-7191	Kim.Hugen@monroecola.us
Monroe Co Public Health	Env. Pub. Health Dir.	Dianna Daly-Husted		641-724-3511/777-7512	Dhusted@admcountries.com
Environmental Health	Env. Pub. Health Officer	Sherry Lutz		641-724-3511	slutz@admcountries.com
ADLM Emergency Mgmt					
Albia					
Elected Official	Mayor	Tom Murphy		(641) 932-2129 cell 777-5235	albiacity@iowatelecom.net
Law Enforcement	Chief of Police	Jay Andrews		641-932-7815 cell 777-6768	jandrews6811@iowatelecom.net
Fire Fighting	Albia Chief	Mike Gray		641-777-0034	mike.albiamotor@hotmail.com
Fire Fighting	Supervisor	Kevin Crill		641-799-4239	Kevin.Crill@albiacola.us
Eddyville					
Fire Fighting	Eddyville Rep.	Gene Rouze		641-969-4870 cell 670-7916	eddyvillefa@iowatelecom.net
V. Chair					
Lovilla					
Fire Fighting	Lovilla Chief	Zach Randall			lovilliarfd@sirsonline.com
Melrose					
Fire Fighting	Melrose Rep.				

Mitigating Disasters

Please plan to attend the Local Emergency Planning Committee (LEPC) to assist in the development of the Monroe County Hazard Mitigation Plan. Public is invited to attend.

DATE: Tuesday, September 22, 2015

TIME: 11:00 AM

LOCATION: Albia City Hall, 120 South A St, Albia, IA



308 North 12th Street, Centerville, IA
641-437-4359

Monroe Co. LEPC - AGENDA
Appanoose-Davis-Lucas-Monroe Counties
Emergency Management Agency (ADLM-EMA)
12307 Hwy. 5, P.O. Box 399
Moravia, IA 52571

Tuesday September 22nd, 2015
11:00 am
Albia City Hall

Proposed Agenda:

1. Call meeting to order
2. Approve agenda
3. Approve minutes of last meeting – April 21th, 2015
4. Old business
 - a. Alert Iowa update. (state mass notification system)
 - b. Bakken Crude rail shipment update.
5. New Business:
 - a. ESF 10 submission for 2015 approved.
 - b. Monroe County Multi-Jurisdictional Hazard Mitigation Plan update session with Chariton Valley Planning and Development. Nichole/Julie
 - c. Open Discussion
6. Critical Infrastructure Update & ESF 10 new discussion:
7. Set date and time of next meeting. October 13th, 2015 11am
8. Adjourn

The above agenda was prepared by the ADLM-EMA Coordinator Mike Lamb.

Hazard Mitigation Planning Session #4 – Monroe County

September 22, 2015

1. ***Sign in sheet***
2. ***Share draft plan for each community- each will be an appendix in the comprehensive plan.***
 - a. Review format of the plan layout per hazard.
 - b. Red font needs changed or updated.
 - c. Please review on own for changes or improvements throughout the document.
 - d. Complete the city questionnaire about precise flash flood locations, deteriorated buildings. Etc.
 - e. Some hazards have notes to re-visit whether to keep in or dismiss if not really pertinent to the community.
3. ***Comprehensive County Scoring.***
 - a. Need to score and rank the hazards as the comprehensive scoring for the entire region.
4. ***Mitigation Strategies.***
 - a. Review & update accomplishments.
 - b. Changes to strategies from previous approved plan?

Monroe County LEPC
Appanoose Davis Lucas Monroe Counties
Emergency Management Agency
12307 Highway 5, P.O. Box 399, Moravia, Iowa 52571

Minutes – Tuesday September 22nd, 2015 Meeting

TO: All members of the Monroe County Local Emergency Management Planning Committee (LEPC)

SUBJECT: Monroe County LEPC Meeting Minutes

A meeting of the Monroe County LEPC was scheduled on September 22nd, 2015 at Albia City Hall at 11:00 am

I. The following LEPC membership was in attendance:

- | | |
|-------------------|-----------------------------|
| 1. Jeremiah Selby | Monroe Co. Engineer (chair) |
| 2. Gene Rouze | Eddyville FD. Rep. (vice) |
| 3. Mike Lamb | ADLM EMA (sec) |
| 4. Kim Hugen | Monroe Co. Pub Health |
| 5. Tom Murphy | Albia Mayor |
| 6. Bruce Popowitz | Cargill |

II.

<> 8:30am Mike Lamb called the meeting to order

<> Item #2 Approval of agenda

There was no discussion regarding any changes to the agenda. Motion to approve by Rouze, Selby 2nd. All in favor none opposed. Motion carried.

<> Item #3 Approval of minutes of the March 6th meeting made by: Rouze, Hugen 2nd to accept the minutes with the meeting time changed to 11am. All in favor none opposed. Motion Carried.

<> Item #4 Old Business:

- a. Alert Iowa update. No discussion
- b. Bakken Crude by Rail update: Lamb updated the committee on the current Bakken crude oil shipments traveling the counties rail system.

<> Item #5 New Business:

- a. ESF 10 submission with previously suggested changes. Lamb updated the group that 2015 updated ESF 10 previously submitted to the state had been approved and adopted by the ADLM Emergency Management Commission
- b. Monroe County Multi-Jurisdictional Hazard Mitigation Plan update session was conducted by Julie Pribyl of Chariton Valley Planning and Development. HMP Discussion minutes attached below
- c. Open Discussion: None

◇ Item #6 Critical Infrastructure member update: None

◇ Item #7 Next meeting: Tuesday October 13th. 2015 at Albia City Hall - 11:00 am

Motion by Hugen and 2nd by Rouze. All in favor None opposed - Meeting adjourned.

The minutes of the Monroe County LEPC meeting were prepared by the ADLM-EMA Coordinator M. Lamb.

Monroe County HMP Meeting minutes (4th Meeting) – September 22, 2015

Attending members were presented with the draft plans for the communities represented. Julie from CVPD reviewed the format that the information is presented for each hazard. The mitigation strategies given in the previous approved plan were also included in the document to save on printing expenses. The committee members are to review the information in the draft plan, make corrections, and plan to update any mitigation strategy changes/accomplishments at the next meeting.

It was explained that the natural events listed in the “past events/history” section were from NOAA. It provides events that only cause financial loss or crop damage in this community or county. For example, there have been countless thunderstorms and lightning over the past five years, however NOAA may only list six events that had personal or crop losses associated with those particular storms.

Julie also pointed out that “Levee Failure” can be removed from local plans because there are no Levees in this county identified in the State or Federal Plan. The additional corrections were also made in the corresponding plans: Albia dismissed Dam Failure & River Flooding; and Lovilia dismissed River Flooding, Dam Failure, & Landslide.
















CVPD will soon begin to make appointments with community representatives from Melrose to gather local data and input.

Committee Members reviewed the individual jurisdictions hazard rankings to determine how to come up with a comprehensive county ranking for the overall plan/county. Members recommended computing a score by using each jurisdictions ranking to come up with an average comprehensive score. See the attached draft comprehensive ranking. When members looked over the initial comprehensive ranking. Mike Lamb, with ADLM Emergency Management, explained that the hazards the cause the greatest losses throughout this county would include Flash Flooding and Severe Winter Storms, however, the greatest economic impact could be Animal/Plant/Crop disease in this agricultural region. Discussion was held that it is essential to have a comprehensive list but that the ranking ultimately doesn't influence possible funding from Homeland Security. Present committee members agreed to accept the initial comprehensive ranking for the entire county as the final ranking in the document.

NEXT MEETING TASKS: review existing mitigation strategies for each community and the strategies previously selected to make corrections/updates/changes.

Monroe County LEPC
updated 2015

9/22/15

Organization	Position	Name	Signature	Phone	Email
Monroe County					
Board of Supervisors	Supervisor	John Hughes		641-895-1826	dienjudge@gmail.com
Emergency Mgmt	Coordinator	Mike Larrb		641-724-3223/641-895-0407	adlmema@iowatelecom.net
Monroe Co	Disaster Coordinator	Ray Vlika		641-799-8867	custodian@monroecola.us
Monroe Co	County Engineer	Jeremiah Selby		641-932-7123	jselby@monroecola.us
Monroe Co	Sheriff	Daniel Johnson		641-932-7815	monroecosob81@iowatelecom.net
Monroe County Hospital	Emergency Services	Erad Leedom		641-932-1636	bleedom@mchabla.com
Monroe Co Public Health	Administrator	Kim Hugen		641-932-7191	Kim.Hugen@monroecola.us
Environmental Health	Env. Pub. Health Dir.	Diana Daly Husted		641-724-3511/777-7512	Dhusted@adimcounties.com
Environmental Health	Env. Pub. Health Officer	Sherry Lutz		641-724-3511	slutz@adimcounties.com
Albia					
Elected Official	Mayor	Tom Murphy		(641) 932-2129 cell 777 5235	albiacity@iowatelecom.net
Law Enforcement	Chief of Police	Jay Andrews		641-932-7815 cell 777 6768	landrews6811@iowatelecom.net
Fire Fighting	Albia Chief	Mike Gray		641-777-0034	mike_albiator@hotmail.com
Eddyville					
Fire Fighting	Eddyville Rep	Gene Rouze		641-969-4870 cell 670-7916	eddyvillefa@iowatelecom.net
Lovilla					
Fire Fighting	Lovilla Chief	Zach Randall			lovillafd@sirsonline.com
Melrose					
Fire Fighting	Melrose Rep				

Mitigating Disasters

Please plan to attend the Local Emergency Planning Committee (LEPC) to assist in the development of the Monroe County Hazard Mitigation Plan. Public is invited to attend.

DATE: Tuesday, October 13, 2015

TIME: 11:00 AM

LOCATION: Albia City Hall, 120 South A St, Albia, IA



308 North 12th Street, Centerville, IA

641-437-4359

Monroe Co. LEPC - AGENDA
Appanoose-Davis-Lucas-Monroe Counties

Emergency Management Agency (ADLM-EMA)
12307 Hwy. 5, P.O. Box 399
Moravia, IA 52571

Tuesday October 13th, 2015
11:00 am
Albia City Hall

Proposed Agenda:

1. Call meeting to order
2. Approve agenda
3. Approve minutes of last meeting – September 22nd, 2015
4. Old business
 - a. None
5. New Business:
 - a. Monroe County Multi-Jurisdictional Hazard Mitigation Plan update session with Chariton Valley Planning and Development. Nichole/Julie
 - b. Open Discussion
6. Critical Infrastructure Update & ESF 10 new discussion:
7. Set date and time of next meeting.
8. Adjourn

The above agenda was prepared by the ADLM-EMA Coordinator Mike Lamb.
















Hazard Mitigation Planning Session #5 – Monroe County

October 13, 2015

1. Sign in sheet
2. Review decisions on comprehensive hazard ranking for the entire county.
3. Supply draft document for jurisdiction representatives that may not have been present last time.
4. Mitigation Strategy Planning
 - a. Review & update existing mitigation strategies for each jurisdiction and recent improvements.
 - b. Review & update previously selected mitigation strategies from approved plan.
 - i. Were any of these accomplished by any given jurisdiction?
 - ii. Remove any strategies? Add any new strategies??
5. Wrap up for meetings. CVPD shouldn't need to return to LEPC for a few more months. The next several months the agency will be contacting community representatives that have not been very involved in order to gather their specific data. Once all that is compiled, it will be included in the draft plan as well. When all the jurisdiction data is complete, those pieces of the puzzle will be used to create the comprehensive "Multi-Jurisdictional hazard mitigation plan". Each jurisdiction's plan will be an appendix to the document. CVPD will return to the LEPC near the end of the year with the completed draft document. Should there be any further questions, we will make contact with you sooner.

Monroe County LEPC updated 2015

10-13-15

Organization	Position	Name	Signature	Phone	Email
Monroe County					
Board of Supervisors	Supervisor	John Hughes		641-895-1826	dienjudge@gmail.com
Emergency Mgmt	Coordinator	Mike Lamb		641-724-3223/641-895-0407	admema@iowatelecom.net
Monroe Co	Disaster Coordinator	Ray Vilko		641-799-8867	custodian@monroecola.us
Monroe Co	County Engineer	Jeremiah Selby		641-932-7123	iselby@monroecola.us
Monroe Co	Sheriff	Daniel Johnson		641-932-7815	monroecos0681@iowatelecom.net
Monroe County Hospital	Emergency Services	Brad Leedom		641-932-1636	bleedom@mchalbala.com
Monroe Co Public Health	Administrator	Kim Hugen		641-932-7191	Kim.Hugen@monroecola.us
Environmental Health	Env. Pub. Health Dir.	Dianna Daly-Husted		641-724-3511/777-7512	Dhusted@adlmcounties.com
Environmental Health	Env. Pub. Health Officer	Sherry Lutz		641-724-3511	slutz@adlmcounties.com
Albia					
Elected Official	Mayor	Tom Murphy		(641) 932-2129 cell 777-5235	albiacity@iowatelecom.net
Law Enforcement	Chief of Police	Jay Andrews		641-932-7815 cell 777-6768	landrews6811@iowatelecom.net
Fire Fighting	Albia Chief	Mike Gray		641-777-0034	mike_albiamotor@hotmail.com
Eddyville					
Fire Fighting	Eddyville Rep.	Gene Rouze		V Chair 641-969-4870 cell 670-7915	eddyvillefa@iowatelecom.net
Lovilla					
Fire Fighting	Lovilla Chief	Zach Randall			lovillafd@sirsonline.com
Melrose					
Fire Fighting	Melrose Rep.				

Monroe Co. LEPC - AGENDA
Appanoose-Davis-Lucas-Monroe Counties

Emergency Management Agency (ADLM-EMA)
12307 Hwy. 5, P.O. Box 399
Moravia, IA 52571

Tuesday March 15th, 2016
11:00 am
Albia City Hall

Proposed Agenda:

1. Call meeting to order
2. Approve agenda
3. Approve minutes of last meeting – October 13th, 2015
4. Old business
 - a. None
5. New Business:
 - a. ESF-10 Review for 2016 update.
 - b. Severe Weather Awareness Week 3/21 to 3/25 National Tornado drill 3/23
 - c. Monroe County Multi-Jurisdictional Hazard Mitigation Plan update session with Chariton Valley Planning and Development. Nichole/Julie
 - d. Open Discussion
6. Critical Infrastructure Update & ESF 10 new discussion:
7. Set date and time of next meeting.
8. Adjourn

The above agenda was prepared by the ADLM-EMA Coordinator Mike Lamb.

Monroe County LEPC
Appanoose Davis Lucas Monroe Counties
Emergency Management Agency
12307 Highway 5, P.O. Box 399, Moravia, Iowa 52571

Minutes – Tuesday October 13th, 2015 Meeting

TO: All members of the Monroe County Local Emergency Management Planning Committee (LEPC)

SUBJECT: Monroe County LEPC Meeting Minutes

A meeting of the Monroe County LEPC was scheduled on October 13th, 2015 at Albia City Hall at 11:00 am

I. The following LEPC membership was in attendance:

- | | |
|-------------------|-----------------------------|
| 1. Jeremiah Selby | Monroe Co. Engineer (chair) |
| 2. Gene Rouze | Eddyville FD. Rep. (vice) |
| 3. Mike Lamb | ADLM EMA (sec) |
| 4. Kim Hugen | Monroe Co. Pub Health |
| 5. Nichole Moore | CVPD |
| 6. Julie Pribyl | CVPD |

II.

◇ 11:00am Mike Lamb called the meeting to order

◇ Item #2 Approval of agenda

There was no discussion regarding any changes to the agenda. Motion to approve by Selby, Rouze 2nd. All in favor none opposed. Motion carried.

◇ Item #3 Approval of minutes of the September 22nd meeting made by: Rouze, Hugen 2nd All in favor none opposed. Motion Carried.

◇ Item #4 Old Business:

- a. None

◇ Item #5 New Business:

- a. Monroe County Multi-Jurisdictional Hazard Mitigation Plan update session was conducted by Julie Pribyl of Chariton Valley Planning and Development. HMP Discussion minutes attached below

- b. Open Discussion: None

◇ Item #6 Critical Infrastructure member update: None

◇ Item #7 Next meeting: Date TBD in 2016 at Albia City Hall - 11:00 am

Motion by Selby and 2nd by Rouze to adjourn. All in favor None opposed - Meeting adjourned.

Monroe County HMP

March 15, 2016

Albia City Hall

1. Draft document is 90% completed.
 - a. Review for remaining information yet needed.

2. Proposed re-wording of a couple sections in the "Goals & Objectives" – simply for more clarification.

3. Community prioritize Mitigation Strategies to accomplish over the next 4-5 years during life of this plan.

Monroe County Hazard Mitigation Re-Formatted Goals & Objectives

- *1. Protect critical facilities, infrastructure, services and other community assets from the impacts of hazards.*

Objective 1.1 Seek mitigation projects that provide the highest degree of hazard protection at the least cost.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Public Education & Outreach of Warnings – self protection
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Local Hazardous Materials Capabilities
- Strategy 1.E: Hazardous Materials Protection for Storm Shelters
- Strategy 1.F: Maintain Current Evacuation Plans
- Strategy 1.G: Search & Rescue Training for First Responders
- Strategy 1.H: Digging Hotline/Pipeline Safety Regulations
- Strategy 1.I: Temporary Debris Disposal Plan
- Strategy 1.J: Expanded Hazard Area Mapping & Mine Location
- Strategy 1.K: Mass Casualty Preparation
- Strategy 1.L: Replace or Install New Storm Warning System
- Strategy 1.M: Weather Radios for Citizens
- Strategy 1.N: Surge Protection/Lightning Protection
- Strategy 1.O: Burying Power Lines
- Strategy 1.P: Participation in Community Rating System for Flooding
- Strategy 1.Q: Flood Proofing of Properties
- Strategy 1.R: Storm Water Management
- Strategy 1.S: Generators for Storm Shelters
- Strategy 1.T: New Storm Shelter/ Cooling & Heating Shelter Location
- Strategy 1.U: Snow Fences/Barriers – Natural & Artificial
- Strategy 1.V: Maintenance of Heating & Cooling Systems
- Strategy 1.W: Tree Management/Trimming
- Strategy 1.X: Collection & Protection of Vital Records
- Strategy 1.Y: Acquisition or Relocation of Buildings in Floodplain
- Strategy 1.Z: Hazardous Material Disposal Program
- Strategy 1.AA: Safe Room in School, Mobile Home Parks, Campgrounds, Fairgrounds, etc.
- Strategy 1.BB: Secure Funding for removal of Vacant/ Collapsed Buildings
- Strategy 1.CC: Review Floodplain Management for Effectiveness
- Strategy 1.DD: Flood Insurance by Homeowners
- Strategy 1.EE: Rehabilitate Older Buildings
- Strategy 1.FF: Water Storage Saving Plan – Reduce Usage
- Strategy 1.GG: Evaluate/Maintain/Repair Area Dams
- Strategy 1.HH: Encourage Smoke/Fire/ Carbon Monoxide Detectors & sprinkler systems
- Strategy 1.II: Immunization plans – Emergency & Scheduled
- Strategy 1.JJ: Pest Management – through Property Regulations
- Strategy 1.KK: Radon/Lead Mitigation
- Strategy 1.LL: Critical Infrastructure Protection from Terrorism
- Strategy 1.MM: Assessment Risk for Terrorism
- Strategy 1.NN: Manufactured Home Tie-Down Regulation/Ordinance
- Strategy 1.OO: Building Code Enforcement
- Strategy 1.PP: NFIP Participation
- Strategy 1.QQ: Establish Burning Restrictions

Strategy 1.RR: Fireplace Maintenance
Strategy 1.SS: Waste Disposal Enforcement
Strategy 1.TT: Hazard Occurrence Data Collection & Reporting System

Objective 1.2 Strengthen partnerships and collaboration of jurisdictions, as well as, invite corporate partners, education systems, agencies and faith based representatives to participate in emergency planning and recovery.

