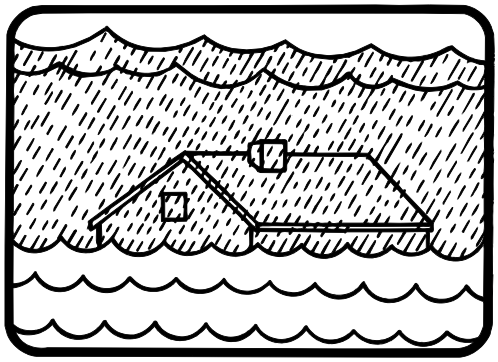
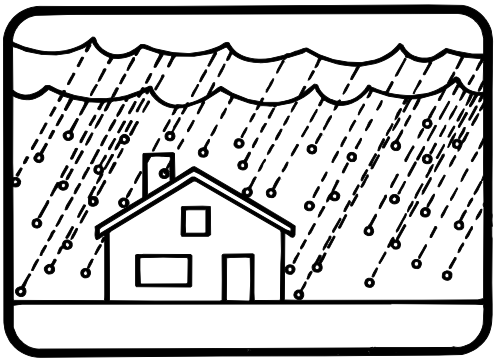
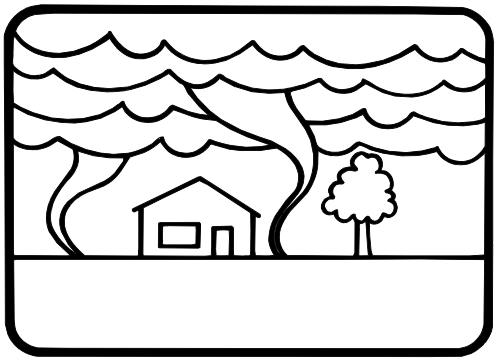
Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan







Rock Island County

Rock Island County

Multi-Jurisdictional

Local Hazard Mitigation Plan

Approved by FEMA April 6, 2009

This document was prepared by:

Rock Island County

Bi-State Regional Commission

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EXECUTIVE SUMMARY

The Rock Island County Multi-Jurisdiction Local Hazard Mitigation Plan was developed to meet the requirements of the Disaster Mitigation Act of 2000, also known as DMA 2000. DMA 2000 places increased emphasis on local mitigation planning. It requires local governments to develop and submit mitigation plans as a condition of receiving Pre-Disaster Mitigation (PDM) and Hazard Mitigation Grant Program (HMGP) project funds from the Federal Emergency Management Agency (FEMA). In addition to supporting ongoing mitigation actions, the Plan assesses the vulnerability of the planning area to all natural hazards and, in this initial plan, some human-caused hazards. The Plan identifies priority mitigation actions and establishes a process for implementation and maintenance of the Plan.

Rock Island County received a grant of Pre-Disaster Mitigation (PDM) planning funds to initiate the Local Hazard Mitigation Plan process. All 15 of the incorporated municipalities in Rock Island County agreed to participate in order to make it a county-wide multi-jurisdictional plan. The active participation of all these jurisdictions is recorded within the plan document. As each jurisdiction adopts the Plan, it receives the same eligibility to apply for and receive its own FEMA project funds as described above.

Requirements for FEMA approval of the plan document include adoption of the plan by the local governing body. Part Two documents the planning process used and public participation. The process included a Steering Committee made up of representatives of the participating jurisdictions who assisted in reviewing and refining plan draft sections. Each participating jurisdiction designated one or more primary contacts to receive information and to respond to requests for data pertinent to that jurisdiction. Although other representatives may have been called on to attend meetings or respond to data requests, the primary contact structure established some continuity in the flow of information for each jurisdiction. In addition, an extended Advisory Committee was invited to represent a broader range of community interests and expertise. A list of those who received mailings or attended meetings during the planning process is included as an appendix to the document. For public participation, Rock Island County made use of its website to keep the public informed as the plan was developed and drafted, including the schedule of Steering Committee meetings which were open to the public. In addition, a separate public notice was published on two separate occasions. Once was as a reminder of the Steering Committee meetings schedule and to solicit comments on plan document drafts. The second notice was for the public hearing prior to plan adoption by Rock Island County. Other opportunities to share the plan process with the public were used as identified or requested.

Part Three of the document deals with hazard analysis and risk assessment. Thirteen natural and two human-caused hazards were identified for the planning area and profiled. A scoring methodology was agreed to by the Steering Committee and was used as an objective means of establishing an initial priority ranking of the hazards. With review and consultation of the Steering Committee, the hazards identified as a first priority for the county-wide planning area as a whole include:

Severe Storms (Combining Wind, Hail, Thunderstorms, and Lightning)

Severe Winter Storms
Tornado
Extreme Heat
River Flood
Hazardous Materials Incident

As a requirement for multi-jurisdiction plan, each individual jurisdiction has its own risk assessment section in the plan. These highlight where local conditions differ from the county-wide planning area as a whole and reflect local hazard priorities.

Part Four of the document develops the mitigation strategy. First, local hazard mitigation goals and objectives were developed for the county-wide planning area. The Steering Committee identified mitigation actions to address a comprehensive range of categories including prevention, property protection, public education and awareness, natural resource protection, emergency services, and structural projects. Using FEMA guidance, all mitigation actions considered were analyzed under STAPLEE criteria. (STAPLEE is an acronym for Social, Technical, Administrative, Political, Legal, Economic, and Environmental criteria) Priority mitigation actions were selected to address first priority hazards with an emphasis on flood mitigation. In addition to the planning area mitigation actions, which are the responsibility of all participating jurisdictions as appropriate, each jurisdiction was required to develop at least one mitigation action specific to that jurisdiction's local priorities. The tables of priority mitigation actions provides justification for future funding requests and grant applications.

Part Five describes existing planning mechanisms that will assist participating jurisdictions in implementation of priority actions. This part also outlines procedures for monitoring, evaluating, and updating the Local Hazard Mitigation Plan. Based on federal requirements, once FEMA has reviewed and approved the plan document, it must be reviewed and updated every five years, or in the event of a federal Presidential Disaster Declaration, whichever comes first. Part Five provides for the schedule of continued plan maintenance and continued public input.

I. PREREQUISITES

ADOPTION BY THE LOCAL GOVERNING BODY

Rock Island County is the subgrantee for the Pre-Disaster Mitigation Program (PDM) grant agreement for planning through the Illinois Emergency Management Agency (IEMA). Rock Island County is, therefore, the lead jurisdiction in a multi-jurisdictional plan process for the County and its constituent municipalities. A copy of the final draft document was submitted to IEMA and FEMA in June 2008 for preliminary review. Certain additions were made to the document as recommended in the review process in order to meet the required criteria for a multi-jurisdictional hazard mitigation plan. Those additions and changes are incorporated into this document as printed. A letter of preliminary approval pending adoption of the plan document was received from FEMA dated September 25, 2008.

Rock Island County adopted the plan on January 21, 2009. A copy of the County's resolution of adoption follows. All 15 of the incorporated municipalities that participated in the multi-jurisdictional plan process had also adopted the plan by May 18, 2009. Further details about those adoptions are in a following section.

FEMA APPROVAL

With completion and submission of plan adoptions, FEMA approved the plan document in a letter dated April 6, 2009. This date establishes the five-year timeline for the next plan review and update, which will be due for adoption and FEMA review and approval by April 6, 2014. Individual participating jurisdictions receive their eligibility to apply for FEMA project funding pending the date they are listed in a FEMA approval letter. Copies of correspondence from FEMA regarding both preliminary and final approval of the plan are in Appendix I-1.

RESOLUTION

OF THE ROCK ISLAND COUNTY BOARD
IN SUPPORT OF THE APPROVAL AND ADOPTION OF THE ROCK ISLAND COUNTY PRE-DISASTER MITIGATION (PDM) PLAN

WHEREAS, Rock Island County applied for and was awarded funding from the Pre-disaster Mitigation (PDM) Program administered by the Federal Emergency Management Agency (FEMA) and through the Illinois Emergency management Agency (IEMA) for developing a multi-jurisdictional all-hazard pre-disaster mitigation plan; and

WHEREAS, Rock Island County, with assistance from the Bi-State regional Commission (BSRC), has gathered information and prepared the Pre-Disaster Mitigation Plan; and

WHEREAS, The Pre-Disaster Mitigation Plan has been prepared in accordance with FEMA requirements of 44 C.F.R. 201.6; and

WHEREAS, those municipalities within Rock Island County that have participated in the multi-jurisdictional planning process will each pass their own resolution to approve and adopt the Plan; and

WHEREAS, the Plan process has been subject to public review and comment during its development; and

WHEREAS, FEMA has reviewed the Plan and approved its content and structure for meeting the requirements of the Disaster Mitigation Act of 2000 (DMA2K) for eligible communities to receive Pre-Disaster Mitigation (PDM) and Hazard Mitigation Grant Program (HMGP) Funding; and

WHEREAS, Rock Island County has reviewed the Plan and affirms that the Plan will be updated no less than every five years.

NOW, THEREFORE, BE IT *RESOLVED* that the Rock Island County Board hereby approves and adopts the Pre-Disaster Mitigation Plan and resolves to execute the actions within the plan.