Strategy 1.A: Continuity of Operations Plan – Post Disaster
Strategy 1.B: Public Education & Outreach of Warnings – self protection
Strategy 1.C: Community Emergency Response Team
Strategy 1.D: Hazardous Materials Protection for Storm Shelters
Strategy 1.E: Maintain Current Evacuation Plans
Strategy 1.F: Mass Casualty Preparation
Strategy 1.G: Weather Radios for Citizens
Strategy 1.H: Surge Protection/Lightning Protection
Strategy 1.I: Generators for Storm Shelters
Strategy 1.J: Safe Room in School, Mobile Home Parks, Campgrounds, Fairgrounds, etc.

Objective 1.3 Utilize public funds/grant opportunities to protect critical facilities, public services & transportation entities.

Strategy 1.A: Continuity of Operations Plan – Post Disaster
Strategy 1.B: Local Hazardous Materials Capabilities
Strategy 1.C: Search & Rescue Training for First Responders
Strategy 1.D: Replace or Install New Storm Warning System
Strategy 1.E: Weather Radios for Citizens
Strategy 1.F: Surge Protection/Lightning Protection
Strategy 1.G: Burying Power Lines
Strategy 1.H: Storm Water Management
Strategy 1.I: Generators for Storm Shelters
Strategy 1.J: New Storm Shelter/ Cooling & Heating Shelter Location
Strategy 1.K: Snow Fences/Barriers – Natural & Artificial
Strategy 1.L: Acquisition or Relocation of Buildings in Floodplain
Strategy 1.M: Safe Room in School, Mobile Home Parks, Campgrounds, Fairgrounds, etc.
Strategy 1.N: Secure Funding for removal of Vacant/ Collapsed Buildings
Strategy 1.O: Rehabilitate Older Buildings
Strategy 1.P: Evaluate/Maintain/Repair Area Dams
Strategy 1.Q: Encourage Smoke/Fire/ Carbon Monoxide Detectors & sprinkler systems
Strategy 1.R: Radon/Lead Mitigation
Strategy 1.S: Critical Infrastructure Protection from Terrorism

- **2. Protect the health, safety & quality of life for Monroe County residents by minimizing the vulnerability of people and property in Monroe County**

Objective 2.1 Ensure that property owners can maintain & improve their properties.

Strategy 1.A: Weather Radios for Citizens
Strategy 1.B: Surge Protection/Lightning Protection
Strategy 1.C: Flood Proofing of Properties
Strategy 1.D: Maintenance of Heating & Cooling Systems
Strategy 1.E: Tree Management/Trimming
Strategy 1.F: Flood Insurance by Homeowners
Strategy 1.G: Rehabilitate Older Buildings

- Strategy 1.H: Encourage Smoke/Fire/ Carbon Monoxide Detectors & sprinkler systems
- Strategy 1.I: Pest Management – through Property Regulations
- Strategy 1.J: Radon/Lead Mitigation
- Strategy 1.K: Manufactured Home Tie-Down Regulation/Ordinance
- Strategy 1.L: : Building Code Enforcement
- Strategy 1.M: Establish Burning Restrictions
- Strategy 1.N: Fireplace Maintenance
- Strategy 1.O: Waste Disposal Enforcement
- Strategy 1.P: Hazardous Material Disposal Program

Objective 2.2 Ensure that disaster recovery can proceed promptly following a disaster.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Public Education & Outreach of Warnings – self protection
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Local Hazardous Materials Capabilities
- Strategy 1.E: Hazardous Materials Protection for Storm Shelters
- Strategy 1.F: Maintain Current Evacuation Plans
- Strategy 1.G: Search & Rescue Training for First Responders
- Strategy 1.H: Mass Casualty Preparation
- Strategy 1.I: Temporary Debris Disposal Plan
- Strategy 1.J: Generators for Storm Shelters
- Strategy 1.K: Collection & Protection of Vital Records
- Strategy 1.L: New Storm Shelter/ Cooling & Heating Shelter Location
- Strategy 1.M: Water Storage Saving Plan – Reduce Usage
- Strategy 1.N: Immunization plans – Emergency & Scheduled
- Strategy 1.O: Waste Disposal Enforcement
- Strategy 1.P: Hazardous Material Disposal Program

Objective 2.3 Provide back-up energy supplies in all vital assets identified in this plan.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Search & Rescue Training for First Responders
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Local Hazardous Materials Capabilities
- Strategy 1.E: Surge Protection/Lightning Protection
- Strategy 1.F: Generators for Storm Shelters
- Strategy 1.G: New Storm Shelter/ Cooling & Heating Shelter Location
- Strategy 1.H: Tree Management/Trimming
- Strategy 1.I: Water Storage Saving Plan – Reduce Usage

Objective 2.4 Promote improving zoning codes, building codes, nuisance abatement, and health codes, especially in relation to areas with older buildings.

- Strategy 1.A: Digging Hotline/Pipeline Safety Regulations
- Strategy 1.B: Flood Proofing of Properties
- Strategy 1.C: Storm Water Management
- Strategy 1.D: Tree Management/Trimming
- Strategy 1.E: Acquisition or Relocation of Buildings in Floodplain
- Strategy 1.F: Secure Funding for removal of Vacant/ Collapsed Buildings
- Strategy 1.G: Rehabilitate Older Buildings
- Strategy 1.H: Water Storage Saving Plan – Reduce Usage
- Strategy 1.I: Pest Management – through Property Regulations
- Strategy 1.J: Radon/Lead Mitigation
- Strategy 1.K: Manufactured Home Tie-Down Regulation/Ordinance
- Strategy 1.L: Building Code Enforcement
- Strategy 1.M: : Establish Burning Restrictions
- Strategy 1.N: Waste Disposal Enforcement

Strategy 1.O: Hazardous Material Disposal Program

Objective 2.5 Participation in NFIP

IMPROVE PROTECTION OF RESIDENTS & STRUCTURES FROM EFFECTS OF FLOODING

Strategy 1.A: Participation in Community Rating System for Flooding
Strategy 1.B: Flood Proofing of Properties
Strategy 1.C: Storm Water Management
Strategy 1.D: Acquisition or Relocation of Buildings in Floodplain
Strategy 1.E: Review Floodplain Management for Effectiveness
Strategy 1.F: Maintain Current Evacuation Plans
Strategy 1.G: Search & Rescue Training for First Responders
Strategy 1.H: Flood Insurance by Homeowners
Strategy 1.I: Temporary Debris Disposal Plan
Strategy 1.J: Evaluate/Maintain/Repair Area Dams
Strategy 1.K: NFIP Participation
Strategy 1.L: Weather Radios for Citizens

• **3. Reduce losses due to natural and man-made hazards**

Objective 3.1 Educate members of the county about hazards, how to be prepared, & shelter locations.

Strategy 1.A: Continuity of Operations Plan – Post Disaster
Strategy 1.B: Public Education & Outreach of Warnings – self protection
Strategy 1.C: Community Emergency Response Team
Strategy 1.D: Search & Rescue Training for First Responders
Strategy 1.E: Hazardous Materials Protection for Storm Shelters
Strategy 1.F: Digging Hotline/Pipeline Safety Regulations
Strategy 1.G: Search & Rescue Training for First Responders
Strategy 1.H: Replace or Install New Storm Warning System
Strategy 1.I: Weather Radios for Citizens
Strategy 1.J: Surge Protection/Lightning Protection
Strategy 1.K: Snow Fences/Barriers – Natural & Artificial
Strategy 1.L: Collection & Protection of Vital Records
Strategy 1.M: Safe Room in School, Mobile Home Parks, Campgrounds, Fairgrounds, etc.
Strategy 1.N: Encourage Smoke/Fire/ Carbon Monoxide Detectors & sprinkler systems
Strategy 1.O: Radon/Lead Mitigation
Strategy 1.P: Establish Burning Restrictions
Strategy 1.Q: Hazard Occurrence Data Collection & Reporting System

Objective 3.2 Review & upgrade warning systems and communications for sufficient coverage.

Strategy 1.A: Continuity of Operations Plan – Post Disaster
Strategy 1.B: Public Education & Outreach of Warnings – self protection
Strategy 1.C: Community Emergency Response Team
Strategy 1.D: Replace or Install New Storm Warning System
Strategy 1.E: Weather Radios for Citizens

Objective 3.3 Provide certified shelters/safe rooms

Strategy 1.A: Hazardous Materials Protection for Storm Shelters
Strategy 1.B: Search & Rescue Training for First Responders
Strategy 1.C: Generators for Storm Shelters
Strategy 1.D: New Storm Shelter/ Cooling & Heating Shelter Location
Strategy 1.E: Safe Room in School, Mobile Home Parks, Campgrounds, Fairgrounds, etc.

Objective 3.4 Provide adequate training, equipment and exercises to train responding emergency personnel.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Search & Rescue Training for First Responders
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Local Hazardous Materials Capabilities
- Strategy 1.E: Mass Casualty Preparation
- Strategy 1.F: Immunization plans – Emergency & Scheduled
- Strategy 1.G: Critical Infrastructure Protection from Terrorism
- Strategy 1.H: Hazard Occurrence Data Collection & Reporting **System**

Objective 3.5 Maintain current & create new planning and exercises related to any terrorism event.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Search & Rescue Training for First Responders
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Mass Casualty Preparation
- Strategy 1.E: Critical Infrastructure Protection from Terrorism
- Strategy 1.F: Assessment Risk for Terrorism

Objective 3.6 Identify and map locations of accidents in an annual public report in order to determine locations where improvements are necessary.

IDENTIFY AND MAP THE GREATEST RISK POTENTIAL OF HAZARDS IN ORDER TO DETERMINE LOCATIONS WHERE IMPROVEMENTS COULD BE MADE.

- Strategy 1.A: Digging Hotline/Pipeline Safety Regulations
- Strategy 1.B: Expanded Hazard Area Mapping & Mine Location
- Strategy 1.C: Participation in Community Rating System for Flooding
- Strategy 1.D: Acquisition or Relocation of Buildings in Floodplain
- Strategy 1.E: Secure Funding for removal of Vacant/ Collapsed Buildings
- Strategy 1.F: Review Floodplain Management for Effectiveness
- Strategy 1.G: Rehabilitate Older Buildings
- Strategy 1.H: Evaluate/Maintain/Repair Area Dams
- Strategy 1.I: Pest Management – through Property Regulations

Monroe County HMP

Prioritizing Mitigation Strategies
(Higher Total Points = Higher Priority)

Number of Hazards Addressed (1pt each)	Mitigation Strategy	Cost (voluntary +1pt, minimal Opt, Moderate -1pt, High -2pt)	Priority (High +2pts, Medium, +1pt Low Opt)	Timeline (ongoing +1pt, short term Opt, medium term -1pt, or long term -2pts)	Require Political support? (Yes Opt/No +1pt)	Protect life and/or prevent injuries? (Yes +1pt/No Opt)	Will it reduce or eliminate damage to structures or infrastructure? (Yes +1pt/No Opt)	Total Points
4	Generators for shelters/public facilities	Mod -1	Med 1	Med -1	Yes 0	Yes 1	No 0	4
5	New Storm Shelter- Heating/cooling Shelter	Mod -1	Med 1	Med -1	No 1	Yes 1	No 0	6
9	Continuity of Operations Plan for post-disaster	Min 0	Med 1	Ongoing 1	Yes 0	Yes 1	No 0	12
2	Acquisition or relocation of buildings in floodplains	High -2	Med 1	Long -2	Yes 0	Yes 1	Yes 1	1
3	Safe Rooms in schools, Mobile home parks, hospital, campgrounds, fairgrounds, etc	High -2	Med 1	Long -2	Yes 0	Yes 1	No 0	1
13	Public Education & Outreach of warnings & self-protection	Min 0	High 2	Ongoing 1	No 1	Yes 1	No 0	18
10	Develop Emergency Response Team post-disaster	Vol 1	Med 1	Ongoing 1	No 1	No 0	No 0	14
3	Acquisition & Installation of Storm Warning System	Mod -1	High 2	Med -1	Yes 0	Yes 1	No 0	4

Number of Hazards Addressed (1pt each)	Mitigation Strategy	Cost (voluntary +1pt, minimal Opt, Moderate -1pt, High -2pt)	Priority (High +2pts, Medium, +1pt Low Opt)	Timeline (ongoing +1pt, short term Opt, medium term -1pt, or long term -2pts)	Require Political support? (Yes Opt/No +1pt)	Protect life and/or prevent injuries? (Yes +1pt/No Opt)	Will it reduce or eliminate damage to structures or infrastructure? (Yes +1pt/No Opt)	Total Points
1	Encourage Smoke/ Fire/ Carbon Monoxide Detectors & sprinkler systems	Vol 1	Med 1	Ongoing 1	No 1	Yes 1	Yes 1	7
5	New Storm Shelter- Heating/cooling Shelter	Mod -1	Med 1	Med -1	No 1	Yes 1	No 0	6
1	Flood Insurance by property owners	Vol 1	Med 1	Ongoing 1	No 1	No 0	Yes 1	6
2	Maintenance of Heating/cooling systems	Vol 1	Med 1	Ongoing 1	No 1	No 0	No 0	6
2	Collection & Protection of Vital Records by private residents	Vol 1	Med 1	Ongoing 1	No 1	No 0	No 0	6
1	Digging hotline/ pipeline safety regulations of pipelines education	Min 0	High 2	Ongoing 1	No 1	Yes 1	No 0	6
3	Participation in Community Rating System for Flooding	Min 0	Med 1	Ongoing 1	Yes 0	No 0	Yes 1	6
2	NFIP Participation	Min 0	Med 1	Ongoing 1	Yes 0	No 0	Yes 1	5
1	Immunitization plans – scheduled & emergency situations	Min 0	High 2	Ongoing 1	No 1	No 0	No 0	5
2	Hazard Occurrence Data Collection & reporting	Min 0	Med 1	Ongoing 1	No 1	No 0	No 0	5

Number of Hazards Addressed (1pt each)	Mitigation Strategy	Cost (voluntary +1pt, minimal 0pt, Moderate -1pt, High -2pt)	Priority (High +2pts, Medium, +1pt Low Opt)	Timeline (ongoing +1pt, short term 0pt, medium term -1pt, or long term -2pts)	Require Political support? (Yes 0pt/No +1pt)	Protect life and/or prevent injuries? (Yes +1pt/No Opt)	Will it reduce or eliminate damage to structures or infrastructure? (Yes +1pt/No Opt)	Total Points
2	Tree Management/ Trimming by homeowners, utilities & county	Min 0	Med 1	Ongoing 1	No 1	No 0	No 0	5
4	Temporary Debris Disposal Plan	Min 0	Low 0	Short 0	No 1	No 0	No 0	5
1	Surge Protection/ Lightning Protection	Vol 1	Med 1	Ongoing 1	No 1	No 0	No 0	5
4	Generators for shelters/public facilities	Mod -1	Med 1	Med -1	Yes 0	Yes 1	No 0	4
3	Acquisition & Installation of Storm Warning System	Mod -1	High 2	Med -1	Yes 0	Yes 1	No 0	4
1	Review Floodplain Managements & Enforcement for Effectiveness	Min 0	Med 1	Ongoing 1	Yes 0	No 0	Yes 1	4
1	Evaluate/ maintain/ repair area dams	High -2	High 2	Ongoing 1	Yes 0	Yes 1	Yes 1	4
2	Burning Restrictions	Min 0	Med 1	Ongoing 1	Yes 0	No 0	No 0	4
1	Fireplace Maintenance	Vol 1	Low 0	Ongoing 1	No 1	No 0	No 0	4
1	Waste Disposal Enforcement	Min 0	Med 1	Ongoing 1	No 1	No 0	No 0	4
2	Manufactured Home Tie-Downs regulation/ordinance	Min 0	Low 0	Short 0	Yes 0	Yes 1	Yes 1	4

Number of Hazards Addressed (1pt each)	Mitigation Strategy	Cost (voluntary +1pt, minimal Opt, Moderate -1pt, High -2pt)	Priority (High +2pts, Medium, +1pt Low Opt)	Timeline (ongoing +1pt, short term Opt, medium term -1pt, or long term -2pts)	Require Political support? (Yes Opt/No +1pt)	Protect life and/or prevent injuries? (Yes +1pt/No Opt)	Will it reduce or eliminate damage to structures or infrastructure? (Yes +1pt/No Opt)	Total Points
2	Building Code Enforcement	Mod -1	Med 1	Short 0	Yes 0	No 0	Yes 1	3
1	Critical Infrastructure Protection from Terrorism	Mod -1	Low 0	Ongoing 1	Yes 0	Yes 1	Yes 1	3
1	Pest Management by cities through regulations of property maintnce.	Min 0	Med 1	Short 0	Yes 0	No 0	Yes 1	3
1	Radon/Lead Mitigation	Mod -1	Med 1	Ongoing 1	No 1	No 0	No 0	3
1	Water Storage Saving Plan – reduce usage	Vol 1	Low 0	Ongoing 1	Yes 0	No 0	No 0	3
2	Storm water Management ordinance	Min 0	Low 0	Short 0	Yes 0	No 0	Yes 1	3
2	Hazardous Materials Protection for Storm Shelters	Min 0	Low 0	Med -1	No 1	No 0	Yes 1	3
1	Snow Fences/ Barriers	Mod -1	Low 0	Ongoing 1	No 1	No 0	No 0	2
1	Assessment Risk for Terrorism	Mod -1	Low 0	Med -1	Yes 0	Yes 1	Yes 1	1
1	Hazardous Material Disposal Program	Mod -1	Med 1	Short 0	Yes 0	No 0	No 0	1
3	Rehabilitate Older Bldgs – rehabilitate	High -2	Med 1	Long -2	Yes 0	No 0	Yes 1	1
1	Establish Local Hazardous Materials Capabilities	Mod -1	Med 1	Med -1	Yes 0	Yes 1	No 0	1

Number of Hazards Addressed (1pt each)	Mitigation Strategy	Cost (voluntary +1pt, minimal Opt, Moderate -1pt, High -2pt)	Priority (High +2pts, Medium, +1pt Low Opt)	Timeline (ongoing +1pt, short term Opt, medium term -1pt, or long term -2pts)	Require Political support? (Yes Opt/No +1pt)	Protect life and/or prevent injuries? (Yes +1pt/No Opt)	Will it reduce or eliminate damage to structures or infrastructure? (Yes +1pt/No 0pt)	Total Points
3	Bury Powerlines	High -2	Med 1	Long -2	Yes 0	No 0	Yes 1	1
2	Acquisition or relocation of buildings in floodplains	High -2	Med 1	Long -2	Yes 0	Yes 1	Yes 1	1
3	Safe Rooms in schools, Mobile home parks, campgrounds, fairgrounds, etc	High -2	Med 1	Long -2	Yes 0	Yes 1	No 0	1
1	Secure Funding for vacant /collapsed buildings to remove or repair	High -2	Med 1	Med -1	Yes 0	No 0	Yes 1	0
2	Expand Hazard area for mapping & mine evaluation	Mod -1	Low 0	Long -2	Yes 0	No 0	No 0	-1

Monroe County HMP

March 15, 2016

Albia City Hall

CVPD presented the existing draft copy of the Monroe County Multi-Jurisdictional Hazard Mitigation Plan. Staff discussed the format of the plan. It was previously noted that the document would have separate Appendix of information specific to each jurisdiction. That has since become a very complicated process and CVPD has followed the same format presented in the federally approved plan. All committee members accepted this change. Staff members discussed the remaining items needed to complete the plan.

Participants were informed that the smaller outlying communities have now all designated a person as a contact for Hazard Mitigation planning. They have been providing critical information about their community and their intentions.

Committee members were presented with a different format of the plan Goals & Objectives that were previously approved. This document combined the strategies as well. CVPD recognized in the State's previous plan review comments it was recommended to clarify an objective with a change in terminology. The intent of the objective remained the same but committee members selected the following narrative (old in black font, replacement in red font):

Objective 2.5 Participation in NFIP

IMPROVE PROTECTION OF RESIDENTS & STRUCTURES FROM EFFECTS OF FLOODING

Objective 3.6 Identify and map locations of accidents in an annual public report in order to determine locations where improvements are necessary.

IDENTIFY AND MAP THE GREATEST RISK POTENTIAL OF HAZARDS IN ORDER TO DETERMINE LOCATIONS WHERE IMPROVEMENTS COULD BE MADE.

The committee then worked together to complete to rank 2016 Mitigation Strategies. Numerical values were given by the number of hazards effected, cost associated, priority, timeline to accomplish, if political support is required, if it prevent death/injury, and will it reduce or eliminate damage to structures/infrastructure. The highest scoring strategy will be place as priority and decrease throughout the values. See attached document.

Jurisdictions were reminded that all will need to pass resolutions adopting the plan. That process will begin as soon as the changes from Iowa Homeland Security are made. Any further questions of committee members will be via phone calls, emails or another meeting if committee consensus is required.

Monroe County Iowa Hazard Mitigation Planning – Hazard Scoring

	Probability	Magnitude/ Severity	Warning Time	Duration
Flash Flood	4	2	3	2
Tornadoes	3	2	2	4
Windstorms	3	2	2	3
Extreme Heat	3	3	1	4
Hailstorms	3	3	4	1
Grass or Wild Land Fire	3	2	4	3
Sinkholes	2	2	4	3
River Flooding	3	2	3	2
Severe Winter Storms	4	2	2	3
Drought	3	3	1	4
Earthquakes	1	4	4	4
Landslide	2	2	4	3
Expansive Soils	4	1	2	4
Thunderstorm & Lightning	4	3	3	3
Dam Failure	1	3	4	4
Levee Failure	1	3	4	4
Human Disease	2	2	4	4
Hazardous Materials	3	3	4	3
Transportation Incident	3	2	4	3
Infrastructure Failure	1	4	4	2
Terrorism	1	4	4	4
Radiological	1	4	4	4
Animal/Plant/Crop Disease	3	3	3	4

Scoring Criteria

PROBABILITY:

- 1- Unlikely
- 2- Occasional
- 3- Likely
- 4- Highly Likely

MAGNITUDE/SEVERITY:

- 1 Negligible
- 2 Limited
- 3 Critical
- 4 Catastrophic

WARNING TIME:

- 1 24+ hours
- 2 12-24 hours
- 3 6-12 hours
- 4 Minimal (less than 6hrs)

DURATION:

- 1 Less than 6 hrs
- 2 Less than 1 day
- 3 Less than 1 week
- 4 More than 1 wk

Jurisdiction: Monroe County

Date: 10/21/14

Monroe County Iowa Hazard Mitigation Planning – Hazard Scoring

	Probability	Magnitude/ Severity	Warning Time	Duration	
Natural Hazards					
Flash Flood	3	3	4	3	14
Tornadoes	2	4	4	3	14
Windstorms	5	3	4	3	14
Extreme Heat	14	2	2	3	16
Hailstorms	4	3	4	3	16
Grass or Wild Land Fire	11	3	4	2	12
Sinkholes	21	2	4	2	9
River Flooding	9	3	4	2	13
Severe Winter Storms	10	3	2	4	12
Drought	15	3	1	4	11
Earthquakes	14	3	4	4	12
Landslide	16	3	4	3	11
Expansive Soils	23	2	2	3	8
Thunderstorm & Lightning	9	4	4	2	12
Dam Failure	20	1	4	2	9
Levee Failure	22	1	4	3	9
Human Caused / Combination Hazards					
Human Disease	12	4	1	4	12
Hazardous Materials	4	3	4	3	13
Transportation Incident	1	3	4	3	14
Infrastructure Failure	8	3	4	3	13
Terrorism	18	3	4	4	11
Radiological	17	3	4	3	11
Animal/Plant/Crop Disease	18	3	2	4	12

Scoring Criteria

PROBABILITY:

- 1- Unlikely
- 2- Occasional
- 3- Likely
- 4- Highly Likely

MAGNITUDE/SEVERITY:

- 1 Negligible
- 2 Limited
- 3 Critical
- 4 Catastrophic

WARNING TIME:

- 1 24+ hours
- 2 12-24 hours
- 3 6-12 hours
- 4 Minimal (less than 6hrs)

DURATION:

- 1 Less than 6 hrs
- 2 Less than 1 day
- 3 Less than 1 week
- 4 More than 1 wk

Jurisdiction: Metrose

Date: _____

Monroe County Iowa Hazard Mitigation Planning – Hazard Scoring

Natural Hazards	Probability	Magnitude/ Severity	Warning Time	Duration	Scoring Criteria
Flash Flood	2	2	4	2	<p>Scoring Criteria</p> <p>PROBABILITY:</p> <p>1- Unlikely 2- Occasional 3- Likely 4- Highly Likely</p> <p>MAGNITUDE/SEVERITY:</p> <p>1 Negligible 2 Limited 3 Critical 4 Catastrophic</p> <p>WARNING TIME:</p> <p>1 24+ hours 2 12-24 hours 3 6-12 hours 4 Minimal (less than 6hrs)</p> <p>DURATION:</p> <p>1 Less than 6 hrs 2 Less than 1 day 3 Less than 1 week 4 More than 1 wk</p>
Tornadoes	3	2	1	2	
Windstorms	3	3	1	2	
Extreme Heat	3	3	4	3	
Hailstorms	3	3	4	2	
Grass or Wild Land Fire	1	2	4	3	
Sinkholes	1	3	4	3	
River Flooding	4	2	4	2	
Severe Winter Storms	4	3	2	4	
Drought	1	3	2	4	
Earthquakes	1	2	4	4	
Landslide	1	2	4	4	
Expansive Soils	3	3	4	4	
Thunderstorm & Lightning	4	3	3	4	
Dam Failure	1	3	4	4	
Levee Failure	1	1	4	4	
Human Disease	3	4	4	4	
Hazardous Materials	2	4	4	4	
Transportation Incident	4	4	4	4	
Infrastructure Failure	1	3	4	4	
Terrorism	3	3	4	4	
Radiological	1	2	4	4	
Animal/Plant/Crop Disease	1	4	4	4	
Human Caused / Combination Hazards	3	3	2	4	

Jurisdiction: AB/14

Date: 10-21-14

Monroe County Iowa Hazard Mitigation Planning – Hazard Scoring

	Probability	Magnitude/ Severity	Warning Time	Duration
Natural Hazards				
Flash Flood	2	2	4	1
Tornadoes	4	4	4	1
Windstorms	4	2	2	3
Extreme Heat	1	3	4	6
Hailstorms	1	1	4	1
Grass or Wild Land Fire	1	1	4	1
Sinkholes	1	1	4	1
River Flooding	1	1	4	1
Severe Winter Storms	4	2	4	3
Drought	3	2	1	4
Earthquakes	1	4	4	1
Landslide	1	1	4	1
Expansive Soils	1	1	4	1
Thunderstorm & Lightning	4	3	4	1
Dam Failure	1	1	4	1
Levee Failure	1	1	4	1
Human Caused / Combination Hazards				
Human Disease	2	2	1	4
Hazardous Materials	2	3	4	2
Transportation Incident	3	2	4	1
Infrastructure Failure	1	1	4	4
Terrorism	1	1	4	3
Radiological	1	2	4	4
Animal/Plant/Crop Disease	2	2	1	4

Scoring Criteria

PROBABILITY:

- 1- Unlikely
- 2- Occasional
- 3- Likely
- 4- Highly Likely

MAGNITUDE/SEVERITY:

- 1 Negligible
- 2 Limited
- 3 Critical
- 4 Catastrophic

WARNING TIME:

- 1 24+ hours
- 2 12-24 hours
- 3 6-12 hours
- 4 Minimal (less than 6hrs)

DURATION:

- 1 Less than 6 hrs
- 2 Less than 1 day
- 3 Less than 1 week
- 4 More than 1 wk

Jurisdiction: Lavilla

Date: 12-21-14

National Centers for Environmental Information

Storm Events Database

Search Results for Monroe County, Iowa

Event Types: Tornado

12 events were reported between 01/01/1950 and 10/31/2015 (24045 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	10
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	3
Number of Days with Event and Property Damage:	9
Number of Days with Event and Crop Damage:	2
Number of Event Types reported:	1

Column Definitions:

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

Click on **Location** below to display details.

Available Event Types have changed over time. Please refer to the [Database Details](#) for more information.

Select:

Sort By:

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	8	26.490M	26.00K
MONROE CO.	MONROE CO.	IA	06/22/1964	20:45	CST	Tornado	F1	0	0	250.00K	0.00K
MONROE CO.	MONROE CO.	IA	06/07/1984	19:30	CST	Tornado	F4	0	0	25.000M	0.00K
MONROE CO.	MONROE CO.	IA	10/14/1984	16:15	CST	Tornado	F1	0	2	250.00K	0.00K
MONROE CO.	MONROE CO.	IA	05/08/1986	14:50	CST	Tornado	F0	0	0	25.00K	0.00K
MONROE CO.	MONROE CO.	IA	11/15/1988	16:29	CST	Tornado	F2	0	4	250.00K	0.00K
ALBIA	MONROE CO.	IA	05/09/1996	02:47	CST	Tornado	F0	0	0	5.00K	0.00K
AVERY	MONROE CO.	IA	05/09/1996	23:36	CST	Tornado	F1	0	2	380.00K	0.00K
AVERY	MONROE CO.	IA	04/30/2003	17:30	CST	Tornado	F0	0	0	0.00K	0.00K
ALBIA	MONROE CO.	IA	11/12/2005	18:40	CST	Tornado	F1	0	0	50.00K	0.00K
AVERY	MONROE CO.	IA	06/20/2015	17:09	CST-6	Tornado	EF1	0	0	5.00K	1.00K
WELLER	MONROE CO.	IA	06/22/2015	16:10	CST-6	Tornado	EF3	0	0	150.00K	20.00K
ALBIA	MONROE CO.	IA	06/22/2015	16:50	CST-6	Tornado	EF2	0	0	125.00K	5.00K
Totals:								0	8	26.490M	26.00K

<http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28C%29+Tornado&be...> 2/18/2016

National Centers for Environmental Information

Storm Events Database

Search Results for Monroe County, Iowa

Event Types: Thunderstorm Wind

59 events were reported between 01/01/1950 and 12/31/2015 (24106 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	43
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	28
Number of Days with Event and Crop Damage:	8
Number of Event Types reported:	1

Column Definitions:

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

Wind Magnitude Definitions:

Measured Gust:'MG', Estimated Gust:'EG', Measured Sustained:'MS', Estimated Sustained:'ES'

Click on **Location** below to display details.

Available Event Types have changed over time. Please refer to the [Database Details](#) for more information.

Select:

Sort By:

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	744.00K	210.00K
MONROE CO.	MONROE CO.	IA	06/19/1956	16:45	CST	Thunderstorm Wind	60 kts.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	09/20/1965	18:45	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	06/28/1969	15:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	07/26/1969	18:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	05/13/1970	19:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	07/02/1973	00:40	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	06/18/1975	07:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	08/20/1980	15:00	CST	Thunderstorm Wind	55 kts.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	04/03/1981	20:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	04/03/1981	20:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	08/03/1983	21:20	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	06/10/1986	21:00	CST	Thunderstorm Wind	52 kts.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	06/28/1986	12:15	CST	Thunderstorm Wind	52 kts.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	07/28/1986	22:40	CST	Thunderstorm Wind	52 kts.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	08/04/1988	14:15	CST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	06/28/1990	06:00	CST	Thunderstorm Wind	52 kts.	0	0	0.00K	0.00K
AVERY	MONROE CO.	IA	06/21/1997	02:00	CST	Thunderstorm Wind	60 kts.	0	0	25.00K	5.00K
ALBIA	MONROE CO.	IA	06/21/1997	02:48	CST	Thunderstorm Wind	50 kts.	0	0	5.00K	0.00K
HITEMAN	MONROE CO.	IA	06/18/1998	14:17	CST	Thunderstorm Wind	56 kts.	0	0	8.00K	1.00K
ALBIA	MONROE CO.	IA	06/29/1998	14:00	CST	Thunderstorm Wind	52 kts.	0	0	3.00K	0.00K
MELROSE	MONROE CO.	IA	06/04/1999	12:35	CST	Thunderstorm Wind	52 kts.	0	0	2.00K	0.00K
LOVILIA	MONROE CO.	IA	02/25/2000	19:50	CST	Thunderstorm Wind	61 kts. E	0	0	40.00K	0.00K
GEORGETOWN	MONROE CO.	IA	06/23/2000	12:00	CST	Thunderstorm Wind	52 kts. E	0	0	3.00K	0.00K
ALBIA	MONROE CO.	IA	06/25/2000	18:20	CST	Thunderstorm Wind	56 kts. E	0	0	3.00K	0.00K
ALBIA	MONROE CO.	IA	07/05/2000	11:40	CST	Thunderstorm Wind	56 kts. E	0	0	5.00K	1.00K
MELROSE	MONROE CO.	IA	08/06/2000	14:20	CST	Thunderstorm Wind	52 kts. E	0	0	2.00K	1.00K
ALBIA	MONROE CO.	IA	08/06/2000	14:20	CST	Thunderstorm Wind	52 kts. E	0	0	10.00K	2.00K
ALBIA	MONROE CO.	IA	06/14/2001	15:01	CST	Thunderstorm Wind	56 kts. E	0	0	10.00K	0.00K

<http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28C%29+Thunderstor...> 2/17/2016