By: Raymond D. Nees
Raymond D. Nees; Secretary
Rock Island County Zoning Board of Appeals

ADOPTED THIS 21st DAY OF JANUARY 2009 BY THE ROCK ISLAND COUNTY BOARD.

James E. Bohnsack
James E. Bohnsack, County Board Chairman ATTEST:

Richard "Dick" Leibovitz, County Clerk

MULTI-JURISDICTIONAL PLAN ADOPTION

The following fifteen incorporated municipalities have participated in the Local Hazard Mitigation Plan process with Rock Island County in order to receive individual approval of the plan. A draft resolution from FEMA Multi-Jurisdictional Mitigation Planning guidance was provided as a sample for municipalities as shown in Appendix I-2. Each jurisdiction that has passed a resolution of adoption is shown below. A copy of each signed resolution is included in an Appendix I-3.

Participating Jurisdiction	Date of Plan Adoption
Village of Andalusia	February 2, 2009
Village of Carbon Cliff	January 20, 2009
Village of Coal Valley	February 18, 2009
Village of Cordova	March 19, 2009
City of East Moline	May 18, 2009
Village of Hampton	November 17, 2008
Village of Hillsdale	November 17, 2008
Village of Milan	March 2, 2009
City of Moline	February 24, 2009
Village of Oak Grove	November 4, 2008
Village of Port Byron	September 8, 2008
Village of Rapids City	November 11, 2008
Village of Reynolds	April 3, 2009
City of Rock Island	November 11, 2008
City of Silvis	December 8, 2008

MULTI-JURISDICTIONAL PLANNING PARTICIPATION

In addition to Rock Island County, the participating jurisdictions took part in the planning process as more fully described in the Planning Process section. Each jurisdiction designated a primary contact and assigned staff to attend meetings as part of the core steering committee. The steering committee was responsible for directing staff research, reviewing document drafts, and approving the plan process and final document. Attendance at meetings for each jurisdiction is recorded in Appendix II-2. In addition to attendance at meetings, local jurisdictions responded to requests for data and provided information when conditions in an individual jurisdiction varied from the entire county-wide planning area. In particular, each participating jurisdiction provided individualized information in the following areas:

- Plan Participation
- Risk Assessment
- Mitigation Actions

Individual jurisdiction participation is noted with each section of the plan as appropriate.

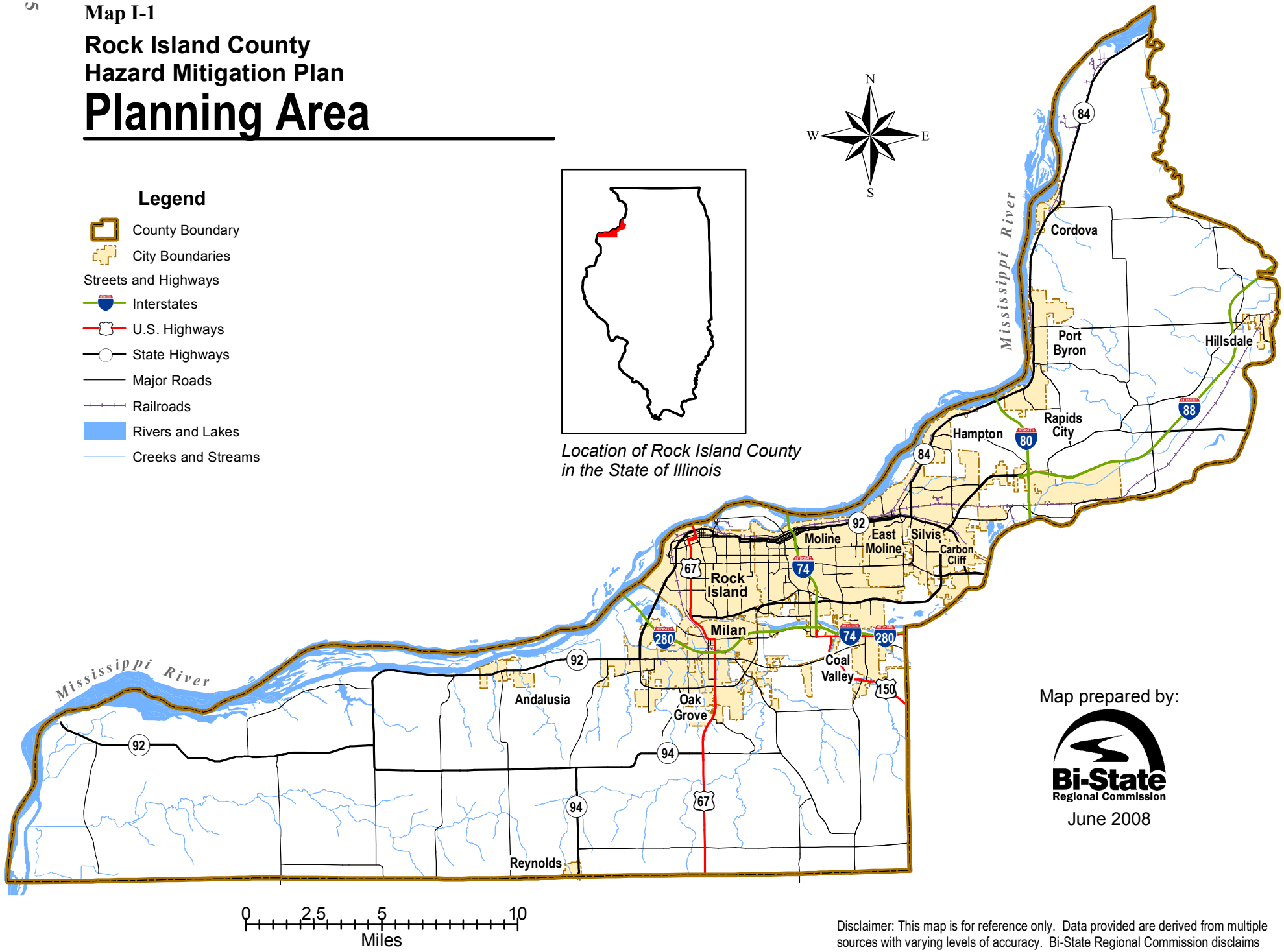
PLANNING AREA LOCATION MAP

The following Map I-1 shows features of the planning area of Rock Island County including the corporate limits of the participating jurisdictions. This serves as a base map for hazard profiling and analysis. Major roads and highways are shown as well as railroad tracks. Water features, such as rivers, lakes, and streams are included with major features labeled.

Map I-1

Rock Island County Hazard Mitigation Plan

Planning Area



Map prepared by:

Bi-State Regional Commission

June 2008

Disclaimer: This map is for reference only. Data provided are derived from multiple sources with varying levels of accuracy. Bi-State Regional Commission disclaims all responsibility for the accuracy or completeness of the data shown hereon.

II. PLANNING PROCESS

Rock Island County was awarded a grant from the Federal Emergency Management Agency (FEMA) to develop a Pre-Disaster Mitigation (PDM) plan. The grant is administered through the Illinois Emergency Management Agency (IEMA). The planning grant agreement between Rock Island County and IEMA was fully executed on March 30, 2006. In May 2006, Rock Island County contracted with Bi-State Regional Commission to guide the preparation of a Local Hazard Mitigation Plan that meets the requirements of the Disaster Mitigation Act of 2000 under the Pre-Disaster Mitigation (PDM) program. The plan would be multi-jurisdictional, including as many municipalities within Rock Island County as agreed to participate.

Rock Island County designated project management to Mr. Ray Nees, Director of Zoning, who would serve as the principal contact person for Bi-State staff. Initial contact with constituent municipalities in Rock Island County regarding the grant planning participation was carried out through the Zoning Office. Core planning staff is listed in Appendix II-1. While Rock Island County municipalities were being contacted about their participation, Bi-State staff coordinated with County Zoning staff to develop the plan process. Bi-State staff was primarily responsible for research and development of the plan document with consultation and review from County Zoning staff.

It was determined that the municipalities that agreed to participate in the multi-jurisdictional plan would designate a primary contact for all correspondence. This would follow the Direct Representation Model as suggested in FEMA guidance for multi-jurisdictional plans. This primary contact, or another designated official or staff person, would attend planning meetings and form the core Steering Committee for the plan. The Steering Committee would be responsible for guiding decisions about the contents of the plan in relation to FEMA guidance and for reviewing staff-prepared documents. Since Steering Committee members would also be representing communities looking for individual FEMA approval of the multi-jurisdictional plan, they would also be responsible for noting any variation from the overall planning area for their community.

After a period of making individual contacts, all 15 of the incorporated municipalities in Rock Island County agreed to participate in the multi-jurisdictional planning process. In addition to Rock Island County, municipal jurisdictions participating include:

Village of Andalusia
Village of Carbon Cliff
Village of Coal Valley
Village of Cordova
City of East Moline
Village of Hampton
Village of Hillsdale
Village of Milan
City of Moline
Village of Oak Grove

Village of Port Byron
Village of Rapids City
Village of Reynolds
City of Rock Island
City of Silvis

Primary contacts for all communities but one have e-mail addresses, which made correspondence and transmission of documents relatively fast and easy. A list of primary contacts and other community representatives who attended meetings is listed in Appendix II-1. A record of attendance at planning meetings through May 2008 is shown in Appendix II-2.