ALBIA	MONROE CO.	IA	06/14/2001	15:05	CST	Thunderstorm Wind	52 kts. E	0	0	5.00K	0.00K
ALBIA	MONROE CO.	IA	04/24/2002	09:51	CST	Thunderstorm Wind	52 kts. E	0	0	3.00K	0.00K
ALBIA	MONROE CO.	IA	04/24/2002	10:05	CST	Thunderstorm Wind	52 kts. E	0	0	3.00K	0.00K
ALBIA	MONROE CO.	IA	05/17/2004	20:25	CST	Thunderstorm Wind	65 kts. EG	0	0	10.00K	5.00K
ALBIA	MONROE CO.	IA	08/25/2004	13:08	CST	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
MELROSE	MONROE CO.	IA	08/26/2004	21:20	CST	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
ALBIA	MONROE CO.	IA	08/26/2004	22:20	CST	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
LOVILIA	MONROE CO.	IA	09/08/2005	13:15	CST	Thunderstorm Wind	52 kts. EG	0	0	3.00K	0.00K
AVERY	MONROE CO.	IA	04/10/2008	16:34	CST-6	Thunderstorm Wind	52 kts. EG	0	0	20.00K	0.00K
AVERY	MONROE CO.	IA	04/10/2008	16:35	CST-6	Thunderstorm Wind	57 kts. EG	0	0	75.00K	0.00K
ALBIA	MONROE CO.	IA	07/27/2008	16:35	CST-6	Thunderstorm Wind	69 kts. EG	0	0	100.00K	10.00K
HITEMAN	MONROE CO.	IA	07/27/2008	16:53	CST-6	Thunderstorm Wind	61 kts. EG	0	0	3.00K	0.00K
HOCKING	MONROE CO.	IA	07/27/2008	17:00	CST-6	Thunderstorm Wind	69 kts. EG	0	0	35.00K	25.00K
AVERY	MONROE CO.	IA	06/01/2010	18:06	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
ALBIA	MONROE CO.	IA	06/20/2011	00:15	CST-6	Thunderstorm Wind	57 kts. EG	0	0	75.00K	0.00K
ALBIA	MONROE CO.	IA	06/20/2011	00:17	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
LOVILIA	MONROE CO.	IA	06/26/2011	21:52	CST-6	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
ALBIA	MONROE CO.	IA	08/06/2011	22:55	CST-6	Thunderstorm Wind	61 kts. EG	0	0	25.00K	10.00K
ALBIA	MONROE CO.	IA	08/06/2011	23:04	CST-6	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
ALBIA	MONROE CO.	IA	05/19/2013	20:25	CST-6	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
ALBIA	MONROE CO.	IA	04/12/2014	22:37	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
LOVILIA	MONROE CO.	IA	04/27/2014	14:00	CST-6	Thunderstorm Wind	70 kts. EG	0	0	50.00K	0.00K
HITEMAN	MONROE CO.	IA	06/19/2014	18:05	CST-6	Thunderstorm Wind	61 kts. EG	0	0	25.00K	0.00K
ALBIA	MONROE CO.	IA	04/09/2015	13:40	CST-6	Thunderstorm Wind	52 kts. EG	0	0	25.00K	0.00K
LOVILIA	MONROE CO.	IA	06/22/2015	16:30	CST-6	Thunderstorm Wind	70 kts. EG	0	0	20.00K	0.00K
ALBIA	MONROE CO.	IA	06/22/2015	16:53	CST-6	Thunderstorm Wind	75 kts. EG	0	0	10.00K	0.00K
ALBIA	MONROE CO.	IA	06/22/2015	16:53	CST-6	Thunderstorm Wind	62 kts. EG	0	0	50.00K	0.00K
ALBIA	MONROE CO.	IA	06/22/2015	16:56	CST-6	Thunderstorm Wind	62 kts. EG	0	0	20.00K	0.00K
TRUAX	MONROE CO.	IA	07/28/2015	17:29	CST-6	Thunderstorm Wind	56 kts. EG	0	0	5.00K	0.00K
MELROSE	MONROE CO.	IA	07/28/2015	20:31	CST-6	Thunderstorm Wind	61 kts. EG	0	0	15.00K	50.00K
MELROSE	MONROE CO.	IA	07/28/2015	20:31	CST-6	Thunderstorm Wind	57 kts. EG	0	0	10.00K	100.00K
Totals:								0	0	744.00K	210.00K

<http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28C%29+Thunderstor...> 2/17/2016

National Centers for Environmental Information

Storm Events Database

Search Results for Monroe County, Iowa

Event Types: Winter Storm

Monroe county contains the following zones:

'Monroe'

13 events were reported between 01/01/1950 and 12/31/2015 (24106 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	13
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	10
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Column Definitions:

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

Click on **Location** below to display details.

Available Event Types have changed over time. Please refer to the [Database Details](#) for more information.

Sort By:

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	459.90K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	01/01/1999	15:00	CST	Winter Storm		0	0	10.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	03/08/1999	00:00	CST	Winter Storm		0	0	10.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	12/10/2000	21:00	CST	Winter Storm		0	0	24.90K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	02/08/2001	23:00	CST	Winter Storm		0	0	50.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	02/14/2003	11:00	CST	Winter Storm		0	0	5.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	02/12/2007	22:30	CST-6	Winter Storm		0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	02/24/2007	03:00	CST-6	Winter Storm		0	0	250.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	12/22/2007	12:00	CST-6	Winter Storm		0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	02/05/2008	11:00	CST-6	Winter Storm		0	0	10.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	01/06/2010	16:00	CST-6	Winter Storm		0	0	25.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	01/30/2013	00:00	CST-6	Winter Storm		0	0	25.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	02/04/2014	16:00	CST-6	Winter Storm		0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	02/01/2015	00:00	CST-6	Winter Storm		0	0	50.00K	0.00K
Totals:								0	0	459.90K	0.00K

<http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+Winter+Stor...> 2/17/2016

National Centers for Environmental Information

Storm Events Database

Search Results for Monroe County, Iowa

Event Types: Wildfire

Monroe county contains the following zones:

'Monroe'

0 events were reported between 01/01/1950 and 12/31/2015 (24106 days)

Summary Info:

Number of County/Zone areas affected:	0
Number of Days with Event:	0
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	0
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	0

Column Definitions:

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

Click on **Location** below to display details.

Available Event Types have changed over time. Please refer to the [Database Details](#) for more information.

Sort By: ▾

Location	County/Zone	St.	Date	Time	I.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	0.00K	0.00K

<http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+Wildfire&be...> 2/17/2016

National Centers for Environmental Information

Storm Events Database

Search Results for Monroe County, Iowa

Event Types: Lightning

0 events were reported between 01/01/1950 and 12/31/2015 (24106 days)

Summary Info:

Number of County/Zone areas affected:	0
Number of Days with Event:	0
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	0
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	0

Column Definitions:

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

Click on **Location** below to display details.

Available Event Types have changed over time. Please refer to the [Database Details](#) for more information.

Sort By: ▼

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	0.00K	0.00K

National Centers for Environmental Information

Storm Events Database

Search Results for Monroe County, Iowa

Event Types: High Wind

Monroe county contains the following zones:

'Monroe'

20 events were reported between 01/01/1950 and 12/31/2015 (24106 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	20
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	13
Number of Days with Event and Crop Damage:	2
Number of Event Types reported:	1

Column Definitions:

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

Wind Magnitude Definitions:

Measured Gust:'MG', Estimated Gust:'EG', Measured Sustained:'MS', Estimated Sustained:'ES'

Click on **Location** below to display details.

Available Event Types have changed over time. Please refer to the [Database Details](#) for more information.

Select:

Sort By:

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	700.11K	30.10K
MONROE (ZONE)	MONROE (ZONE)	IA	01/17/1996	21:00	CST	High Wind	55 kts.	0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	02/10/1996	12:00	CST	High Wind	56 kts.	0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	03/24/1996	17:00	CST	High Wind	54 kts.	0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	04/25/1996	09:30	CST	High Wind	52 kts.	0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	10/29/1996	11:00	CST	High Wind	57 kts.	0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	04/06/1997	09:00	CST	High Wind	55 kts.	0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	04/30/1997	12:00	CST	High Wind	52 kts.	0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	04/12/1998	08:00	CST	High Wind		0	0	50.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	11/10/1998	02:00	CST	High Wind	61 kts.	0	0	300.00K	5.10K
MONROE (ZONE)	MONROE (ZONE)	IA	03/08/2000	11:00	CST	High Wind	50 kts. E	0	0	10.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	04/07/2001	04:00	CST	High Wind	50 kts. M	0	0	50.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	03/09/2002	06:00	CST	High Wind	M	0	0	50.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	11/12/2003	09:00	CST	High Wind	50 kts. EG	0	0	50.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	04/27/2004	12:30	CST	High Wind	35 kts. MS	0	0	75.11K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	01/22/2005	00:15	CST	High Wind	35 kts. ES	0	0	10.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	06/08/2005	09:00	CST	High Wind	50 kts. EG	0	0	20.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	01/24/2006	09:30	CST	High Wind	37 kts. MS	0	0	10.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	10/26/2008	11:00	CST-6	High Wind	35 kts. ES	0	0	25.00K	25.00K
MONROE (ZONE)	MONROE (ZONE)	IA	10/27/2010	09:00	CST-6	High Wind	54 kts. ES	0	0	25.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	01/26/2014	15:00	CST-6	High Wind	50 kts. EG	0	0	25.00K	0.00K
Totals:								0	0	700.11K	30.10K

<http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+High+Wind...> 2/17/2016

National Centers for Environmental Information

Storm Events Database

Search Results for Monroe County, Iowa

Event Types: Heat

Monroe county contains the following zones:

'Monroe'

1 events were reported between 01/01/1950 and 12/31/2015 (24106 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	1
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	0
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Column Definitions:

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

Click on **Location** below to display details.

Available Event Types have changed over time. Please refer to the [Database Details](#) for more information.

Sort By: ▾

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	08/05/2001	10:00	CST	Heat		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

National Centers for Environmental Information

Storm Events Database

Search Results for Monroe County, Iowa

Event Types: Hail

45 events were reported between 01/01/1950 and 12/31/2015 (24106 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	31
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	18
Number of Days with Event and Crop Damage:	13
Number of Event Types reported:	1

Column Definitions:

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

Click on **Location** below to display details.

Available Event Types have changed over time. Please refer to the [Database Details](#) for more information.

Select:

Sort By:

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	466.50K	141.00K
MONROE CO.	MONROE CO.	IA	08/21/1979	15:30	CST	Hail	1.75 in.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	03/27/1985	20:59	CST	Hail	0.75 in.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	05/11/1985	16:03	CST	Hail	1.75 in.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	05/31/1987	17:26	CST	Hail	0.75 in.	0	0	0.00K	0.00K
MONROE CO.	MONROE CO.	IA	10/24/1991	02:49	CST	Hail	1.00 in.	0	0	0.00K	0.00K
Moravia	MONROE CO.	IA	07/22/1995	20:24	CST	Hail	1.75 in.	0	0	5.00K	10.00K
ALBIA	MONROE CO.	IA	04/18/1996	14:00	CST	Hail	0.75 in.	0	0	5.00K	0.00K
MELROSE	MONROE CO.	IA	05/09/1996	12:27	CST	Hail	0.88 in.	0	0	5.00K	0.00K
ALBIA	MONROE CO.	IA	05/14/1996	15:38	CST	Hail	1.00 in.	0	0	5.00K	0.00K
ALBIA	MONROE CO.	IA	03/30/1998	16:53	CST	Hail	0.75 in.	0	0	0.00K	0.00K
AVERY	MONROE CO.	IA	03/30/1998	17:06	CST	Hail	0.75 in.	0	0	0.00K	0.00K
HITEMAN	MONROE CO.	IA	05/20/1998	10:05	CST	Hail	3.25 in.	0	0	100.00K	25.00K
ALBIA	MONROE CO.	IA	05/23/1998	18:26	CST	Hail	1.00 in.	0	0	0.50K	3.00K
HITEMAN	MONROE CO.	IA	10/22/2001	15:25	CST	Hail	0.88 in.	0	0	3.00K	5.00K
HITEMAN	MONROE CO.	IA	10/22/2001	15:26	CST	Hail	1.75 in.	0	0	20.00K	10.00K
ALBIA	MONROE CO.	IA	10/22/2001	15:33	CST	Hail	1.00 in.	0	0	5.00K	5.00K
ALBIA	MONROE CO.	IA	10/22/2001	15:35	CST	Hail	1.00 in.	0	0	30.00K	5.00K
ALBIA	MONROE CO.	IA	10/22/2001	16:37	CST	Hail	1.00 in.	0	0	5.00K	3.00K
ALBIA	MONROE CO.	IA	12/22/2001	13:52	CST	Hail	0.88 in.	0	0	0.00K	0.00K
ALBIA	MONROE CO.	IA	06/13/2002	00:22	CST	Hail	0.75 in.	0	0	0.00K	5.00K
ALBIA	MONROE CO.	IA	06/13/2002	00:30	CST	Hail	0.75 in.	0	0	0.00K	5.00K
ALBIA	MONROE CO.	IA	09/18/2002	19:41	CST	Hail	0.88 in.	0	0	3.00K	0.00K
ALBIA	MONROE CO.	IA	04/30/2003	17:16	CST	Hail	1.75 in.	0	0	10.00K	0.00K
AVERY	MONROE CO.	IA	04/30/2003	17:25	CST	Hail	2.75 in.	0	0	50.00K	0.00K
ALBIA	MONROE CO.	IA	04/30/2003	17:30	CST	Hail	2.50 in.	0	0	50.00K	0.00K
MELROSE	MONROE CO.	IA	05/08/2003	18:00	CST	Hail	1.75 in.	0	0	10.00K	0.00K
LOVILIA	MONROE CO.	IA	05/08/2003	18:20	CST	Hail	1.75 in.	0	0	10.00K	0.00K
ALBIA MUNI ARPT	MONROE CO.	IA	08/31/2005	18:24	CST	Hail	0.75 in.	0	0	0.00K	5.00K
ALBIA MUNI ARPT	MONROE CO.	IA	08/31/2005	18:35	CST	Hail	0.75 in.	0	0	0.00K	5.00K
AVERY	MONROE CO.	IA	05/25/2008	22:02	CST-6	Hail	1.25 in.	0	0	3.00K	0.00K

http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28C%29+Hail&begin... 2/17/2016

ALBIA	MONROE CO.	IA	06/12/2008	16:00	CST-6	Hail	1.75 in.	0	0	75.00K	5.00K
AVERY	MONROE CO.	IA	06/12/2008	16:10	CST-6	Hail	1.75 in.	0	0	25.00K	5.00K
WELLER	MONROE CO.	IA	06/20/2008	16:01	CST-6	Hail	0.88 in.	0	0	1.00K	5.00K
MELROSE	MONROE CO.	IA	07/27/2008	19:00	CST-6	Hail	1.75 in.	0	0	10.00K	10.00K
ALBIA	MONROE CO.	IA	05/08/2009	17:33	CST-6	Hail	1.00 in.	0	0	1.00K	0.00K
WELLER	MONROE CO.	IA	04/30/2010	09:46	CST-6	Hail	0.88 in.	0	0	1.00K	0.00K
LOVILIA	MONROE CO.	IA	06/18/2010	17:46	CST-6	Hail	1.00 in.	0	0	2.00K	5.00K
ALBIA	MONROE CO.	IA	10/23/2010	16:23	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
ALBIA	MONROE CO.	IA	10/23/2010	16:24	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
LOVILIA	MONROE CO.	IA	04/14/2012	19:55	CST-6	Hail	1.00 in.	0	0	5.00K	0.00K
AVERY	MONROE CO.	IA	04/14/2012	20:00	CST-6	Hail	2.50 in.	0	0	25.00K	0.00K
HITEMAN	MONROE CO.	IA	04/14/2012	20:02	CST-6	Hail	1.00 in.	0	0	2.00K	0.00K
MELROSE	MONROE CO.	IA	06/24/2012	00:50	CST-6	Hail	1.00 in.	0	0	0.00K	5.00K
AVERY	MONROE CO.	IA	05/28/2013	15:42	CST-6	Hail	1.00 in.	0	0	0.00K	10.00K
AVERY	MONROE CO.	IA	07/19/2013	16:57	CST-6	Hail	1.00 in.	0	0	0.00K	10.00K
Totals:								0	0	466.50K	141.00K

<http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28C%29+Hail&begin...> 2/17/2016

National Centers for Environmental Information

Storm Events Database

Search Results for Monroe County, Iowa

Event Types: Flood

Monroe county contains the following zones:

'Monroe'

34 events were reported between 01/01/1950 and 12/31/2015 (24106 days)

Summary Info:

Number of County/Zone areas affected:	2
Number of Days with Event:	33
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	26
Number of Days with Event and Crop Damage:	11
Number of Event Types reported:	1

Column Definitions:

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

Click on **Location** below to display details.

Available Event Types have changed over time. Please refer to the [Database Details](#) for more information.

Sort By: ▾

Location	County/Zone	St.	Date	Time	I.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	2.590M	20.718M
MONROE (ZONE)	MONROE (ZONE)	IA	05/09/1996	06:00	CST	Flood		0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	05/23/1996	15:00	CST	Flood		0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	05/26/1996	12:00	CST	Flood		0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	02/18/1997	18:00	CST	Flood		0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	05/07/1997	18:00	CST	Flood		0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	03/30/1998	18:00	CST	Flood		0	0	10.00K	0.00K
ALBIA	MONROE CO.	IA	06/14/1998	16:00	CST	Flood		0	0	50.00K	30.00K
MONROE (ZONE)	MONROE (ZONE)	IA	07/06/1998	03:00	CST	Flood		0	0	50.00K	100.00K
MONROE (ZONE)	MONROE (ZONE)	IA	10/05/1998	06:00	CST	Flood		0	0	25.00K	5.00K
MONROE (ZONE)	MONROE (ZONE)	IA	10/17/1998	06:00	CST	Flood		0	0	70.00K	10.00K
MONROE (ZONE)	MONROE (ZONE)	IA	04/06/1999	18:00	CST	Flood		0	0	7.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	04/22/1999	06:00	CST	Flood		0	0	10.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	05/16/1999	21:00	CST	Flood		0	0	200.00K	25.00K
MONROE (ZONE)	MONROE (ZONE)	IA	06/24/2000	03:00	CST	Flood		0	0	50.00K	75.00K
MONROE (ZONE)	MONROE (ZONE)	IA	03/15/2001	09:00	CST	Flood		0	0	25.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	03/15/2001	15:00	CST	Flood		0	0	50.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	03/23/2001	18:00	CST	Flood		0	0	7.50K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	04/07/2001	21:00	CST	Flood		0	0	150.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	05/11/2001	06:00	CST	Flood		0	0	25.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	06/12/2001	15:00	CST	Flood		0	0	25.00K	50.00K
MONROE (ZONE)	MONROE (ZONE)	IA	10/23/2001	03:00	CST	Flood		0	0	5.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	05/04/2003	12:00	CST	Flood		0	0	5.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	05/09/2003	06:00	CST	Flood		0	0	5.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	05/22/2004	18:00	CST	Flood		0	0	100.00K	298.04K
MONROE (ZONE)	MONROE (ZONE)	IA	05/13/2005	02:00	CST	Flood		0	0	30.00K	0.00K
ALBIA	MONROE CO.	IA	04/26/2007	06:00	CST-6	Flood		0	0	250.00K	0.00K
MELROSE	MONROE CO.	IA	07/28/2008	06:38	CST-6	Flood		0	0	25.00K	0.00K
AVERY	MONROE CO.	IA	03/08/2009	12:20	CST-6	Flood		0	0	10.00K	0.00K

<http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+Flood&begin...> 2/17/2016

SELECTION	MONROE CO.	IA	04/25/2010	09:00	CST-6	Flood		0	0	0.00K	0.00K
WELLER	MONROE CO.	IA	06/12/2010	12:00	CST-6	Flood		0	0	0.00K	20.000M
AVERY	MONROE CO.	IA	06/15/2010	14:10	CST-6	Flood		0	0	25.00K	0.00K
MELROSE	MONROE CO.	IA	05/28/2013	18:35	CST-6	Flood		0	0	250.00K	0.00K
WELLER	MONROE CO.	IA	09/10/2014	05:58	CST-6	Flood		0	0	100.00K	25.00K
ICONIUM	MONROE CO.	IA	06/25/2015	05:57	CST-6	Flood		0	0	1.030M	100.00K
Totals:								0	0	2.590M	20.718M

<http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+Flood&begin...> 2/17/2016

National Centers for Environmental Information

Storm Events Database

Search Results for Monroe County, Iowa

Event Types: Flash Flood

28 events were reported between 01/01/1950 and 12/31/2015 (24106 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	16
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	15
Number of Days with Event and Crop Damage:	5
Number of Event Types reported:	1

Column Definitions:

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

Click on **Location** below to display details.

Available Event Types have changed over time. Please refer to the [Database Details](#) for more information.

Sort By: ▾

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	2.115M	150.00K
ALBIA	MONROE CO.	IA	06/23/2000	16:45	CST	Flash Flood		0	0	100.00K	50.00K
COUNTYWIDE	MONROE CO.	IA	06/25/2000	19:00	CST	Flash Flood		0	0	200.00K	50.00K
COUNTYWIDE	MONROE CO.	IA	05/10/2001	20:30	CST	Flash Flood		0	0	150.00K	0.00K
SOUTH PORTION	MONROE CO.	IA	08/03/2001	06:00	CST	Flash Flood		0	0	15.00K	15.00K
AVERY	MONROE CO.	IA	06/13/2008	00:04	CST-6	Flash Flood		0	0	25.00K	0.00K
MELROSE	MONROE CO.	IA	06/26/2008	13:00	CST-6	Flash Flood		0	0	10.00K	0.00K
ALBIA MUNI ARPT	MONROE CO.	IA	06/26/2008	13:00	CST-6	Flash Flood		0	0	25.00K	0.00K
TYRONE	MONROE CO.	IA	06/26/2008	13:00	CST-6	Flash Flood		0	0	5.00K	0.00K
ALBIA	MONROE CO.	IA	07/08/2008	00:00	CST-6	Flash Flood		0	0	10.00K	0.00K
MELROSE	MONROE CO.	IA	07/08/2008	00:20	CST-6	Flash Flood		0	0	30.00K	0.00K
AVERY	MONROE CO.	IA	07/08/2008	01:00	CST-6	Flash Flood		0	0	25.00K	0.00K
SELECTION	MONROE CO.	IA	07/08/2008	02:00	CST-6	Flash Flood		0	0	50.00K	0.00K
ALBIA	MONROE CO.	IA	07/27/2008	23:20	CST-6	Flash Flood		0	0	25.00K	0.00K
HITEMAN	MONROE CO.	IA	07/28/2008	00:00	CST-6	Flash Flood		0	0	10.00K	5.00K
LOVILIA	MONROE CO.	IA	07/28/2008	00:00	CST-6	Flash Flood		0	0	5.00K	5.00K
ALBIA	MONROE CO.	IA	06/15/2010	08:54	CST-6	Flash Flood		0	0	100.00K	0.00K
AVERY	MONROE CO.	IA	06/15/2010	10:00	CST-6	Flash Flood		0	0	25.00K	0.00K
ALBIA	MONROE CO.	IA	06/15/2010	11:00	CST-6	Flash Flood		0	0	100.00K	0.00K
GEORGETOWN	MONROE CO.	IA	08/11/2010	03:26	CST-6	Flash Flood		0	0	10.00K	0.00K
AVERY	MONROE CO.	IA	04/17/2013	17:00	CST-6	Flash Flood		0	0	25.00K	0.00K
WELLER	MONROE CO.	IA	05/28/2013	16:15	CST-6	Flash Flood		0	0	100.00K	0.00K
LOVILIA	MONROE CO.	IA	05/28/2013	16:38	CST-6	Flash Flood		0	0	150.00K	0.00K
AVERY	MONROE CO.	IA	05/28/2013	18:10	CST-6	Flash Flood		0	0	200.00K	0.00K
MELROSE	MONROE CO.	IA	05/28/2013	19:13	CST-6	Flash Flood		0	0	500.00K	0.00K
LOVILIA	MONROE CO.	IA	05/28/2013	19:13	CST-6	Flash Flood		0	0	150.00K	0.00K
ALBIA	MONROE CO.	IA	09/10/2014	03:07	CST-6	Flash Flood		0	0	50.00K	25.00K
SELECTION	MONROE CO.	IA	06/22/2015	18:40	CST-6	Flash Flood		0	0	0.00K	0.00K
MELROSE	MONROE CO.	IA	06/25/2015	01:13	CST-6	Flash Flood		0	0	20.00K	0.00K
Totals:								0	0	2.115M	150.00K

<http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28C%29+Flash+Flood...> 2/17/2016

National Centers for Environmental Information

Storm Events Database

Search Results for Monroe County, Iowa

Event Types: Extreme Cold/Wind Chill

Monroe county contains the following zones:

'Monroe'

1 events were reported between 01/01/1950 and 12/31/2015 (24106 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	1
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	0
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Column Definitions:

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

Click on **Location** below to display details.

Available Event Types have changed over time. Please refer to the [Database Details](#) for more information.

Sort By: ▼

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:							0	0	0.00K	0.00K	
MONROE (ZONE)	MONROE (ZONE)	IA	01/05/2014	21:00	CST-6	Extreme Cold/wind Chill	0	0	0.00K	0.00K	
Totals:							0	0	0.00K	0.00K	

<http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+Extreme+Co...> 2/17/2016

National Centers for Environmental Information

Storm Events Database

Search Results for Monroe County, Iowa

Event Types: Excessive Heat

Monroe county contains the following zones:

'Monroe'

1 events were reported between 01/01/1950 and 12/31/2015 (24106 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	1
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	1
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Column Definitions:

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

Click on **Location** below to display details.

Available Event Types have changed over time. Please refer to the [Database Details](#) for more information.

Sort By: Date/Time (Oldest) ▼

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	135.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	07/15/2011	18:00	CST-6	Excessive Heat		0	0	135.00K	0.00K
Totals:								0	0	135.00K	0.00K

<http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+Excessive+H...> 2/17/2016

National Centers for Environmental Information

Storm Events Database

Search Results for Monroe County, Iowa

Event Types: Drought

Monroe county contains the following zones:
'Monroe'

10 events were reported between 01/01/1950 and 12/31/2015 (24106 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	10
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	1
Number of Days with Event and Crop Damage:	7
Number of Event Types reported:	1

Column Definitions:

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

Click on **Location** below to display details.

Available Event Types have changed over time. Please refer to the [Database Details](#) for more information.

Sort By:

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	12.650M	97.650M
MONROE (ZONE)	MONROE (ZONE)	IA	07/20/1999	12:00	CST	Drought		0	0	0.00K	4.580M
MONROE (ZONE)	MONROE (ZONE)	IA	08/14/2000	00:00	CST	Drought		0	0	0.00K	4.690M
MONROE (ZONE)	MONROE (ZONE)	IA	09/01/2000	00:00	CST	Drought		0	0	0.00K	5.030M
MONROE (ZONE)	MONROE (ZONE)	IA	08/01/2001	00:00	CST	Drought		0	0	0.00K	11.350M
MONROE (ZONE)	MONROE (ZONE)	IA	08/01/2003	00:00	CST	Drought		0	0	12.650M	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	07/01/2012	00:00	CST-6	Drought		0	0	0.00K	45.000M
MONROE (ZONE)	MONROE (ZONE)	IA	08/01/2012	00:00	CST-6	Drought		0	0	0.00K	6.000M
MONROE (ZONE)	MONROE (ZONE)	IA	09/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	10/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONROE (ZONE)	MONROE (ZONE)	IA	08/01/2013	00:00	CST-6	Drought		0	0	0.00K	21.000M
Totals:								0	0	12.650M	97.650M

<http://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+Drought&be...> 2/17/2016

Appendix 13: Fixed Hazardous Materials Locations

Attachment B-a

Hazard Vulnerability: Listed below are Monroe County Tier Two facilities storing a threshold quantity of Extremely Hazardous Substances, the facility coordinator and the facility phone numbers.

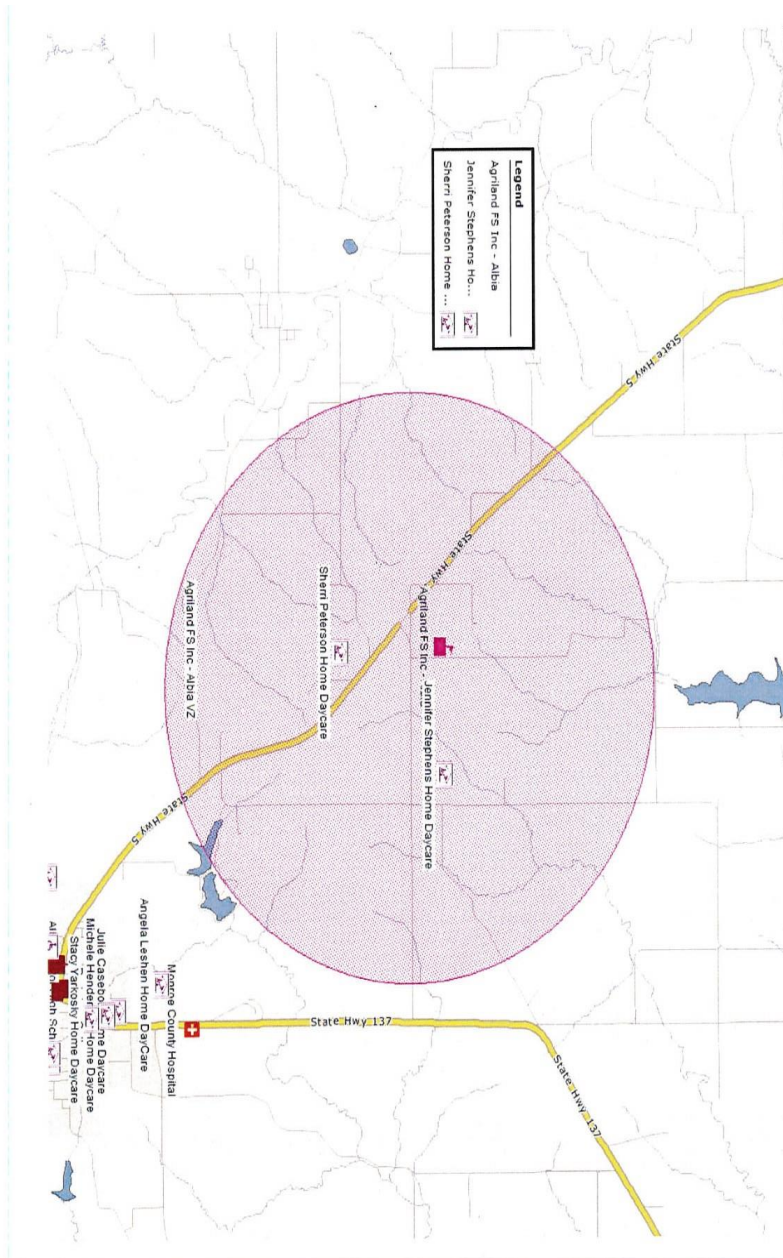
The planning vulnerability zones were recommended by the Monroe County LEPC. The recommendations considered the downwind distance provided from the DOT's Emergency Response Guidebook, the EPA's Risk Management Program alternate and worst case scenario data, the EPA's Camero Screenings modeling and Camero's ALCOHA modeling software. Please consultation with the Camero screenings data as its purpose is a planning tool to identify potential vulnerability zones for a worst-case chemical release and is not used in actual responses.

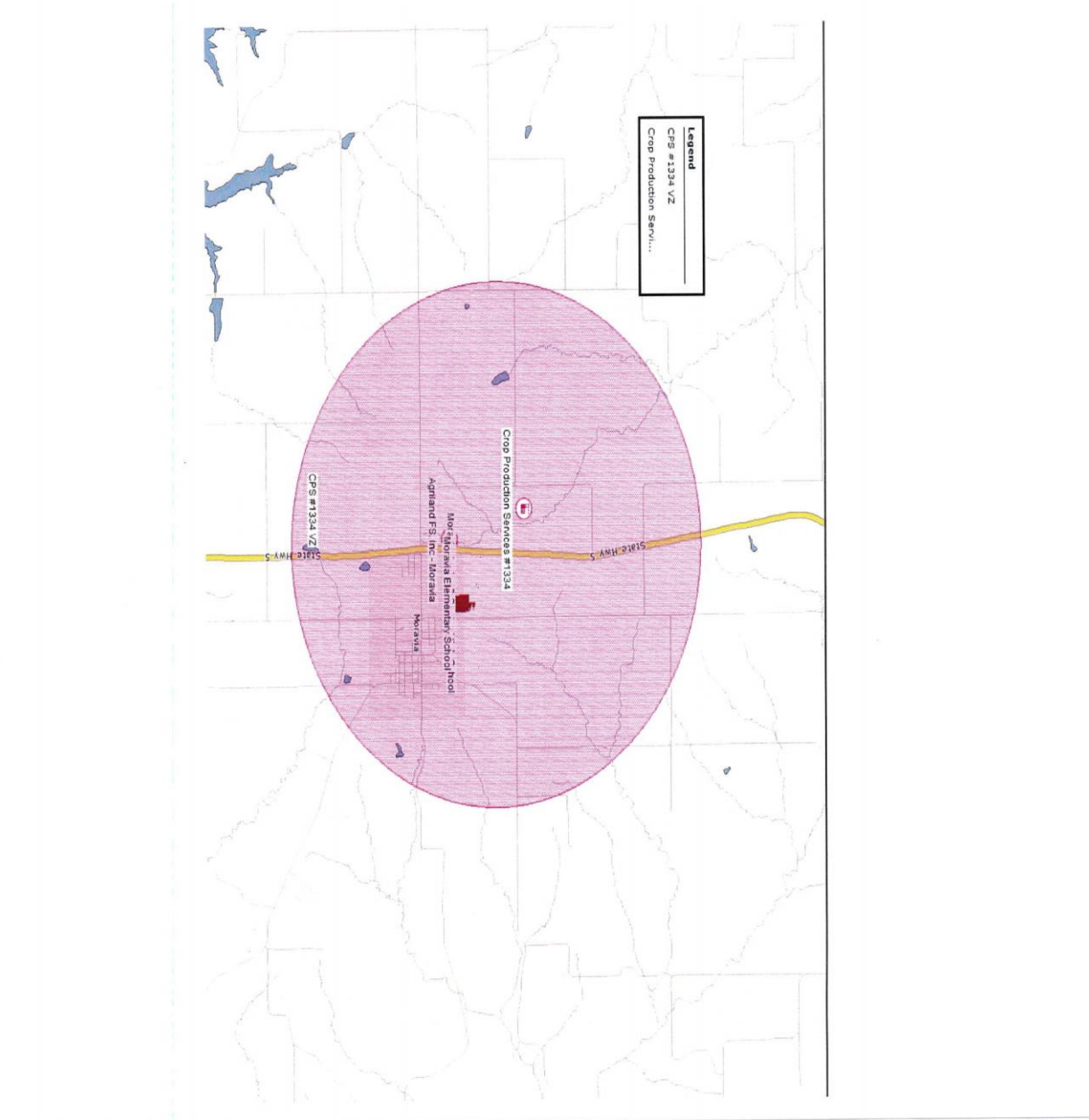
Attachment A contains mapping and concentric circles around of the Monroe County EHS facility locations. The concentric circles range from 1/10ths of a mile to 2 miles. The concentric circles identify schools, preschools, daycare centers, nursing homes and hospitals to facilitate emergency identification and communication.