The first meeting of the Steering Committee was held on October 18, 2006. Since this was an introductory meeting for the municipal representatives, they were provided with the same general handout developed for the Homeland Security Forum. (See Appendix II-6) In addition, staff presented a PowerPoint outline of the PDM plan requirements as outlined in FEMA guidance noting multi-jurisdictional requirements for individual participating communities in particular. This introduction included reference to the 2004 Illinois Natural Hazard Mitigation Plan and the natural hazards that might be considered in the hazard assessment portion of the plan. A copy of the PowerPoint presentation is included as Appendix II-3. A schedule of Steering Committee meetings every second month was agreed upon and posted to the Rock Island County website PDM page.

In addition to the Steering Committee, a broader list of community groups and agencies was developed by staff using FEMA guidance to add more participation and expertise to the planning process. Representatives would be invited to participate in the planning process in an advisory capacity. They would be available to staff as resources in their respective areas of interest and provide an additional layer of review in development of document drafts. The draft list of contacts was brought to the Steering Committee at its April 4, 2007 meeting for review. Steering Committee members made suggestions and additional contacts. An invitation list of contacts was further developed. Since the regularly scheduled May 23, 2007 meeting was cancelled due to staff and scheduling conflicts, the invitation to the Advisory Group went out in advance of the July 25, 2007 meeting. A copy of that invitation letter is included as Appendix II-4. A list of agencies contacted, indicating those who actively participated, is included as Appendix II-5. Media contacts were included in the Advisory Group invitation, which provided another opportunity for public information and participation.

PUBLIC PARTICIPATION

Early in the planning process, there was an opportunity to begin introducing the plan project to the general public and to the business sector in particular. Bi-State staff was able to coordinate with planners of a Homeland Security Contracting Forum held Tuesday, May 23, 2006 at The Mark of the Quad Cities in Moline, Illinois. Staff was able to secure display table space and provided information about hazard and flood mitigation and about the PDM planning project. The forum was sponsored by the College of DuPage Homeland Security Procurement Technical Assistance Center, Black Hawk College Procurement Technical Assistance Center, and the Homeland Security Market Development Bureau. While the primary agenda was Homeland

Security contracting and business planning, there was a session on Pre-Disaster Training and Planning for businesses. This provided an opportunity to begin a process of public information and outreach as the planning process was being developed. Bi-State staff developed an informational sheet to hand out at the display table that described the Rock Island County Local Hazard Mitigation Plan project. A copy of that handout in included as Appendix II-6.

It was determined early on to make the planning process open to public participation. Rock Island County would make use of its website and have a section for the Local Hazard Mitigation Plan process. This section contains a general explanation of the planning process, the schedule of planning meetings and related documents, and links to other hazard mitigation sources. As plan document drafts were developed and reviewed, these were also posted to this section of the website. Because of little public attendance at planning meetings over the duration of the planning process, a public notice was published March 20, 2008 to assure that the public was notified as plan document drafts were developed. A formal public hearing on the plan document was held January 20, 2009, prior to Rock Island County's adoption. The City of Moline also published notice of its public hearing prior to its adoption

A copy of the notices and certificates of publication for these meetings are included as Appendix II-7. A copy of the attendance record and of formal comments received at the pre-adoption hearing are also included with Appendix II-7.

REVIEW OF EXISTING PLANS, STUDIES, REPORTS, AND TECHNICAL INFORMATION

In addition to the persons included in the planning process, many written resources, existing plans, studies, reports and technical information were reviewed and incorporated into the plan process as appropriate. Existing Planning Mechanisms were inventoried and reviewed for each participating jurisdiction. These are summarized in Appendix II-8. Technical resources used to develop the hazard profiles are referenced in Appendix III-2, but general references of note include:

- FEMA Local Hazard Mitigation Plan Review Crosswalk
- FEMA State and Local Mitigation Planning How-To Guides
- 2004 Illinois Natural Hazard Mitigation Plan (Updated in 2007)

Bi-State staff had previously prepared a Local Hazard Mitigation Plan for the City of Davenport, Iowa. Because Davenport is a neighboring community in the bi-state region, its plan document was also used as a resource in this planning process. By extension, the State of Iowa Hazard Mitigation Plan, August, 2004 and the Iowa Hazard Analysis and Risk Assessment documents were available for reference, particularly in providing a format for presenting hazard profiles.

Planning and other documents from the Rock Island County Emergency Services and Disaster Agency (ESDA) were not made available for general review because of security considerations. However, the ESDA director did attend meetings as part of the Steering Committee and was available as a resource to coordinate and review the Local Hazard Mitigation Plan process in relation to ESDA plans and documents.

III. RISK ASSESSMENT

IDENTIFYING HAZARDS

At the first meeting of the Steering Committee, participants were introduced to a list of natural hazards from FEMA guidance for consideration and further examination. The following list of natural hazards comes from FEMA State and Local Mitigation Planning, How-To Guide, "Understanding Your Risks: Identifying Hazards and Estimating Losses" FEMA 386-2, August 2001. Hazards marked with an asterisk (*) were also examined in the 2004 Illinois Natural Hazard Mitigation Plan.

Avalanche
Coastal Storm
Dam Failure
Drought*
Earthquake*
Expansive Soils
Extreme Heat*
Flood*
Hailstorm
Hurricane
Land Subsidence
Severe Winter Storm*
Tornado*
Tsunami
Volcano
Wildfire
Windstorm

Hazards of Avalanche, Coastal Storm, Hurricane, Tsunami, and Volcano were eliminated from further consideration because of local geography and weather conditions. It should be noted that the Hailstorm and Windstorm hazards were combined into a category of Severe Storm in the 2004 Illinois Natural Hazard Mitigation Plan. The Steering Committee selected this same combined natural hazard category for further examination.

In addition to the natural hazards, which are required for consideration in the Pre-Disaster Mitigation Plan, there are other human-caused hazards recommended for examination. These human-caused or "man-made" hazards are distinct from natural hazards in that they originate from human activity. What may be referred to as "technological hazards" includes those that can arise from activities such as manufacture, transportation, storage, or use of hazardous materials. Planning guidance suggests that it be assumed that technological emergencies are accidental and that their consequences are unintended. Intentional disruptions or acts of terrorism are considered outside of the scope of mitigation planning, where the hazard itself and its consequences are more relevant than the person causing the hazard.

Examples of human-caused hazards in FEMA guidance and in the State of Iowa and City of Davenport hazard mitigation plans were examined. Based on the recommendations of the

Steering Committee, the hazards of Hazardous Materials and Radiological Incident were selected for more detailed hazard profiles. The Steering Committee, with knowledge of local conditions and previous hazard events, also differentiated between River Flood and Flash Flood. As a result of these considerations, the Steering Committee identified the following hazards for more in-depth profiling.

- Dam Failure
- Drought
- Earthquake
- Expansive Soils
- Extreme Heat
- Flash Flood
- Land Subsidence
- Landslide
- River Flood
- Severe Storms (Combining Wind/Hail/Thunderstorms/Lightning)
- Severe Winter Storms
- Tornado
- Wildfire
- Hazardous Materials
- Radiological Incident

PROFILING HAZARDS

The Steering Committee selected to use the format for profiling hazards outlined in *Iowa Hazard Analysis and Risk Assessment: 2003 Local Guidance*. This format provides a worksheet that combines the required elements of hazard profiling for each hazard. The required elements for each hazard in FEMA guidance include location and geographic extent, previous occurrences, probability of future events, vulnerability, and impact. The worksheet format had also been used by the neighboring City of Davenport, Iowa in its recently approved Local Hazard Mitigation Plan. The worksheet provides space for a narrative description of the following categories:

- Definition (of the hazard)
- Description (of the hazard as it may occur in the planning area, including location)
- Historical Occurrence
- Probability (of future events)
- Vulnerability (of planning area to future events)
- Maximum Geographic Extent
- Severity (of impacts)
- Speed of Onset

The hazard profiles are provided for the entire Rock Island County planning area as a whole. As part of the multi-jurisdictional participation of this plan, additions or exceptions from the whole planning area are noted for individual jurisdictions as reported. These exceptions and additions are repeated in a later Multi-Jurisdiction Risk Assessment section for each individual participating jurisdiction to the extent available and reported.

PRIORITIZING HAZARDS

Following review of the hazard profiles, the Steering Committee considered several methodologies for evaluating the severity of the identified hazards for further consideration, ranking and priority, including the 2004 Illinois Natural Hazard Mitigation Plan. The method selected corresponds to the Hazard Profile Worksheets and comes from the *Iowa Hazard Analysis and Risk Assessment: 2003 Local Guidance.* This method, which is described in more detail in Appendix III-1, uses a 9-point scale to score each of the six categories in the hazard profile worksheet. The scale of one (1) through nine (9) is proposed in this method as a best option for comparison of vastly different types of hazards. This provides a quantifiable system of analyzing the hazards within a flexible range. Although the numerical scoring system may seem somewhat artificial, it does provide a consistent basis of analysis in each of the profile categories when a number of different participants are scoring.

Representatives of the participating jurisdictions on the Steering Committee were asked score all of the profiled hazards from the perspective of their own communities. The total scores for each hazard as reported participating jurisdictions were recorded in the following table. The five highest scoring hazards for each jurisdiction are shaded in Table III-1. An individual assessment for each participating jurisdiction based on hazard scoring and community profile information is given in the Multi-Jurisdictional Risk Assessment in a later section.