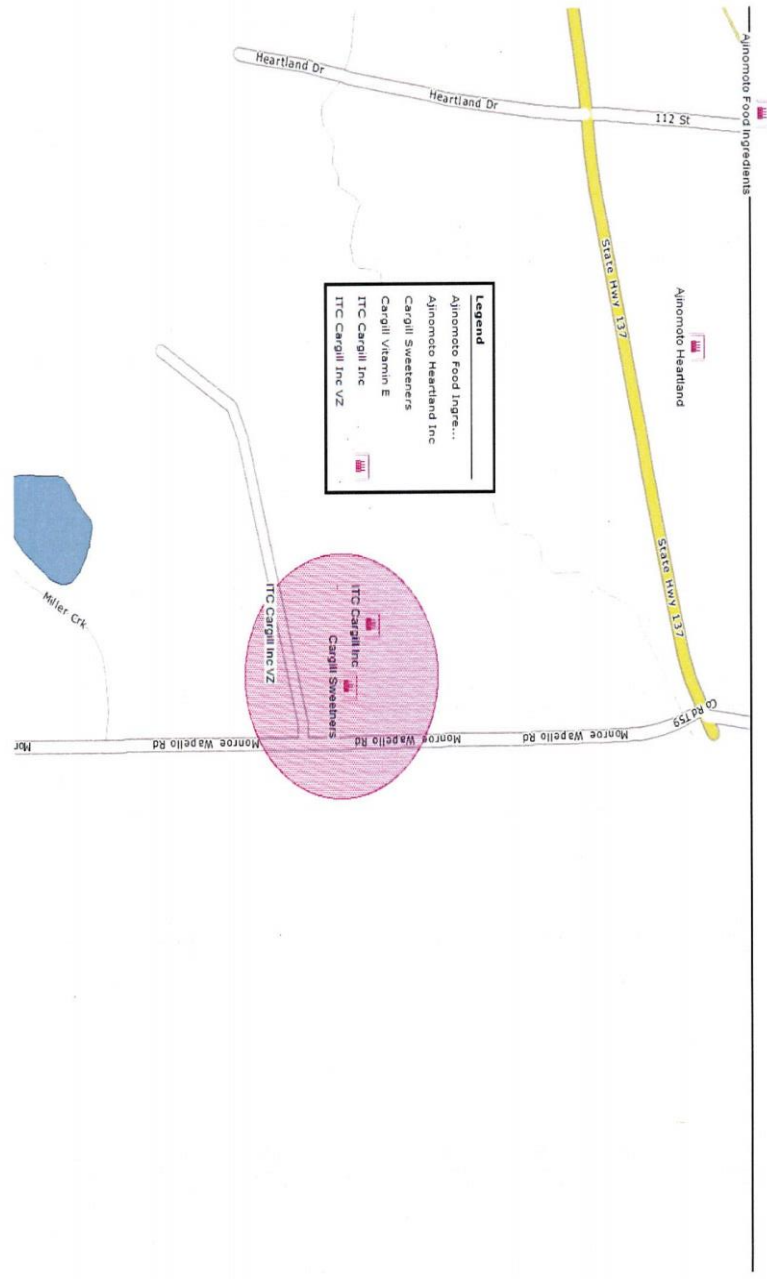
FACILITY	FACILITY COORDINATOR	EMERGENCY PHONE NUMBER	SECTION 202 EHS CHEMICAL NAME	CONTAINERS	CAMEO SCENARIO CASE	LEPC Planning Concentric Circle	School, Day Care Centers, Preschools Within LEPC Planning Concentric
AgriLand ES, Inc 6281 1600 th St Albia, IA 52531	Gary Crezlar	641-691-3833	Anhydrous Ammonia	Tank	>10 miles	2 miles	18, 25
1 Almonroa Drive Almonroa, IA 52531	Dan Barnes	641-779-1541	Anhydrous Ammonia	Tank	>10 miles	2 miles	NONE
Almonroa Heartland 1116 Hwy 137 Almonroa, IA 52531	Control Kason	641-969-4551	Anhydrous Ammonia	Tank	>10 miles	2 miles	NONE
Carlisle Sweeteners 1 Carlisle Drive Edgelyville, IA 52553	Bruce Popovitz	641-226-1982	Sulfuric Acid	Lead Acid Batteries	.10 miles	.10 miles	NONE
Edgelyville, IA 52553 Industrial Complex & Bridgeport North Edgelyville, IA 52553	On Duty	886-414-3751	Sulfuric Acid	Lead Acid Batteries	.10 miles	.10 miles	NONE
Carroll (William E) Crop Production Edgelyville, IA 52553	Patricia West	641-777-6545	Formaldehyde & water	Drum	.5 miles	.5 miles	NONE
2974 Hwy 1334 PO Box 292 Moravia, IA 52571	Brian Luse	641-895-9566	Anhydrous Ammonia	Tank	>10 miles	2 miles	Moravia Elementary, Middle Schools in Appanoose County

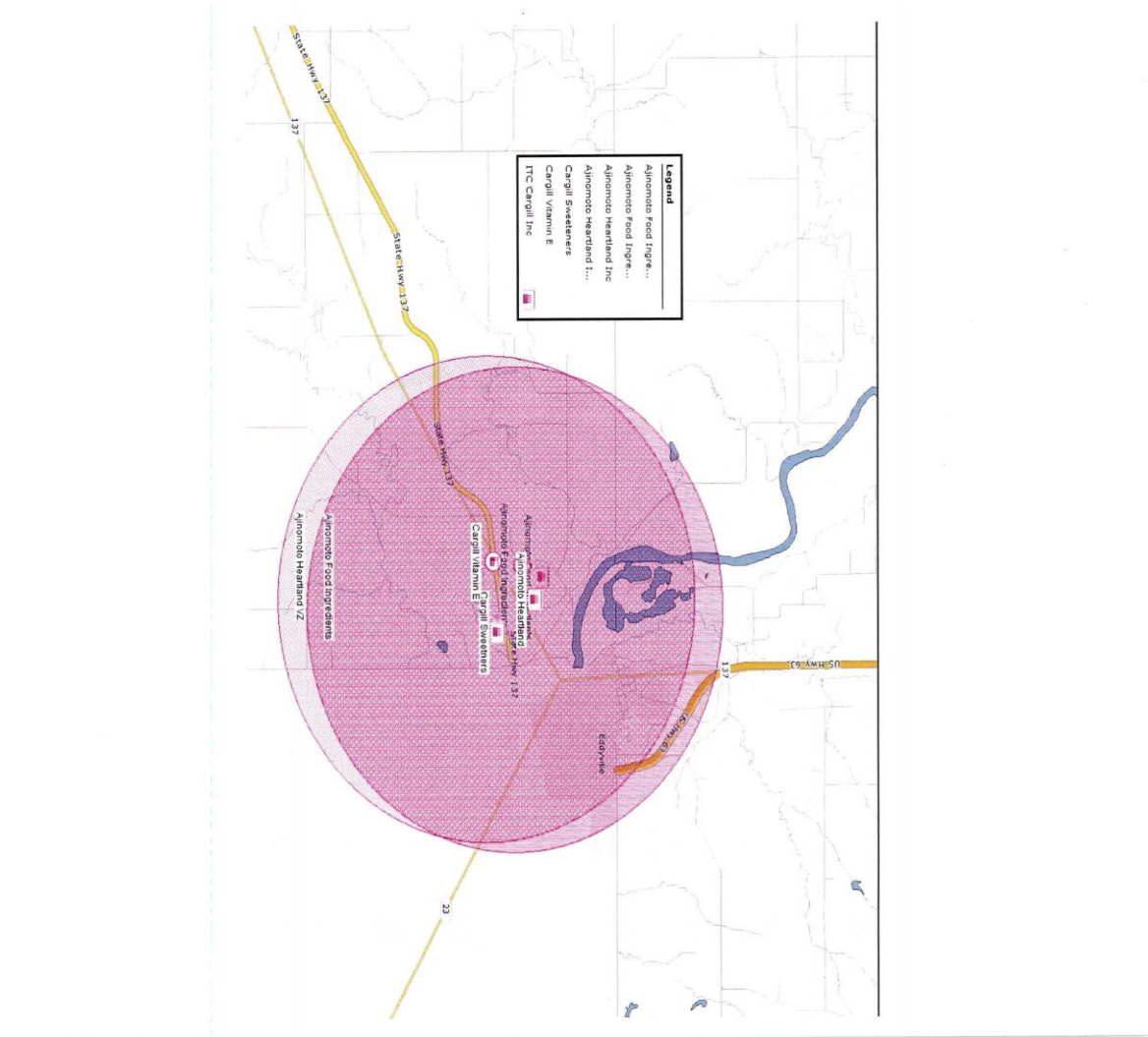
Red denotes change for 2015

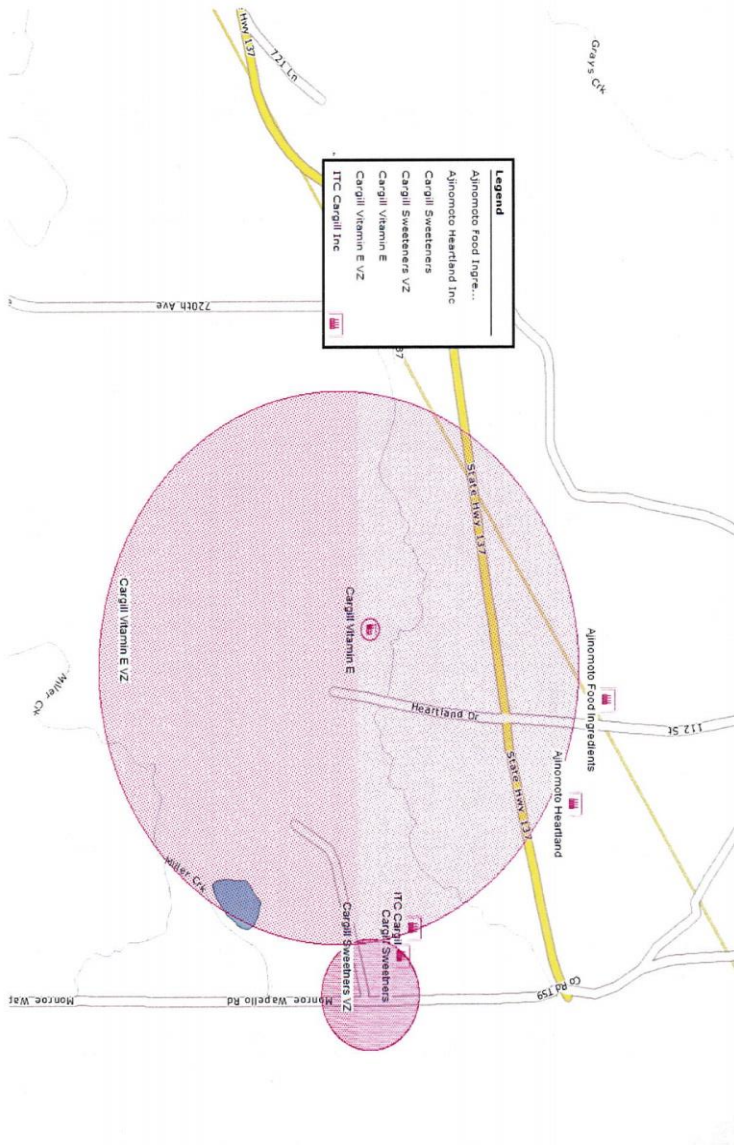
Blue denotes not in HERE database

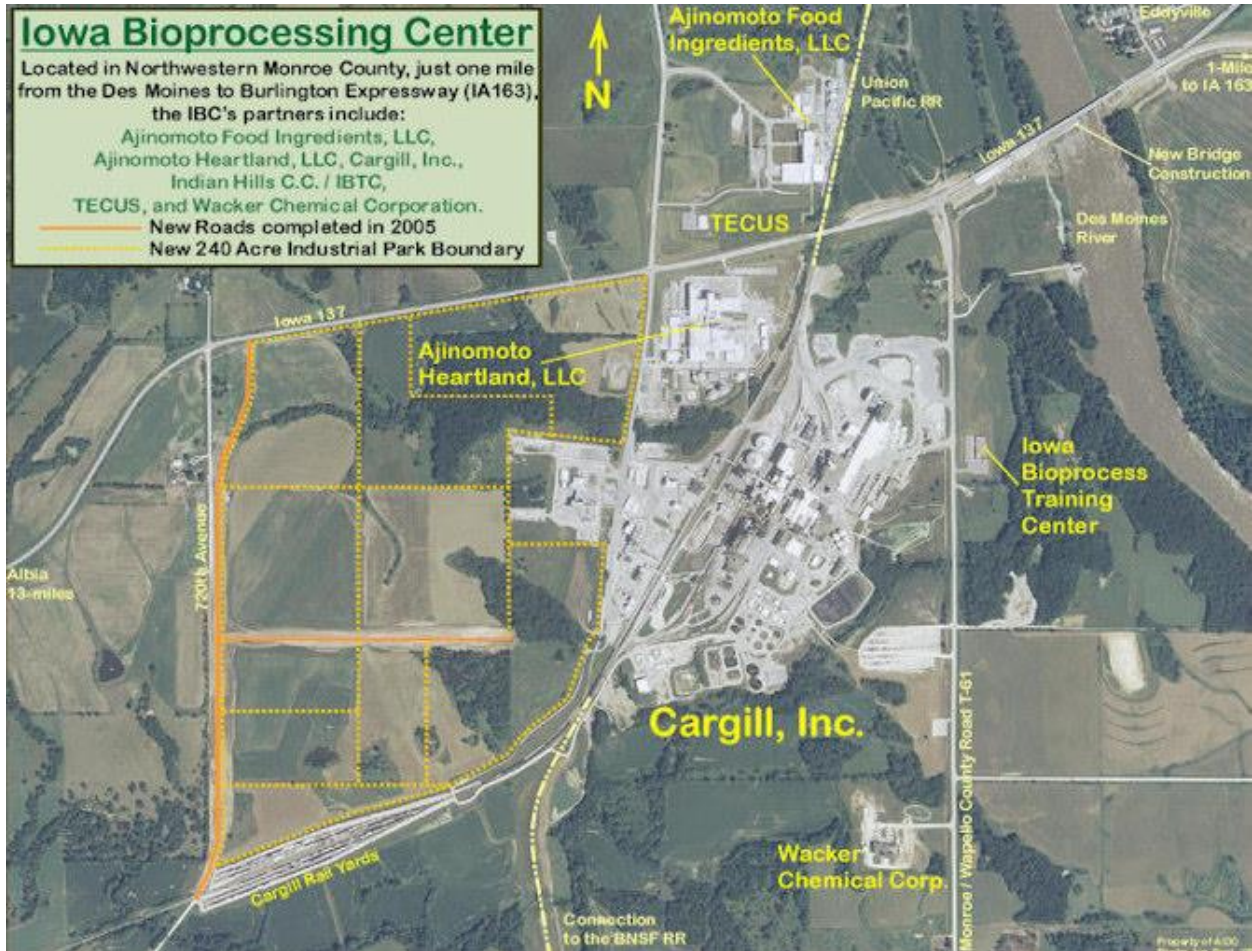












2/24/16

<p style="text-align: center;">Monroe County, Iowa Previous Mitigation Strategies (2011) A=Accomplished I=In Progress N= No Progress O=Ongoing</p>						
Strategy	Albia	Lovilia	Melrose	Unincorp Co	Explanation/Notes	
Generators for shelters/public facilities	A/O	N	N		Monroe County Courthouse & Law Center both have installed generators. Community Services Building (houses county public health offices) has generator. Albia Sewer System also has backup generator.	
New Storm Shelter-Heating/cooling Shelter	N				No funds were secured to accomplish this strategy.	
Continuity of Operations Plan for post-disaster	O	O	O		Plan is created by ADLM Emergency Management & reviewed annually. There are formal plans for each jurisdiction are updated every 5yrs and are adopted by each city.	
Acquisition or relocation of buildings in floodplains	N			N	There are no structures deemed a "repetitive loss" in the county.	
Safe Rooms in schools, Mobile home parks, campgrounds, fairgrounds, etc	A/O			A	Small "storm sheds" were installed at Lake Miami Campground, County Public Health office, & County owned Secondary Roads building next to State Highway 34.	
Public Education & Outreach of warnings & self-protection	O	O	O	O	National Weather Service has launched promotional information that airs regularly on public radio & TV. Severe Weather/Storm Spotter Training is held annually and open to the public. State has promoted the new program of "Alert Iowa".	

2/24/16

	Albia	Lovilia	Melrose	Unincorp Co	Explanation/Notes
Develop Emergency Response Team post-disaster	O	O	O		Each jurisdiction has identified the local fire department as the post-disaster response team. The challenge lies with low enrollment numbers in the rural communities.
Acquisition & Installation of Storm Warning System	I	N		N	Albia has installed two new early storm warning sirens on the north & south edge of city.
Secure funding to remove vacant /collapsed buildings	N	N	N	N	No funds were secured to accomplish this strategy.
Weather Radios for citizens	O	O	O	O	Weather radios are available for purchase at local retail stores for a minimal cost.
Establish Local Hazardous Materials Capabilities	x	X			All fire departments are required to be "HAZ-MAT Operations Certified".
Hazardous Materials Protection for Storm Shelters	N	N	N	N	No funds were secured to accomplish this strategy.
Review Floodplain Managements & Enforcement for Effectiveness	I		I	I	lowa DNR is in the process of updating floodplain risks in this region. This digital imaging will offer very detailed information about the potential risks.
Flood proofing by homeowners	O	O	O		This strategy would be completed by residents on an individual basis and an ongoing strategy.
Storm water Management ordinance	I			I	Albia recently improved a section of the storm water drainage system in the NE section of city.
Flood Insurance by property owners	O	O	O	O	This strategy would be completed by residents on an individual basis and an ongoing strategy.
Surge Protection/ Lightning Protection	O	O	O	O	This strategy would be completed by residents on an individual basis and an ongoing strategy.
Bury Powerlines				N	Funding limitations
Temporary Debris Disposal Plan	O	O	O	O	County has Debris Management Plan that applies to all jurisdictions.

2/24/16

	Albia	Lovilia	Melrose	Unincorp Co	Explanation/Notes
Snow Fences/ Barriers	O	O	O	O	County & State road depts. Install fences throughout the county in late fall. No natural vegetation barriers have been installed due to funding.
Rehabilitate Older Bldgs	I	N	N	N	Albia received a Downtown Revitalization grant to improve building façade on the square surrounding the courthouse. County Courthouse also received a new roof. 3 buildings also have been renovated or remodeled.
Expand Hazard area for mapping & mine evaluation	I	I		I	Iowa DNR has created estimated locations of old mines. This provides jurisdictions with more information & mapping to identify potential risk areas.
Water Storage Saving Plan – reduce usage	O	O	O	O	
Evaluate/ maintain/ repair area dams				O	Iowa DNR preforms inspections
Burning Restrictions	O	O	O	O	Burn bans & restrictions are determined by each jurisdiction's fire chief via recommendation of the State Fire Marshall's Office.
Encourage Smoke/ Fire/ Carbon Monoxide Detectors & sprinkler systems	O	O	O	O	This strategy would be completed by residents on an individual basis and an ongoing strategy.
Maintain current Evacuation Plans for buildings, schools & cities	A/O				Plans are created by ADLM Emergency Management reviewed annually. Identified as #1 of ESF. School has established plans.
Maintenance of Heating/ cooling systems	O	O	O	O	This strategy would be completed by residents on an individual basis and an ongoing strategy.
Fireplace Maintenance	O	O	O	O	This strategy would be completed by residents on an individual basis and an ongoing strategy.