Table III-1
Hazard Profile Scoring Matrix

Participants	Natural Hazards												
	Dam Failure	Drought	Earthquake	Expansive Soils	Extreme Heat	Flash Flood	Land Subsidence	Landslide	River Flood	Severe Storms (Wind/Rain/ Lightening/etc)	Severe Winter Storms	Tornado	Wildfire
Rock Island County	20	27	21	6	26	34	12	13	27	39	43	24	18
Andalusia	29	27	19	14	27	18	12	13	36	39	22	34	8
Carbon Cliff	16	17	27	7	30	37	30	14	35	35	38	36	15
Coal Valley	6	16	22	14	18	16	14	14	12	20	20	26	11
Cordova	6	6	24	6	26	6	6	6	17	26	26	19	6
East Moline	8	12	7	8	21	18	11	10	33	40	40	35	7
Hampton	6	15	10	6	26	29	7	17	19	22	17	23	0
Hillsdale	6	10	16	6	6	18	12	12	40	28	37	20	14
Milan	13	13	22	6	31	10	12	6	14	37	32	28	24
Moline	14	15	17	13	39	42	13	14	35	42	45	30	37
Oak Grove	8	30	17	23	34	14	14	13	13	37	41	40	19
Port Byron	6	19	23	6	25	24	8	8	25	40	19	24	27
Rapids City	0	9	14	6	22	15	5	6	21	30	25	27	12
Reynolds	8	20	14	6	23	6	6	6	7	34	32	33	30
Rock Island	16	13	24	7	20	20	9	9	30	37	32	26	23
Silvis	18	23	21	13	25	31	16	14	23	39	37	29	19
Average Total Score	10.59	16.00	17.53	8.65	23.47	19.88	11.00	10.29	22.76	32.06	29.76	26.71	15.88

Participants	Man-made Accidental Hazards		
	Hazardous Materials	Radiological Incident	
Rock Island County	19	33	
Andalusia	10	20	
Carbon Cliff	12	15	
Coal Valley	20	16	
Cordova	34	41	
East Moline	20	11	
Hampton	21	6	
Hillsdale	36	36	
Milan	23	24	
Moline	43	21	
Oak Grove	17	18	
Port Byron	23	19	
Rapids City	20	6	
Reynolds	19	8	
Rock Island	31	23	
Silvis	39	19	
Average Total Score	22.76	18.59	

The total scores for each hazard as reported by the participating jurisdictions were averaged to yield a score for that hazard for the county-wide planning area. Using a 9-point scale for each of the six categories makes a highest possible hazard score of 54 (most severe in each category). The county-wide average scores are repeated from the Table III- to the Hazard Profile Worksheet Total Score. Because the average for the county-wide area was calculated from a hazard total, the scoring of individual profile categories does not tabulate to the same averaged total. In order to compensate for this on the hazard profile worksheets, the average score for each category is designated as low (1-3 points), medium (4-6 points), or high (7-9 points).

With the numerical scoring system, the relative ranking of hazard scores seems to stimulate more discussion and analysis than individual hazard scores. The average total score for each hazard was calculated to give a relative ranking of hazards for the whole county-wide planning area. With 15 hazards to score, the hazard scores were initially divided into thirds, reflecting a relative high, medium and low ranking.

Rank order based on scoring from highest to lowest

		County-wide Average Score
First Third:		
1	Severe Storms (Combining Wind/Hail/ Thunderstorms/Lightning)	32.06
2	Severe Winter Storms	29.76
3	Tornado	26.71
4	Extreme Heat	23.47
5	River Flood	22.76 (tied)
6	Hazardous Materials Incident	22.76 (tied)

	County-wide Average Score
Second Third:	
7 Flash Flood	19.88
8 Radiological Incident	18.59
9 Earthquake	17.53
10 Drought	16.00
11 Wildfire	15.88
Last Third:	
12 Land Subsidence	11.00
13 Landslide	10.29
14 Dam Failure	10.59
15 Expansive Soils	8.65

The results of the hazard scoring and initial numerical ranking were presented to the Steering Committee for review and discussion. General descriptions of priority groupings were considered and the following definitions were accepted. **First Priority**: These hazards have a higher likelihood of occurrence and unacceptable consequences. They are candidates for immediate focus in mitigation planning and for eliminating unacceptable risk factors. **Second Priority:** These are hazards that should be addressed, but which have a lower priority or are longer term in focus. For the Second Priority emphasis is on risk reduction. **Third Priority**: These are hazards which have a less significant level of risk, for which baseline protection is adequate, or which are considered to be largely beyond the scope of local mitigation efforts.

Using these priority definitions and local knowledge of hazard occurrence and risk, the numerical rankings were adjusted to come up with the following priority rankings.

Adjusted ranking based on priority definitions

First Priority:
Severe Storms (Combining Wind/Hail/Thunderstorms/Lightning)
Severe Winter Storms
Tornado
Extreme Heat
River Flood
Hazardous Materials Incident

Second Priority:
Flash Flood
Drought
Radiological Incident

Third Priority
Landslide
Dam Failure
Expansive soils
Land Subsidence
Earthquake
Wildfire

These final priority rankings are also repeated on the hazard profile worksheets.

Although Earthquake Hazard was ranked in sixth place by score, there was discussion about this event being a low priority because of the low levels of severity in the planning area. The Steering Committee agreed to move Earthquake Hazard to a third priority position. Wildfire was also move to a Third Priority position after discussion of limited vulnerability and occurrence.

Representatives from Hillsdale and Cordova especially noted their concerns with Hazardous Materials because of trains going through their towns carrying unknown hazardous materials. Cordova noted the 3-M manufacturing and the Exelon Nuclear Power Plant in that community. With further discussion of radiological and other hazardous chemicals either sited or transported through Rock Island County, it was decided to move Hazardous Materials to a first priority hazard position. As a result of that same discussion, the Radiological Incident hazard was moved up from its numerical rank order to a Second Priority position.

The Flash Flood hazard was discussed as a more localized and intermittent event. There were comments about sudden flooding being more likely from ice jams on the Rock River and other tributaries than from stormwater runoff. As a result of this discussion, it was agreed to keep Flash Flood as a second priority hazard.

Since this is an initial pre-disaster mitigation plan, it was agreed by the Steering Committee to focus on First Priority Hazards in developing the mitigation strategy for the county-wide planning area as a whole. However, individual participating jurisdictions may have scored the hazards differently from the planning area averages based on local knowledge of community characteristics and vulnerabilities. This will be analyzed further in the Multi-Jurisdictional Assessment section.

HAZARD PROFILES

The fifteen identified hazards are profiled in detail here in the previously described format. Thirteen are natural hazards and are presented in alphabetical order. The remaining two hazards, Hazardous Materials and Radiological Incident, are classified as human-caused hazards resulting from manufacturing or technological activity. The hazard profiles also summarize the scoring and ranking process previously described. Additional material regarding flooding is included to address requirements for Flood Mitigation Assistance (FMA) approval of the plan. Resources used to develop the profiles are included as a separate Appendix III-2.

Dam or Levee Failure		
Definition	A break in, or imposed threat from, any water retention fixture which may endanger populations and property downstream of the containment area.	
Description	Dams are constructed for a variety of uses, including flood control, erosion control, water supply impoundment, hydroelectric power generation, and recreation. Flooding, operating error, poor construction, lack of maintenance, damage due to burrowing animals, vandalism, terrorism, and earthquakes can cause dam failure. The National Inventory of Dams (NID) maintained by the U.S. Army Corps of Engineers lists 14 dams located in Rock Island County. There are 5 dams on the Mississippi that are federally owned and maintained, 2 dams are owned and maintained by the Illinois Department of Natural Resources, one dam is owned and maintained by the Rock Island County Forest Preserve (Lake George), and six dams are privately owned and maintained. The Illinois Department of Natural Resources also tracks all dams in the state that are either hazardous or pose a potential risk to be hazardous to the general public. In addition to the dams, there are a number of flood protection levees in Rock Island County built by different agencies for different purposes: federal, agricultural, or residential/urban. The U.S. Army Corps of Engineers (USACE) has a record of levees within the Mississippi River watershed, but has direct responsibility for only those that are federally constructed and federally maintained.	**Score**
Historical Occurrence	There is no risk assessment documented for dam failures in the*2004 Illinois Natural Hazard Mitigation Plan*. There is been no historic record of dam failures at the locations listed for Rock Island County. During the record floods of 1993, levees within Rock Island County did hold and prevent further damage, but with added costs for pumping and repair. The problem with the 1993 flood was that many of the levees in need of repair were not USACE certified and, therefore, not eligible for federal assistance.	Low
Probability	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 more than 50 years old (the design life of a dam). The Illinois Hazard Mitigation Plan does not determine nor does it evaluate the probability of dam failure in the state. The five federal dams on the Mississippi River listed in the National Inventory of Dams (NID) for Rock Island County include the USACE Lock and Dams 14, 15 and 16 as well as the Arsenal and Moline Power dams. The federal dams are listed in the category of Significant Hazard by USACE. Generally, the flood wave caused by a catastrophic breach of a navigation dam would be contained in the existing floodway channel, and there would not be extensive flooding or major loss of life. The one private dam at Hidden Hills Lake listed in the NID as a High hazard has been removed within the last ten years. With removal of this dam, all others listed for Rock Island County are categorized as Low hazard dams.	Low
Vulnerability	People and property along streams are most vulnerable. Facilities and lives considerable distances from the actual impoundment are not immune from the hazard. Depending on the size and volume of the impoundment as well as the channel characteristics of the related stream or river, a flash flood can travel a significant distance. In addition to the dams included in the national inventory, there are additional small farm ponds with small dam structures that do not pose a substantial hazard in the county.	Low