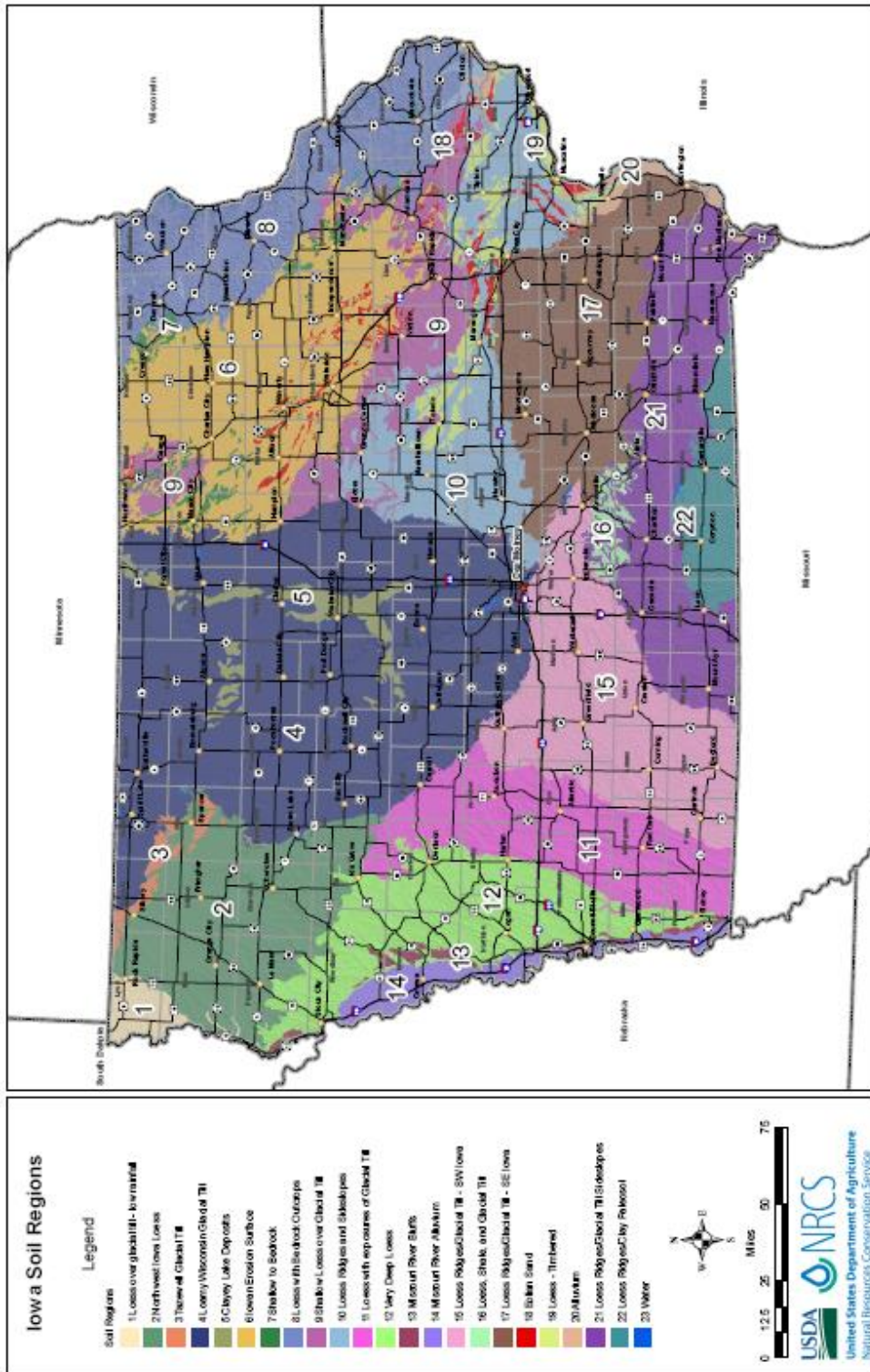
2/24/16

	Albia	Lovilia	Melrose	Unincorp Co	Explanation/Notes
Hazardous Material Disposal Program	X	X	X	X	Hazardous Material pick up drives occur semi-annually in the county for residents to take advantage of.
Search & Rescue Training for First Responders	O	O	O		First responders are required to have 24hrs of training annually. This is an ongoing need
Mass Casualty Preparation	A/O	A/O	A/O		Plan is outlined in the local ESF plan and reviewed annually. Community Tabletop exercises include this strategies.
Immunization plans – scheduled & emergency situations	O	O	O		County Public Health Dept hosts regular immunization clinics and also administer by appointment. Nurses also offer remote clinic locations as requested or needed.
Waste Disposal Enforcement	O	O	O	O	Current waste disposal is provided to the region by Southern Iowa Disposal from Knoxville. Recycling Center is also available in Albia.
Pest Management by cities through regulations of property maintnce.	O	O	O	O	This can be deemed a public health issue and is individually evaluated by case.
Radon/Lead Mitigation	O	O	O	O	Locally free radon testing kits are available at ADLM Environmental Health or County Public Health Dept.
Hazard Occurrence Data Collection & reporting	O	O	O	O	Currently jurisdictions are responsible for recording and reporting local events to the Emergency Management Coordinator.
Collection & Protection of Vital Records by private residents	O	O	O	O	This strategy would be completed by residents on an individual basis and an ongoing strategy.
Digging hotline/ pipeline safety regulations of pipelines education	O	O	O	O	Educational material has be published through local radio, TV & mailings.

2/24/16

	Albia	Lovilia	Melrose	Unincorp Co	Explanation/Notes
Tree Management/ Trimming by homeowners, utilities & county	O	O	O	O	This strategy is performed annually by local utilities
Critical Infrastructure Protection from Terrorism	O	O			Active Shooter training has occurred at the school. More sessions are planned in future at various public locations.
Assessment Risk for Terrorism	O	O			Assessments are completed by local law enforcement and Iowa Homeland Security
Manufactured Home Tie-Downs regulations	N	N	N	N	Participants believe that insurance requires mobile homes to be tied down, but no city has an ordinance requiring.
Building Code Enforcement	N	N	N		No community in Monroe County has a Building Code Compliance officer.
NFIP Participation	O		O		Albia NFIP #190541 Melrose NFIP #190465
Participation in Community Rating System for Flooding	O		O		

Appendix 15: Soil Composition



DRAFT RESOLUTION # _____

Purpose: A Resolution to approve and adopt the _____ County Multi-Jurisdictional Hazard Mitigation Plan.

WHEREAS, _____ County Multi-Jurisdictional Hazard Mitigation Plan was presented to the _____ City Council on _____, 2016; and

WHEREAS, _____ County Multi-Jurisdictional Hazard Mitigation Plan was prepared in compliance with the Hazard Mitigation Planning Requirements of the Disaster Mitigation Act of 2000 provided by the Iowa Homeland Security and Emergency Management Division; and

WHEREAS, _____ County Multi-Jurisdictional Hazard Mitigation Plan identifies the county and all jurisdiction's potential hazards; and

WHEREAS, _____ County Multi-Jurisdictional Hazard Mitigation Plan includes a profile of hazard events, vulnerability assessment, evaluation of mitigation goals and a plan maintenance process.

NOW THEREFORE BE IT RESOLVED that the City of _____ does hereby approve and adopt the _____ County Multi-Jurisdictional Hazard Mitigation Plan this _____ day of _____, 2016.

City/County Representative name & title

Date of Signature

Attest:

Glossary

Note: most definitions contained here are derived from Dictionary.com and other internet searches; some are based on FEMA or Iowa Department of Homeland Security and Emergency Management information. Where exact language is used, the source is cited following the definition.

100-year flood plain – area in which the chance of a flood occurring in any given year is 1% independent of any other year; this is statistically about once every 100 years, this does not mean that if there is not a flood this year that next year the chance goes up to 2%

500-year flood plain – the area in which the chance is .2% chance of a flood occurring in any given year independent of any other year; this is statistically about once every 500 years this does not mean that if there is not a flood this year that next year the chance goes up to .4%

Acceptable risk hazards – hazards that have been determined by the Lucas County Planning Committee to be low priority for mitigation strategies and projects to the point of no actions or steps are worth taking currently

Acute shortage (energy) – severe shortage in energy resources or supplies

ADLM – is the local emergency management service that is a collaborative effort of Appanoose, Davis, Lucas, and Monroe Counties in Iowa.

Aerosol – a liquid or gas under compression to be dispensed as a spray or foam

Agricultural drought – drought which refers to soil moisture deficiencies

Anhydrous ammonia – a hazardous substance that is used for industrial and commercial purposes and as a fertilizer lacking water which separates it from ammonia hydroxide

Anticholinergics – a class of medications that blocks nerve sensations and treat a variety of conditions including asthma, muscle spasms, and gastrointestinal cramps among others

Appurtenant – legal term describing something that goes along with or belongs to something else

Aquifer – an underground layer of porous rock or soils such as sand or gravel from which water can be drawn from

Asphyxiation – suffocation, choking, smothering

Asthma – respiratory disorder characterized by wheezing, coughing, labored breathing

Atmospheric carbon – carbon monoxide; gaseous carbon in the air, some of which is naturally occurring while some is the result of fossil fuel and wood combustion

Bio-Detection Systems (BDS) – a way to detect pollutants or organic compounds in the air or other substances

Bioterrorism – the use of biological agents against persons or property in violation of the criminal laws of the United States for purposes of intimidation, coercion or ransom

Blizzard conditions – heavy or prolonged snowstorm characterized by reduced visibility and strong winds

Bottled Fuels – this Census designation is being used in this plan to include the Census designation as well as Fuel Oil and Kerosene; the Census designation “bottled fuels” refers largely to LP gas

Block Group – the smallest census designated area other than for small incorporated areas; many cities contain multiple block groups, which are smaller delineations of blocks which comprise census tracts, some small cities may occupy a small part of a block group however

California Encephalitis – a strain of encephalitis first discovered in California characterized by dizziness, lethargy, headache, fever, seizures, and brain swelling that is transmitted by infected mosquitoes

Cascading Event Matrix – a tool provided by FEMA for ranking hazards in relation to one another including the impacts of one hazard on others or causal relationship between multiple hazards

Cell, storm – a storm cell is the smallest unit of a storm system characterized as an air mass formed by a convective loop

Clandestine – secret or concealed, also related to under-cover law enforcement operations

Coercion – use of force through intimidation or use of power to gain a certain behavior or outcome

Continental climate – a climate region that has cold enough temperatures in the winter to sustain snow and moderate precipitation mainly in the warmer months

Convective (loop or winds) – a meteorological term indicating the transfer of heat in the atmosphere such as by updrafts

Cumulonimbus – clouds that are characterized by large, dense “towers” that are associated with producing thunderstorms, also called Thunderheads or Thunderclouds

Deforestation – removal of a stand of trees

Delimit – marking or setting the outer limits or boundaries of something

Delineate – outline, mark, or define apart from something else, also see Delimit

Demographics – statistical data about a population including age, total population, income, housing status; information found in the US Census

Desertification – the process of an area converting to desert through depletion of vegetation, usually through over-exploitation by animals and / or humans and drought

Disease vector – in epidemiology a vector is a medium or species that carries or transmits diseases, a common disease vector may be mosquitoes

Doppler radar – radar that tracks the speed and direction of something measured

Downburst winds – strong winds that flow downward from cumulonimbus clouds usually associated with intense thunderstorms

Downdrafts – strong downward winds

El Nino – warm ocean currents that develop after December off of the coast of Peru and Ecuador that are sometimes associated with catastrophic storms

Emerald Ash Borer – an exotic invasive species that has been killing ash trees in Michigan, Illinois, Pennsylvania, Ohio, Indiana, and Maryland

Endangered (species) – a species that is determined to be in eminent threat of extinction throughout all or a significant portion of its habitat

Endemic – natural or characteristic, belonging to a particular location

Epidemics – rapidly spreading or extensively found in a population

Epidemiology – branch of medicine dealing with how diseases spread

Erosion – the process of soil or rock being worn away through abrasion, corrosion, or other means

Essential Facility – Elements that are important to ensure a full recovery of a community or state following a hazard event. These would include: government functions, major employers, banks, schools, and certain commercial establishments, such as grocery stores, hardware stores, and gas stations (FEMA).

Evapotranspiration – the process of transferring moisture from the earth to the atmosphere through evaporation and plant transpiration

Event – the occurrence of a storm or hazard

Fauna – animal life

Flood hazard area – The area shown to be inundated by a flood of a given magnitude on a map; The land area covered by the floodwaters of the base flood is the Special Flood Hazard Area (SFHA) on NFIP maps. The SFHA is the area where the NFIP's floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies (FEMA).

flood plain – area along a stream or river where flooding is a natural occurrence: flood plains can change over time based on changing conditions upstream such as urban development, dam or levee constructions, and other human actions

Flood zones – Flood hazard areas identified on the Flood Insurance Rate Map are identified as a Special Flood Hazard Area (SFHA). SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. SFHAs are labeled as Zone A, Zone AO, Zone AH, Zones A1-A30, Zone AE, Zone A99, Zone AR, Zone AR/AE, Zone AR/AO, Zone AR/A1-A30, Zone AR/A, Zone V, Zone VE, and Zones V1-V30. Moderate flood hazard areas, labeled Zone B or Zone X (shaded) are also shown on the FIRM, and are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are labeled Zone C or Zone X (unshaded) (FEMA).

Floodway – A "Regulatory Floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities must regulate development in these floodways to ensure that there are no increases in upstream flood elevations. For streams and other watercourses where FEMA has provided Base Flood Elevations (BFEs), but no floodway has been designated, the community must review floodplain development on a case-by-case basis to ensure that increases in water surface elevations do not occur, or identify the need to adopt a floodway if adequate information is available (FEMA).

Floodway fringe – the area surrounding a floodway

Flora – plant life

Foot and Mouth Disease – a severe and contagious disease found in cows, sheep, hogs, and other hoofed animals “characterized by vesicular eruptions in the mouth and about the hoofs, teats, and udder” (Dictionary.com)

Frost/freeze advisory – National Oceanic and Atmospheric Administration convention of indicating when a frost or hard freeze is possible for an area

Frostbite – injury caused by extreme cold or frost

Fujita Scale – Rates Tornadoes with numeric values from F0 to F5 based on Tornado wind speed and damage sustained. An F0 indicates minimal damage such as broken tree limbs or signs, while an F5 indicated severe damage sustained (FEMA).

Functionally obsolete (bridges) – bridges that due to changing technology, lack of improvement, or deteriorating conditions are obsolete, this includes width of bridges

Funnel cloud – a rapidly rotating funnel-shaped cloud extending downward from the base of a cumulonimbus cloud, which, if it touches the surface of the earth, is a Tornado or waterspout (Dictionary.com).

Gradient winds - horizontal wind velocity tangent to the contour line of a constant pressure surface (or to the isobar of a geopotential surface) at or above 2,500 feet (762 meters) (Allwords.com).

Hacking – breaking into another’s computer illegally, also to skillfully write or alter a computer program

Half-life – the time it takes for one-half of the radioactive atoms of a substance to disintegrate

Hazardous substance – a substance that poses a threat to human, animal, or environmental health

Hazardous Materials – see Hazardous substance

HazMat – short-hand for Hazardous Materials, also used as HazMat Team to indicate the trained professionals that respond to release of hazardous substances

Heat index – a number in degrees Fahrenheit that tells how hot it really feels when relative humidity is added to the actual air temperature

High-risk hazards – hazards that are determined by the Lucas County Planning Committee to pose the most risk to the community and of priority for developing projects or policies to address

Hijack – to forcefully take

Historical Occurrence – the number of times that a hazard has occurred in the community in the past

Horizontal peak gravity acceleration – a measure of how hard the earth shakes in a given area

Housing stock – the collective set of housing units in a given area, often a city or neighborhood

Housing unit – a single collection of rooms occupied by a family or household (conventional or unconventional) such as an apartment, a house, a mobile home, or a condo unit

Hydrocarbon – organic compounds composed of both hydrogen and carbon such as benzene or methane

Hydrological drought – drought which refers to declining surface water and groundwater supplies

Hypothermia – below normal body temperature

Ice jam – an obstruction of a waterway by pieces of ice

Impoundment – a body of water created by an obstruction such as a dam

Influenza – the common flu and variations of the flu

Infrastructure – Refers to the public services of a community that have a direct impact on the quality of life. Infrastructure includes communication technology such as phone lines or Internet access, vital services such as public water supplies and sewer treatment facilities, and includes an area's transportation system such as airports, heliports; highways, bridges, tunnels, roadbeds, overpasses, railways, bridges, rail yards, depots; and waterways, canals, locks, seaports, ferries, harbors, dry-docks, piers and regional dams (FEMA).

Intrusion detection system – any one of various electronic means to detect or thwart hacking attempts not unlike antivirus programs

Invasive species – any species of insects, animals, plants and pathogens, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem (invasive.org)

Ionizing – adding an electrical charge to atoms; lightning ionizes the air

IDALS – Iowa Department of Agriculture and Land Stewardship

IDNR – Iowa Department of Natural Resources

Jet stream – fast flowing, narrow current of air located 6 to 9 miles above the earth's surface

Karst subsidence – the effect of water dissolving of particular soils that lead to surface depressions or Sinkholes

Kniffen Silt Loam – deep, poorly drained soils generally found in loess with varying slopes between 2 to 9%; a National Resource Conservation Service soil category

La Nina – A cooling of the ocean surface off the western coast of South America, occurring periodically every 4 to 12 years and affecting Pacific and other weather patterns (Dictionary.com)

Land cover – the composition of vegetation or human built environment that occupies horizontal space

Land uses – classifications of how land is used in a given space including farmland, forests, water bodies, or urban areas; also a system of classifications used in zoning ordinances

Linguistically isolated” meaning that all members of the household age 14 and above have some difficulty with the English language - def applied to household

Loam – soils composed of a mixture of sand, clay, silt, and organic matter (Dictionary.com)

Logarithmically – mathematical indication that for each increment beyond a set point the number or magnitude increases or decreased significantly

Low-risk hazards – hazards that are determined by the Lucas County Planning Committee to pose a low risk to the community and of low priority for developing projects or policies to address

Lyme Disease – an inflammatory disease caused by tick bites by infected ticks that leads to joint swelling, rash, fever, and sometimes more severe symptoms

Magnitude – size or extent

Malaria – part of a set of tropical diseases characterized by fever, sweating, and chills transmitted to humans by mosquitoes

Maximum Threat – the spatial extent of the community that might be impacted

Median – statistical convention of indicating that half of the data is higher and half of the data is lower than this number; the median number does not necessarily mean the average though it can be the same

Meteorologic drought – drought which refers to precipitation deficiency

Methamphetamine – a central nervous system stimulant used to clinically treat certain conditions but largely known as an illegal drug produced from a variety of chemical inputs that can cause numerous health problems or even death from any given use, including the first

Microbursts – a sudden, violent downdraft of air over a small area. Microbursts are difficult to detect and predict with standard weather instruments and are especially hazardous to airplanes during landing or takeoff (Dictionary.com)

Micro-meteorological – meteorological conditions affecting a small area

Microorganisms – living organisms that require a microscope to view including bacteria and protozoan

Mine subsidence – mine collapses or cave-ins leading to depressions or Sinkholes on the surface

Mitigation – any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event. Mitigation, also known as prevention (when done before a disaster), encourages long-term reduction of hazard vulnerability. The goal of mitigation is to decrease the need for response as opposed to simply increasing the response capability (FEMA).