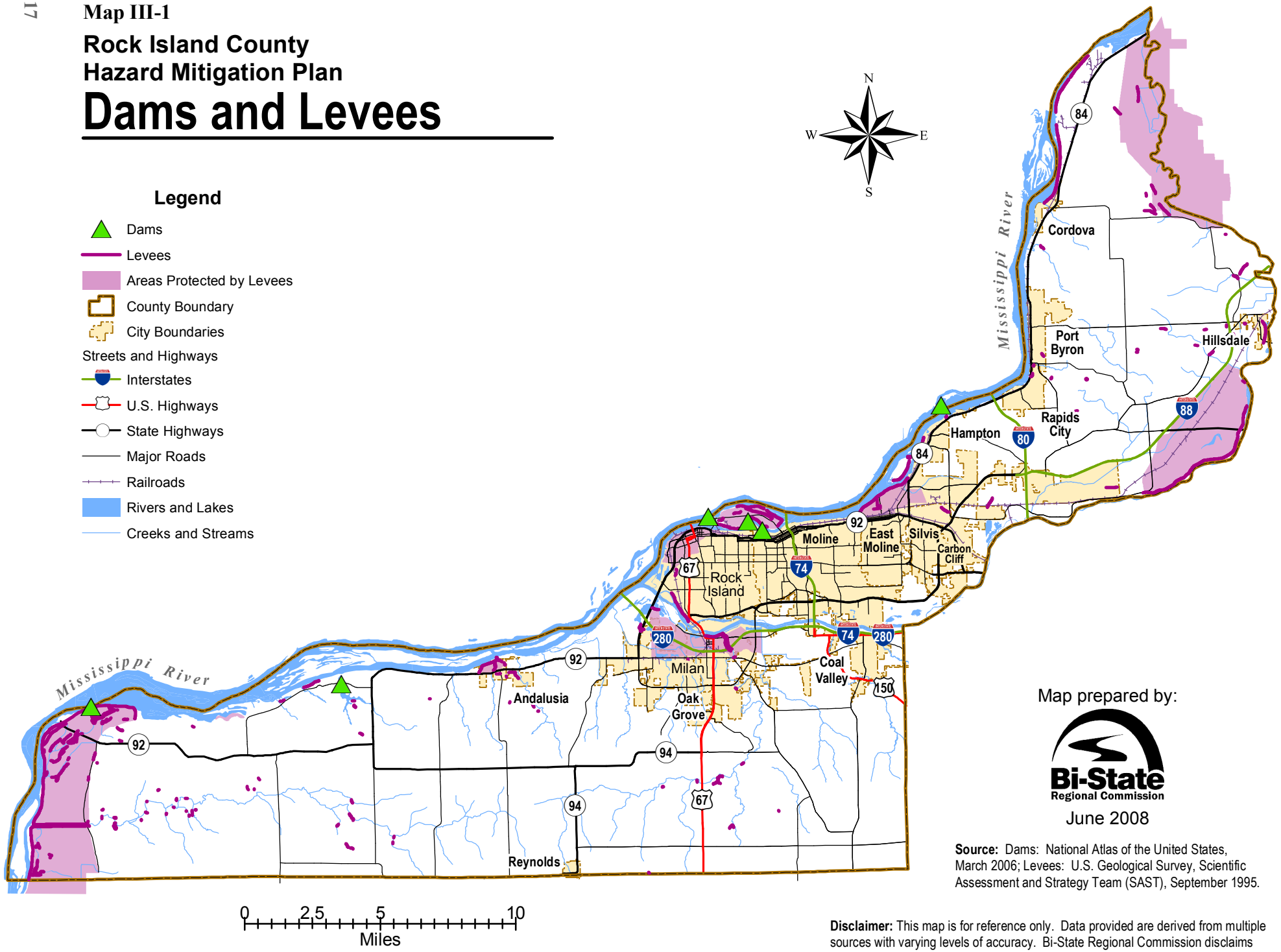
Maximum Geographic Extent	The area impacted following a dam failure would be downstream and usually limited to those areas in and near the floodplain. People and property outside the floodplain could also be impacted depending on the proximity to the dam and the height above the normal stream level. The Rock Island District USACE lists the following levees in Rock Island County: ***Federally constructed/Locally maintained*** --Drury Drainage District (agricultural) --East Moline LFPP (residential) --Meredosia Drainage and Levee District (agricultural also in Whiteside County) --Milan LFPP (residential) --Rock Island LFPP (residential) --Subdistrict #1 of Drainage Union #1 (agricultural also in Mercer County) **Certified Non-Federal Levee** --Zuma-Canoe Special Service District (agricultural/residential) **Non-Federal Levee** --Andalusia (agricultural/residential) Other (not full structural levees that requested assistance in 1993) --Rapids City (agricultural) --Moline (agricultural) --Hampton (agricultural) See Map III-1	Low
Severity of Impacts to:	A) *Health and safety of persons in affected areas*. Minimal risk. B) *Health and safety of response personnel.* Minimal risk. C) *Continuity of operations*. Minimal risk D) *Property, facilities, and infrastructure.* Very limited risk to critical facilities. Depends upon the downstream property, facilities, and infrastructure. For the federal dams listed, failure would primarily result in the loss of navigation pool and disruption to the navigation industry. E) *Delivery of services.* Due to locations in the county and the low risk of hazard, would not be severely impacted. F) *Environment.* Scouring and erosion could have immediate impact should a dam fail. G) *Economic and financial.* Crop flooding, severe scouring and erosion around bridges could take place (similar to flash flooding) and could have agricultural and economic impacts if damage would be extensive. H) *Regulatory and contractual obligations*. None directly. I) *Reputation of entity.* State inspection and dam safety records must be kept up to date and current.	Low
Speed of Onset	A dam or levee failure can be immediate and catastrophic leaving little or no time to warn those downstream of the imminent hazard. With maintenance and monitoring, weak areas and possible failure points can be identified allowing time for evacuation and securing of the dam. Most dams and levees are only inspected periodically thus allowing problems to go undetected until a failure occurs.	Low
	County-wide average score	**10.59**

Third Priority Ranking

Map III-1

Rock Island County Hazard Mitigation Plan

Dams and Levees



Map prepared by:

Bi-State Regional Commission

June 2008

Source: Dams: National Atlas of the United States, March 2006; Levees: U.S. Geological Survey, Scientific Assessment and Strategy Team (SAST), September 1995.

Disclaimer: This map is for reference only. Data provided are derived from multiple sources with varying levels of accuracy. Bi-State Regional Commission disclaims all responsibility for the accuracy or completeness of the data shown hereon.

Drought

		Score
Definition	A period of prolonged lack of precipitation for weeks, months and/or years at a time that produces severe dry conditions.	
Description	There are three types of drought conditions; 1) Meteorological drought, which refers to precipitation deficiency; 2) hydrological drought, which refers to declining surface an d groundwater supplies; and 3) 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. One measure of the magnitude of drought conditions is provided by the Palmer Drought Severity Index (PDSI), which provides a scale of differences from standard soil moisture conditions as follows:	
Historical Occurrence	The most recent drought event affecting Rock Island County began in June 2005 and continued through March 2006. The drought became severe to extreme in Northwest Illinois through July and into August, equaling or exceeded the dry conditions during the drought of 1988. By late July, much of the state was declared an agricultural disaster area. Agricultural yield reductions of 25-30% were reported along the Mississippi River Valley.	Low
Probability	Drought is part of normal climate fluctuations. Climatic variability can bring dry conditions to the region for up to years at a time. According to the National Drought Mitigation Center, periods of severe to extreme drought in the Upper Mississippi Basin occur cyclically, about once every ten years. Research and observations of the El Nino/La Nina climatic events are resulting in more predictable climatic forecasts. As noted under "Historical Occurrence" above, the most recent drought conditions for Rock Island County had improved by March 2006. Currently, there is no prediction for drought in the area according to the U.S. Seasonal Drought Outlook. (See Figure III-1) Classification for the area that includes Rock Island County according to the Palmer Drought Severity Index (PDSI) as described above is 2.0-2.99 or moderately wet.	Low
Vulnerability	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 drinking water from surface and ground water sources, a prolonged severe drought may impact all citizens if there was a dramatic drop in the stream flow coupled with the drop in the water table. Fire suppression can also become a problem due to the dryness of the vegetation and possible lack of water.	Low

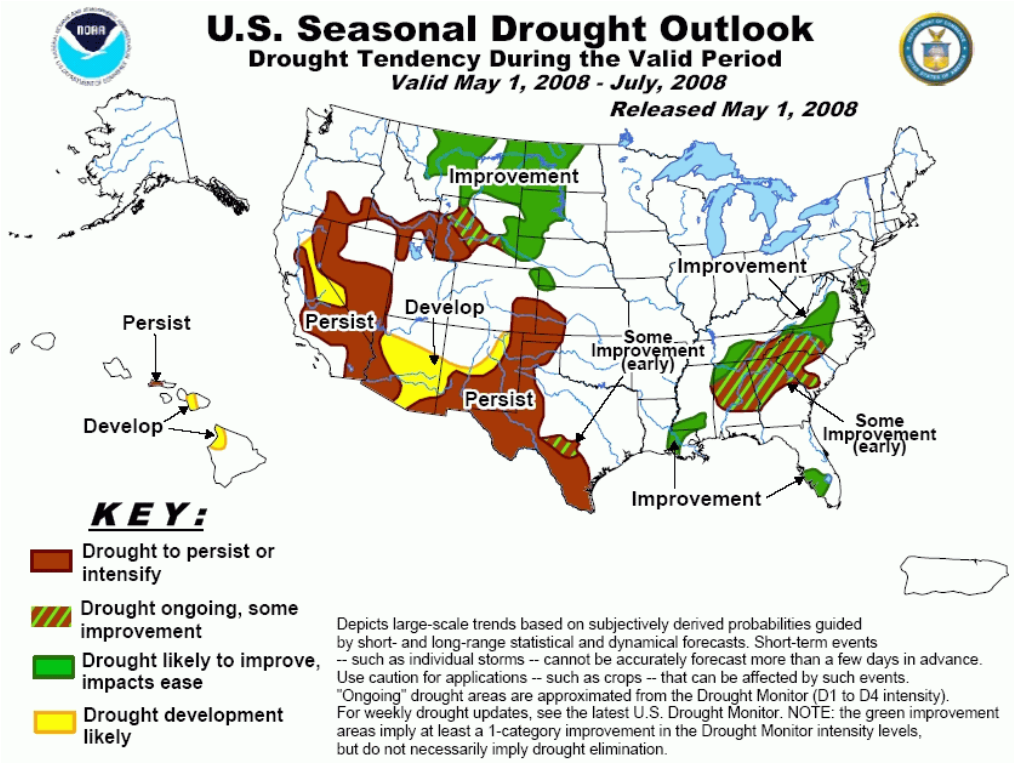
Palmer Classifications

4.0 or more	Extremely
3.0 to 3.99	Very wet
2.0 to 2.99	Moderately wet
1.0 to 1.99	Slightly wet
0.5 to 0.99	Incipient wet spell
0.49 to -0.49	Near normal
-0.5 to -0.99	Mild drought
-1.0 to -1.99	Mild drought
-2.0 to -2.99	Moderate drought
-3.0 to -3.99	Severe drought
-4.0 or less	Extreme drought

Maximum Geographic Extent	A major drought would likely affect most of Illinois if not the Midwest as a whole. Because of the dependence on precipitation and water, the agricultural community would be most adversely impacted, but the entire state would likely feel at least some impact.	Medium
Severity of Impacts to:	A) *Health and safety of persons in the affected area.* Few if any health impacts to people in the affected area because of secondary sources of water. Drought in the U.S. seldom results directly in the loss of life. Health impacts would be more significant on livestock without auxiliary water supplies. B) *Health and safety of response personnel.* Response personnel are at minimal risk. C) *Continuity of operations.* Not affected. D) *Property, facilities and infrastructure.* 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. E) *Delivery of services.* Impacts would be limited to source water delivery and those services that consume large amounts of water. F) *Environment.* 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 streamflows (fish and aquatic vegetation). G) *Economic and financial condition.* Drought can lead to large and damaging impacts to 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 placed on manufacturers that use large amounts of water, the local economy can be impacted that way as well. H) *Regulatory and contractual obligations.* Regulations in the agricultural sector can be and are often adjusted to provide some lenience for adverse conditions for livestock and crop loss. I) *Reputation of the entity.* Drought is a naturally occurring hazard and is "out of the hands" of local and state officials. Local jurisdictions can have their reputation damaged if they do not provide source water to residents or respond in a satisfactory manner to provide an alternative supply.	Low
Speed of Onset	Drought warning is based on a complex interaction of many different variables, water uses, and consumer needs. Drought warning is directly related to the ability to predict the occurrence of atmospheric conditions that produce the physical aspects of drought, primarily precipitation and temperature. There are so many variables that can affect the outcome of climatic interactions and it is difficult to predict a drought in advance. In fact, an area may already be in a drought before it is even recognized. While 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.	Low
	County-wide average score	**16**

Second Priority Ranking

Figure III-1



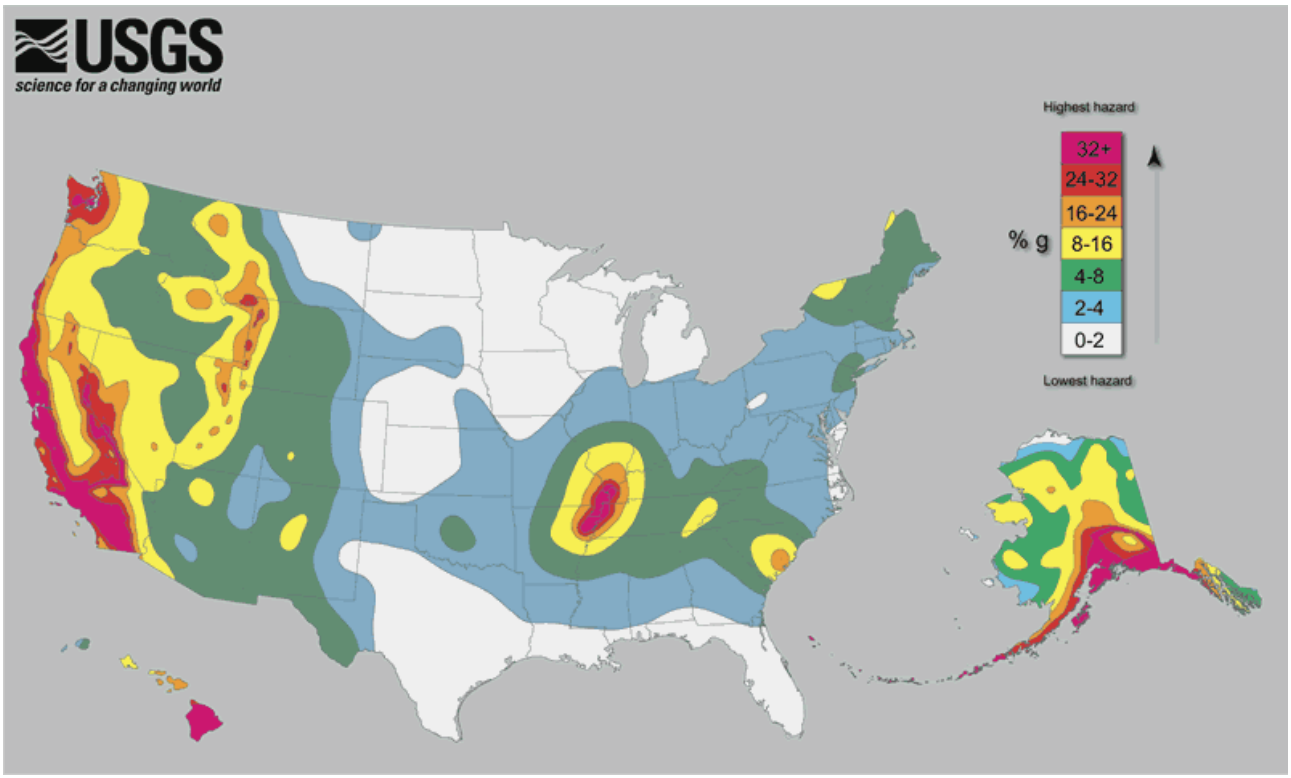
Earthquake		
Definition	Any shaking or vibration of the earth caused by the sudden release of energy that may impose a direct threat on life and property.	
Description	An earthquake is a sudden, rapid shaking of the Earth caused by the breaking and shifting of rock beneath the Earth's surface. This shaking can cause damage to buildings and bridges and may lead 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. The Modified Mercalli Intensity (MMI) Scale describes perceived shaking and potential damage related to recorded peak ground motions in a range expressed in Roman numerals from I to XII.	**Score**
Historical Occurrence	Illinois has experienced over 500 earthquakes over the past 212 years. The majority of the epicenters of these earthquakes have been located in the southern portions of Illinois and Missouri in an area known as the New Madrid Seismic Zone. The largest earthquakes occurring in Northern Illinois occurred in 1909 on May 26 and again on July 18. These were recorded at Intensity VII (MMI) with very strong perceived shaking and moderate damage. This was reported to be strong enough to knock down chimneys in Davenport, Iowa. Another earthquake was reported near Rock Island, Illinois November 12, 1934 with a 4.0 Richter magnitude or Intensity VI MMI (strong perceived shaking). According to historic information from the U.S. Geological Survey (USGS), bricks fell from chimneys and pendulum clocks stopped in Rock Island, Moline, and Davenport, Iowa. In Rock Island, a stucco cornice was dislodged from St. Joseph's School; some loose plaster was shaken from ceilings in the men's dormitory at Augustana College, and loose bricks were shaken from a few buildings. Since then, the state's most severe earthquake occurred in November 1968 with a Richter magnitude of 5.3, which produced some moderate damage in southern Illinois and St. Louis 110 miles away.	Low