Morbidity – the rate of incidence of a disease; proportion of disease in a particular geographic location (Dictionary.com)

Munitions – weapons and military material

NFIP – National Flood Insurance Program; Federal program created by Congress in 1968 that makes flood insurance available in communities that enact minimum floodplain management regulations in 44 CFR §60.3 (FEMA).

National Registry of Historic Places – listing of historic places including buildings and sites that meet the National Park Service’s requirements for protection; historic places are proposed by the local community or private owners

Nitrogen oxides – form of nitrogen found in vehicle exhaust

Non-convective winds – winds that do not transfer heat

Notifiable disease – diseases that are required to be reported to public health authorities due to its danger to human or animal health

NWS - National Weather Service

Octanol – a substance composed of fatty alcohol and carbon atoms found in some essential oils and used in perfumes and flavor constituents

Outbreak – a sudden occurrence or manifestation of something; disease outbreaks are when a disease suddenly happens and spreads rapidly

Pandemic (disease) – a disease that is found through a large population, a widespread disease

Percolate – fluid moving through a porous substance such as water soaking into the soil, also indicating activity or movement

Perpetrators – person responsible for undertaking an action, generally a criminal action

Petroleum – flammable, oily, thick, dark-colored fluid from which various fuel substances are produced including gasoline and kerosene

Plume – a space in soil, water, or air containing pollutants spreading from a defined location

Precipitation – rain or snow

Probability (hazard occurrence) – Likelihood of the hazard event, sometimes without regard to hazard history

Proximity – location in relation to something else

Radioactive fallout – radioactive particles themselves or the settling of radioactive particles to the surface of the earth and other land covers

Reforestation – replanting of trees such as in an area that has been denuded

Rhetoric – use of language to influence others

Rotating blackout – an intentional power outage in order to meet electrical demand when supplies are insufficient

Section – a geographic subdivision under the Public Land Survey; a one-square mile subdivision of a township which is composed of 36 sections, a section can be further divided into “quarters” and “quarter-quarters”

Seismic zone – a designated area where Earthquakes and other seismic activity may take place

Severity of Impact – assessment of the severity in terms of fatalities, injuries, property losses, and economic losses

SHMT – State Hazard Mitigation Team

Sniping – shooting a firearm from a hidden location

Socio-economic – pertaining to the interaction between economic and social conditions

Speed of Onset – potential amount of warning time available before the hazard occurs

Strong frontal system – a volatile boundary between two masses of air which may produce strong storms

Subsidence – sinking or lowering to a different level; also known as Sinkholes

Superfund Sites – a location designated by the Federal Government for toxic waste clean-up

Surface-level ozone – ozone found near the surface of the earth rather than in the upper atmosphere, also known as smog

Tectonic – pertaining to the structure of the earth

Threatened (species) – a species that is determined to be in threat of extinction throughout all or a significant portion of its habitat unless action is taken

Topography – detailed description of a specific place including the shape of the land, where the highs and lows are, and how hills are shaped

Tributary – a creek or stream that feeds into a larger creek or stream or a river

USDA – U.S. Department Agriculture

Updraft – upward current of warm, moist air which can form cumulonimbus clouds

Urbanization – the conversion of agricultural or wild lands to human developed, urban environment

Vaccination – a shot or other delivery method of incapacitated disease to boost immunity to the disease

Vandalism – deliberate or mischievous destruction or alterations of another’s property

Vulnerability – measure of the percentage of people and property that would be affected by the hazard event

Watch vs. warning – The National Weather Service uses a watch to indicate that conditions are right for a given storm to develop while warning indicates that a given storm is in the area; these classifications are applied to Tornados, winter storms, thunderstorms, and other weather events

West Nile Virus – a virus that is found mostly in birds but can be transmitted to humans by mosquitoes that manifests as flu-like symptoms, the virus can lead to meningitis or encephalitis; there is currently no known treatment

Wind chill – the apparent temperature experienced by the human body taking into account wind speed and actual air temperature

Appendix 18: Goals, Objectives & Strategies

1. Protect critical facilities, infrastructure, services and other community assets from the impacts of hazards.

Objective 1.1 Seek mitigation projects that provide the highest degree of hazard protection at the least cost.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Public Education & Outreach of Warnings – self protection
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Local Hazardous Materials Capabilities
- Strategy 1.E: Hazardous Materials Protection for Storm Shelters
- Strategy 1.F: Maintain Current Evacuation Plans
- Strategy 1.G: Search & Rescue Training for First Responders
- Strategy 1.H: Digging Hotline/Pipeline Safety Regulations
- Strategy 1.I: Temporary Debris Disposal Plan
- Strategy 1.J: Expanded Hazard Area Mapping & Mine Location
- Strategy 1.K: Mass Casualty Preparation
- Strategy 1.L: Replace or Install New Storm Warning System
- Strategy 1.M: Weather Radios for Citizens
- Strategy 1.N: Surge Protection/Lightning Protection
- Strategy 1.O: Burying Power Lines
- Strategy 1.P: Participation in Community Rating System for Flooding
- Strategy 1.Q: Flood Proofing of Properties
- Strategy 1.R: Storm Water Management
- Strategy 1.S: Generators for Storm Shelters
- Strategy 1.T: New Storm Shelter/ Cooling & Heating Shelter Location
- Strategy 1.U: Snow Fences/Barriers – Natural & Artificial
- Strategy 1.V: Maintenance of Heating & Cooling Systems
- Strategy 1.W: Tree Management/Trimming
- Strategy 1.X: Collection & Protection of Vital Records
- Strategy 1.Y: Acquisition or Relocation of Buildings in Floodplain
- Strategy 1.Z: Hazardous Material Disposal Program
- Strategy 1.AA: Safe Room in School, Mobile Home Parks, Campgrounds, Fairgrounds, etc.
- Strategy 1.BB: Secure Funding for removal of Vacant/ Collapsed Buildings
- Strategy 1.CC: Review Floodplain Management for Effectiveness
- Strategy 1.DD: Flood Insurance by Homeowners
- Strategy 1.EE: Rehabilitate Older Buildings
- Strategy 1.FF: Water Storage Saving Plan – Reduce Usage
- Strategy 1.GG: Evaluate/Maintain/Repair Area Dams
- Strategy 1.HH: Encourage Smoke/Fire/ Carbon Monoxide Detectors & sprinkler systems
- Strategy 1.II: Immunization plans – Emergency & Scheduled
- Strategy 1.JJ: Pest Management – through Property Regulations
- Strategy 1.KK: Radon/Lead Mitigation
- Strategy 1.LL: Critical Infrastructure Protection from Terrorism
- Strategy 1.MM: Assessment Risk for Terrorism
- Strategy 1.NN: Manufactured Home Tie-Down Regulation/Ordinance
- Strategy 1.OO: Building Code Enforcement
- Strategy 1.PP: NFIP Participation
- Strategy 1.QQ: Establish Burning Restrictions
- Strategy 1.RR: Fireplace Maintenance
- Strategy 1.SS: Waste Disposal Enforcement
- Strategy 1.TT: Hazard Occurrence Data Collection & Reporting System

Objective 1.2 Strengthen partnerships and collaboration of jurisdictions, as well as, invite corporate partners, education systems, agencies and faith based representatives to participate in emergency planning and recovery.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Public Education & Outreach of Warnings – self protection
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Hazardous Materials Protection for Storm Shelters
- Strategy 1.E: Maintain Current Evacuation Plans
- Strategy 1.F: Mass Casualty Preparation
- Strategy 1.G: Weather Radios for Citizens
- Strategy 1.H: Surge Protection/Lightning Protection
- Strategy 1.I: Generators for Storm Shelters
- Strategy 1.J: Safe Room in School, Mobile Home Parks, Campgrounds, Fairgrounds, etc.

Objective 1.3 Utilize public funds/grant opportunities to protect critical facilities, public services & transportation entities.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Local Hazardous Materials Capabilities
- Strategy 1.C: Search & Rescue Training for First Responders
- Strategy 1.D: Replace or Install New Storm Warning System
- Strategy 1.E: Weather Radios for Citizens
- Strategy 1.F: Surge Protection/Lightning Protection
- Strategy 1.G: Burying Power Lines
- Strategy 1.H: Storm Water Management
- Strategy 1.I: Generators for Storm Shelters
- Strategy 1.J: New Storm Shelter/ Cooling & Heating Shelter Location
- Strategy 1.K: Snow Fences/Barriers – Natural & Artificial
- Strategy 1.L: Acquisition or Relocation of Buildings in Floodplain
- Strategy 1.M: Safe Room in School, Mobile Home Parks, Campgrounds, Fairgrounds, etc.
- Strategy 1.N: Secure Funding for removal of Vacant/ Collapsed Buildings
- Strategy 1.O: Rehabilitate Older Buildings
- Strategy 1.P: Evaluate/Maintain/Repair Area Dams
- Strategy 1.Q: Encourage Smoke/Fire/ Carbon Monoxide Detectors & sprinkler systems
- Strategy 1.R: Radon/Lead Mitigation
- Strategy 1.S: Critical Infrastructure Protection from Terrorism

2. Protect the health, safety & quality of life for Monroe County residents by minimizing the vulnerability of people and property in Monroe County

Objective 2.1 Ensure that property owners can maintain & improve their properties.

- Strategy 1.A: Weather Radios for Citizens
- Strategy 1.B: Surge Protection/Lightning Protection
- Strategy 1.C: Flood Proofing of Properties
- Strategy 1.D: Maintenance of Heating & Cooling Systems
- Strategy 1.E: Tree Management/Trimming
- Strategy 1.F: Flood Insurance by Homeowners
- Strategy 1.G: Rehabilitate Older Buildings
- Strategy 1.H: Encourage Smoke/Fire/ Carbon Monoxide Detectors & sprinkler systems

- Strategy 1.I: Pest Management – through Property Regulations
- Strategy 1.J: Radon/Lead Mitigation
- Strategy 1.K: Manufactured Home Tie-Down Regulation/Ordinance
- Strategy 1.L: Building Code Enforcement
- Strategy 1.M: Establish Burning Restrictions
- Strategy 1.N: Fireplace Maintenance
- Strategy 1.O: Waste Disposal Enforcement
- Strategy 1.P: Hazardous Material Disposal Program

Objective 2.2 Ensure that disaster recovery can proceed promptly following a disaster.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Public Education & Outreach of Warnings – self protection
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Local Hazardous Materials Capabilities
- Strategy 1.E: Hazardous Materials Protection for Storm Shelters
- Strategy 1.F: Maintain Current Evacuation Plans
- Strategy 1.G: Search & Rescue Training for First Responders
- Strategy 1.H: Mass Casualty Preparation
- Strategy 1.I: Temporary Debris Disposal Plan
- Strategy 1.J: Generators for Storm Shelters
- Strategy 1.K: Collection & Protection of Vital Records
- Strategy 1.L: New Storm Shelter/ Cooling & Heating Shelter Location
- Strategy 1.M: Water Storage Saving Plan – Reduce Usage
- Strategy 1.N: Immunization plans – Emergency & Scheduled
- Strategy 1.O: Waste Disposal Enforcement
- Strategy 1.P: Hazardous Material Disposal Program

Objective 2.3 Provide back-up energy supplies in all vital assets identified in this plan.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Search & Rescue Training for First Responders
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Local Hazardous Materials Capabilities
- Strategy 1.E: Surge Protection/Lightning Protection
- Strategy 1.F: Generators for Storm Shelters
- Strategy 1.G: New Storm Shelter/ Cooling & Heating Shelter Location
- Strategy 1.H: Tree Management/Trimming
- Strategy 1.I: Water Storage Saving Plan – Reduce Usage

Objective 2.4 Promote improving zoning codes, building codes, nuisance abatement, and health codes, especially in relation to areas with older buildings.

- Strategy 1.A: Digging Hotline/Pipeline Safety Regulations
- Strategy 1.B: Flood Proofing of Properties
- Strategy 1.C: Storm Water Management
- Strategy 1.D: Tree Management/Trimming
- Strategy 1.E: Acquisition or Relocation of Buildings in Floodplain
- Strategy 1.F: Secure Funding for removal of Vacant/ Collapsed Buildings
- Strategy 1.G: Rehabilitate Older Buildings
- Strategy 1.H: Water Storage Saving Plan – Reduce Usage
- Strategy 1.I: Pest Management – through Property Regulations
- Strategy 1.J: Radon/Lead Mitigation
- Strategy 1.K: Manufactured Home Tie-Down Regulation/Ordinance
- Strategy 1.L: Building Code Enforcement
- Strategy 1.M: Establish Burning Restrictions
- Strategy 1.N: Waste Disposal Enforcement

Strategy 1.O: Hazardous Material Disposal Program

Objective 2.5 Improve protection of residents & structures from the effects of flooding

- Strategy 1.A: Participation in Community Rating System for Flooding
- Strategy 1.B: Flood Proofing of Properties
- Strategy 1.C: Storm Water Management
- Strategy 1.D: Acquisition or Relocation of Buildings in Floodplain
- Strategy 1.E: Review Floodplain Management for Effectiveness
- Strategy 1.F: Maintain Current Evacuation Plans
- Strategy 1.G: Search & Rescue Training for First Responders
- Strategy 1.H: Flood Insurance by Homeowners
- Strategy 1.I: Temporary Debris Disposal Plan
- Strategy 1.J: Evaluate/Maintain/Repair Area Dams
- Strategy 1.K: NFIP Participation
- Strategy 1.L: Weather Radios for Citizens

3. Reduce losses due to natural and man-made hazards

Objective 3.1 Educate members of the county about hazards, how to be prepared, & shelter locations.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Public Education & Outreach of Warnings – self protection
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Search & Rescue Training for First Responders
- Strategy 1.E: Hazardous Materials Protection for Storm Shelters
- Strategy 1.F: Digging Hotline/Pipeline Safety Regulations
- Strategy 1.G: Search & Rescue Training for First Responders
- Strategy 1.H: Replace or Install New Storm Warning System
- Strategy 1.I: Weather Radios for Citizens
- Strategy 1.J: Surge Protection/Lightning Protection
- Strategy 1.K: Snow Fences/Barriers – Natural & Artificial
- Strategy 1.L: Collection & Protection of Vital Records
- Strategy 1.M: Safe Room in School, Mobile Home Parks, Campgrounds, Fairgrounds, etc.
- Strategy 1.N: Encourage Smoke/Fire/ Carbon Monoxide Detectors & sprinkler systems
- Strategy 1.O: Radon/Lead Mitigation
- Strategy 1.P: Establish Burning Restrictions
- Strategy 1.Q: Hazard Occurrence Data Collection & Reporting System

Objective 3.2 Review & upgrade warning systems and communications for sufficient coverage.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Public Education & Outreach of Warnings – self protection
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Replace or Install New Storm Warning System
- Strategy 1.E: Weather Radios for Citizens

Objective 3.3 Provide certified shelters/safe rooms

- Strategy 1.A: Hazardous Materials Protection for Storm Shelters
- Strategy 1.B: Search & Rescue Training for First Responders
- Strategy 1.C: Generators for Storm Shelters
- Strategy 1.D: New Storm Shelter/ Cooling & Heating Shelter Location
- Strategy 1.E: Safe Room in School, Mobile Home Parks, Campgrounds, Fairgrounds, etc.

Objective 3.4 Provide adequate training, equipment and exercises to train responding emergency personnel.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Search & Rescue Training for First Responders
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Local Hazardous Materials Capabilities
- Strategy 1.E: Mass Casualty Preparation
- Strategy 1.F: Immunization plans – Emergency & Scheduled
- Strategy 1.G: Critical Infrastructure Protection from Terrorism
- Strategy 1.H: Hazard Occurrence Data Collection & Reporting System

Objective 3.5 Maintain current & create new planning and exercises related to any terrorism event.

- Strategy 1.A: Continuity of Operations Plan – Post Disaster
- Strategy 1.B: Search & Rescue Training for First Responders
- Strategy 1.C: Community Emergency Response Team
- Strategy 1.D: Mass Casualty Preparation
- Strategy 1.E: Critical Infrastructure Protection from Terrorism
- Strategy 1.F: Assessment Risk for Terrorism

Objective 3.6 Identify and map the greatest risk potential of hazards in order to determine locations where improvements could be made.

- Strategy 1.A: Digging Hotline/Pipeline Safety Regulations
- Strategy 1.B: Expanded Hazard Area Mapping & Mine Location
- Strategy 1.C: Participation in Community Rating System for Flooding
- Strategy 1.D: Acquisition or Relocation of Buildings in Floodplain
- Strategy 1.E: Secure Funding for removal of Vacant/ Collapsed Buildings
- Strategy 1.F: Review Floodplain Management for Effectiveness
- Strategy 1.G: Rehabilitate Older Buildings
- Strategy 1.H: Evaluate/Maintain/Repair Area Dams
- Strategy 1.I: Pest Management – through Property Regulations

Appendix 19: Contact Information

Monroe County Board of Supervisors
Monroe County Courthouse
10 Benton Avenue E.
Albia, Iowa 52531
641-932-7706 - phone
Hours: Monday – Friday 8:00 am-4:30 pm

ADLM – Emergency Management
12307 Highway 5
Moravia, Iowa 52571
641-734-3223 - phone