Probability	Seismologists attempt to forecast earthquake size and frequency based on data from previous events. In the New Madrid Seismic Zone, which is outside of the State of Illinois in Missouri, the forecast is based on a network of seismographs which have been monitoring events in the area for about 30+ years but major (> magnitude 7) earthquakes have left evidence of four 1811-1812 New Madrid type earthquake events in the past 2,000 years and the last strong event (6+) was in 1895. New probabilities from USGS are that there is a 7 to 10% chance of a repeat of 1811-1812 type events in the next 50 years and a 25 to 40% chance of events greater than magnitude 6 in the next 50 years. A magnitude 6.5 in New Madrid would create an Intensity 4 effect in northern Illinois and Iowa resulting in little or no damage.	Low
Vulnerability	The current national building code show Rock Island County with a 2% chance of exceeding a peak ground acceleration of 0.06g in 50 years. This is a low probability and acceleration that is only expected to cause light damage; Intensity V damage. This does not mean that the county is not vulnerable to earthquake effects. Most structures in the county are not built to earthquake standards, but because of the relatively low magnitude of a possible earthquake, property damage would likely be minor damage to the top of the walls of brick/masonry buildings and chimneys. The most vulnerable structures are those built on poorly consolidated substrate, especially floodplain materials, which amplify the earthquake ground motions.	Low
Maximum Geographic Extent	Estimated effects of a 6.5 Richter magnitude earthquake in the New Madrid Seismic Zone suggest the county could possibly experience trembling buildings, some broken dishes, cracked windows, however the more likely possibility is to experience vibrations similar to the passing of a heavy truck, rattling of dishes, creaking of walls, and swinging of suspended objects. (See Figure III-2)	Low
Severity of Impacts	Due to the relatively low magnitude of earthquakes that would occur in the county, and the distance from the epicenter of any earthquake that would occur in the New Madrid Seismic Zone, the county would likely see only minor impacts. Fatalities and/or injuries would be very rare, and property loss would be minimal. A) *Health and safety of persons in affected areas.* Ground shaking would be very minor and would have very few if any threat to human health and safety. B) *Health and safety of response personnel.* Response to damaged structures would be very limited. Damages would be light, usually not affecting the structural integrity of the structure. C) *Continuity of operations.* Would be affected only indirectly if communications were to be affected. D) *Property, facilities, and infrastructure.* Would suffer only minor damages because the facilities are not built to earthquake standards. E) *Delivery of services.* Services such as water, wastewater, electricity, communications, etc. may suffer minor, short-term impacts. Life threatening impacts from these services would not be likely. F) *Environment.* No direct affect on the environment. If the ground shaking caused leaks or ruptures of containment facilities, there could be some localized environmental damages. G) *Economic and financial.* Impacts would be limited resulting from disruption of the flow of goods and services. Business disruption would likely be very short if any. H) *Regulatory and contractual obligations.* Impacts would be limited to debris removal, if any was produced. I) *Reputation of entity.* No foreseeable impacts. A timely response to immediate life and safety needs would be the determining factor on the jurisdiction's reputation.	Low

Speed of Onset	Earthquake forecasting is an inexact science. Even in areas that are well monitored with instruments, such as California's San Andreas Fault Zone. Scientists are only able to present probabilities of ranges of magnitudes over a span of decades.	Medium
	County-wide average score	**17.53**

Third Priority Ranking

Figure III-2
Earthquakes



Expansive Soils		
Definition	Soils and soft rock that tend to swell or shrink excessively due to changes in moisture content.	
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. This hazard occurs most severely in many parts of the Southern, Central, and Western United States. However, because the hazard develops gradually and seldom presents a threat to life, expansive soils have received limited attention despite their costly effects. Soils types in Illinois are generally less than 50% clay with slight to moderate swelling potential. The 2004 Rock Island County soil survey categorizes soils based on linear expandability. Low is less than 3%, Moderate 3 to 6%, High 6 to 9%, and greater than 9% very high. According to information from the Illinois State Geological Survey, the expansive soils are not that hazardous, but wind up being the most damaging hazard to structures in the United States.	**Score**
Historical Occurrence	The shrink or swell potential of soils containing clay may be a factor in water main breaks occurring in the planning area, especially when accompanied by cycles of freezing and thawing. However, no specific occurrences of damage or hazard to buildings attributed to expansive soils have been found for the Rock Island County planning area.	Low

Probability	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.	Low
Vulnerability	Little if any direct human impact. 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. As noted under geographic extent, 62.7 % of the soils in Rock Island County are in the moderate to high category, with just one or two very high. However, these soils in combination with other factors may pose limitations on development, especially for dwellings with basements. These factors include depth to water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments. With extensive floodplain areas within Rock Island County, the depth to the saturated zone makes the extent of hydric soils a more widespread limitation for use than just expansive soils.	Low
Maximum Geographic Extent	Soils types of less than 50% clay occur in lower Rock Island County south of the Rock River. According to the Illinois State Geological Survey (ISGS), the 2004 Rock Island County soil survey shows about 181,089 acres or 62.7% of the soils have a linear expandability that is greater than 3% for dwellings with basements (shrink-swell concern). According to the Soil Survey, the structures in these soils should have accommodations. In combination with areas of slope, floodplain, and hydric soils, future development should consider the suitability and limitations of soils, especially for dwellings with basements. Soils identified as all hydric are found in 8,648 acres or 2.99% of the total land area of Rock Island County. However, soils identified as partially hydric are found in 59.23 % of the total land area of the County, or 171,139 acres. Soils in upper Rock Island County north of the Rock River tend to have more sand and even less clay content.	Low
Severity of Impacts to:	A) *Health and safety of persons in affected areas.* None B) *Health and safety of response personnel.* None C) *Continuity of operations.* None D) *Property, facilities, and infrastructure.* The most extensive damage from expansive soils 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. The most obvious manifestations of damage to buildings are sticking doors, uneven floors, and cracked foundations, floors, walls, ceilings, and windows. E) *Delivery of services.* Utilities could be affected because of constant pushing and pulling resulting in cracks, breaks, and severing of underground infrastructure. F) *Environment.* Naturally occurring phenomena. Environmental impacts would be limited to spills and leaks of containment facilities. G) *Economic and financial.* Economic and financial impacts would be felt by individual owners of buildings and facilities. These would occur over time and would not be a one-time impact. H) *Regulatory and contractual obligations.* Building code requirements may impose due burden on construction to ensure proper performance of buildings and utilities in areas with expansive soils. I) *Reputation of entity*. Very limited if any.	Low
Speed of Onset	This is consistent with other geologic hazards that occur slowly over time.	Low
	County-wide average score	**8.65**

Third Priority Ranking

Extreme Heat		
Definition	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.	
Description	A prolonged period of excessive heat and humidity. The heat index is a number in degrees Fahrenheit that tells how hot it really feels when relative humidity is added to the actual air temperature. Exposure to full sunshine can increase the heat index by at least 15 degrees. Extreme heat can impose stress on humans and animals. Heatstroke, sunstroke, cramps, exhaustion, and fatigue are possible with prolonged exposure and/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.	**Score**
Historical Occurrence	The record high temperature for Rock Island County recorded for the summer season at Moline is 111 degrees F on July 14, 1936. During the last two weeks of July 1999, the Midwest experienced a lengthy series of days with temperatures higher than 90 degree F. Before it was over, some 127 deaths were attributed to heat in Illinois. Another extreme heat event occurred during mid-July 1995 which also resulted in a severe loss of life, predominately in the larger urban areas of Illinois. Rock Island County has experienced extended periods during the summer where temperatures can exceed 90 degrees F combined with high humidity.	Medium
Probability	Based on historical information, Illinois will likely experience around 26 days a year with temperatures above 90 degrees. For Rock Island County, the average is about 20 days per year above 90 degrees. There is a very good chance that there will also be a period of 3 consecutive days or more with temps in the 90s. It is also common for the temperature to hit 100 degrees or more once every three years during the summer months.	Medium
Vulnerability	Elderly persons, small children, chronic invalids, those on certain medications or drugs (especially tranquilizers and anticholinergics), and persons with weight and alcohol problems are particularly susceptible to heat reactions. Healthy individuals working outdoors in the sun and heat are vulnerable as well. Individuals and families with low budget as well as inner city dwellers can also be susceptible due to poor access to air-conditioned rooms.	Medium
Maximum Geographic Extent	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.	Medium
Severity of Impacts to:	A) *Health and safety of persons in affected areas.* Nationally, over the last 30 years, excessive heat accounts for more reported deaths annually than hurricanes, floods, tornadoes, and lightning combined. B) *Health and safety of response personnel.* Response personnel could suffer heat stroke and dehydration working in extreme heat conditions. C) *Continuity of operations.* None directly, see E). D) *Property, facilities, and infrastructure.* Transportation impacts include the loss of lift for aircrafts, softening of asphalt roads, buckling of highways and railways, and stress on automobiles and trucks (increase in mechanical failures). E) *Delivery of services.* 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. F) *Environment.* Livestock and other animals are adversely impacted by	Low

	extreme heat. High temperatures at the wrong time inhibit crop yields as well. G) *Economic and financial.* Economic costs in transportation, agriculture, production, energy, and infrastructure. These direct costs could impact many other economic sectors indirectly. H) *Regulatory and contractual obligations.* None I) *Reputation of entity.* None if response is adequate and timely.	
Speed of Onset	As with other weather phenomena, periods of extreme heat are predictable within a few degrees within 3 days or so. Variations in the 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.	Low
	County-wide average score	**23.47**

First Priority Ranking

Flash Flood		
Definition	A flood event occurring with little or no warning where water levels rise at an extremely fast rate.	
Description	Flash flooding results from intense rainfall over a brief period, sometimes combined with rapid snowmelt, ice jam release, frozen ground, saturated soil, or impermeable surfaces. Most flash flooding is caused by slow-moving thunderstorms or thunderstorms repeatedly moving over the same area. Flash flooding is an extremely dangerous form of flooding which can reach full peak in only a few minutes and allows little or no time for protective measures to be taken by those in its path. Flash flood waters move at very fast speeds and can roll boulders, tear out trees, scour channels, destroy buildings, and obliterate bridges, especially when accompanied by blocks of ice. Flash flooding often results in higher loss of life, both human and animal, than slower developing river and stream flooding.	**Score**
Historical Occurrence	Floods are the most common and widespread of all-natural disasters except fire. The National Climatic Data Center lists Rock Island County as having 17 flood events since June 1994. Four of these events are listed specifically as flash flooding, while the remainders are listed as urban flooding, small stream flooding and river flooding. On April 3, 1999, two to three inches of rain fell in one hour to cause localized flooding of streets and houses from 3rd Street and River Drive in Davenport to 9th Street and 17th Avenue in Rock Island. One fatality occurred when a 39-year old male drove from dry ground into the flooded intersection of 5th Avenue and 40th Street in Rock Island. The victim's car began floating and became lodged underneath a railroad viaduct, at which time he left his vehicle and was swept away. The water depth underneath the railroad viaduct was estimated at six to seven feet. The most recent instance of flash flooding occurred on March 12, 2006, when thunderstorms trained across the Quad City Metro area produced rainfall rates exceeding 1 inch per 30 minutes. Spotters, amateur radio, and the media reported numerous roads flooded out or cars floating. By 2015 CST KWQC-TV was reporting cars floating in parts of Rock Island. AT 2030 CST two reports indicated 11th Street and 14th Avenue in Rock Island was under water.	Low
Probability	As land is converted from fields or woodlands to roads and parking lots, it loses its ability to absorb rainfall. Urbanization increases runoff 2 to 6 times over what would occur on natural terrain. Portions of Rock Island County are very developed with significant amounts of impervious surfaces. As more development occurs in the watersheds, the amount of runoff produced also increases. Unless measures are taken to reduce the amount of runoff (or slow its movement), flash floods will continue to occur and possibly increase. Aging storm sewer systems are not designed to carry the capacity currently needed to handle the increased storm runoff in certain areas.	Low

Vulnerability	Flash floods occur in all 50 states in the U.S. Particularly at risk are those in low-lying areas; close to dry creek beds or drainage ditches; near water; or downstream from a dam, levee, or storage basin. People and property in areas with insufficient storm sewers and other drainage infrastructure can also be put at risk because the drains cannot rid the area of the runoff quick enough. Nearly half of all flash flood fatalities are auto related. Motorists often try to traverse water-covered roads and bridges and are swept away by the current. 6" of swiftly moving water can knock a person off of their feet and only 2' of water can float a full-sized automobile. Recreational vehicles and mobile homes located in low-lying areas can be swept away by the water also. A greater indication of the magnitude of flash flooding in Rock Island County is shown by the table that follows this profile. The table compiles historic event data by location and amount of rainfall. This table also shows locations that may be particularly vulnerable to flash flooding.	Low
Maximum Geographic Extent	Areas in a flood plain, 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 land with large amounts of impermeable surfaces are likely to be impacted in the event of a significant rainfall. Unlike areas impacted by a river/stream flood, flash floods can impact areas a good distance from the stream itself. Flash flood prone areas are not limited to those areas adjacent to rivers and streams alone. Streets can also become swift moving rivers and basements can become deathtraps because flash floods can fill them with water in a manner of minutes. In Rock Island County, areas of the Rock River flood plain are subject to sudden rises in flooding from ice jams. The relatively shallow depth of the River and constrictions in the river flow from narrow areas and obstructions such as bridges or dams can back up water behind an ice jam with little advance warning. The Rock River forms an eastern boundary of Rock Island County for a distance of about 20 miles before flowing westward across the county to join the Mississippi River at the city of Rock Island. In addition to the Rock River, secondary streams such as Copperas and Mill Creek run through ravines and valleys with steep gradients with a potential for flash flooding in heavy rains.	Low
Severity of Impacts to:	A) *Health and safety of person in affected areas.* Flash floods are the number 1 weather-related killer in the United States. There has been one recorded death and numerous minor injuries reported in Rock Island County related to flash flooding. B) *Health and safety of response personnel.* Rescuers are at significant risk when attempting to work in swift moving floodwaters associated with flash flooding. Special training in swift water rescue exists, but very few are trained on this type of rescue. C) *Continuity of operations.* Can be affected because of facilities directly affected, transportation limitations, and government services delayed or postponed. D) *Property, facilities, and infrastructure.* Personal property can be extensively damaged and destroyed by swift moving water. Facilities and infrastructure can be scoured around, degrading its structural integrity. Because flash flood water is off premises quickly, damages related to standing water are limited, but the current associated with flash floods causes abrasive type damages such as erosion and undercutting. E) *Delivery of services.* 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.	Low

	F) *Environment.* 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) *Economic and financial.* Most impacts are indirect due to disruption of business and damage to infrastructure on which industry and services rely upon. H) *Regulatory and contractual.* None directly. I) *Reputation of entity.* 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.	
Speed of Onset	Flash floods are somewhat unpredictable, but there are factors that can point to the likelihood of a flood occurring in the area. Flash floods occur within a few minutes or hours of excessive rainfall, a dam or levee failure, or a sudden release of water held by an ice jam. Warnings may not always be possible for these sudden flash floods. Predictability of flash floods depends primarily on the data available on the causal rain. Individual basins react differently to precipitation events. Weather surveillance radar is being used to improve monitoring capabilities of intense rainfall. Knowledge of the watershed characteristics, modeling, monitoring, and warning systems increase the predictability of flash floods. Depending on the location in the watershed, warning times can be increased. The National Weather Service forecasts the height of flood crests, the data, and time the expected flow is to occur at a particular location. Gauges on the Rock River at Moline and Joslin are recorded through the National Weather Service Advanced Hydrologic Prediction Service (AHPS).	Medium
	County-wide average score	**19.88**

Second Priority Ranking

Magnitude of Flash Flood incidents

Event date	Location	Amount of Rainfall
June 19, 1994	Moline	1.38”- 2.03” in one hour
October 17, 1998	Moline	4.05 “
	Port Byron	4.00”
April 13, 1999	9th Street and 17th Avenue	2-3” in one hour
	Rock Island	
April 13, 1999	5th Avenue and 40th Street	2-3” in one hour
	Rock Island	
August 23, 1999	Barstow	2” in 30 minutes
June 24, 2000	2 mi. SW of Illinois City	3.9”
February 24, 2001	Rock Island County	1- 1.5” on frozen ground
March 12, 2006	11th St. and 14th Ave.	In excess of 1” per 30 minutes

Land Subsidence	
Definition	A downward sinking, collapse or a shifting of the land surface, often times resulting from underground mining. Also, the geology of an area containing karst features may contribute to land subsidence. Karst is defined as a landscape that is characterized by the features of solution weathering and erosion in the subsurface. These features include caves, sinkholes, disappearing streams and subsurface drainage

Description	Early settlers in Illinois developed underground mines to extract coal, lead, zinc and other metals or minerals. Land areas over these old mines were generally sparsely populated and if settlement or collapse occurred, homes or other structures were seldom damaged. As towns or cities expanded over mined-out areas, subsidence damage to structures became increasingly common. The Illinois State Geological Survey (ISGS) reports that Rock Island County has some karst features. The Devonian limestone has paleo-karst features that are usually found filled with overlying Pennsylvanian-Pottsville sandstone and shale. Observations in the Rock Island area show that this limestone has old karst features of dissolved limestone areas forming large open spaces	**Score**
Historical Occurrence	Most mine subsidence incidents have been related to coal mineral mining. Although the central and southern parts of Illinois present the highest risk of land subsidence, the Illinois State Geological Survey (ISGS) has recorded about 330 underground mine locations in Rock Island County in its Directory of Coal Mines in Illinois, published December 2007. Those records document mine operations as early as 1872 and as late as 1949. Because mining activity was not regulated or documented until the late 1800's, little or no information is available for older mines. ISGS also has record of one underground clay mine in Rock Island County. Subsidence issues have been very limited, isolated and minor in nature in the County. No incidents have been significant or resulted in major property loss, injury or death. However, the known coal mining sites are largely located in previously undeveloped areas. ISGS reports awareness of a collapse on the west side of Rock Island. Present karst features that have impacted the ground surface were located west of 11th street in the City of Rock Island. A sinkhole has formed in this area. Review of old aerial photographs seem to indicate that other suspected karst features were observed.	Low
Probability	A very small portion of Rock Island County is at risk or susceptible to land subsidence. A few incidents of ground settling have occurred in very isolated and limited locations, which have resulted in minor damage. The probability of a major subsidence event occurring in the county is considered to be low to negligible depending on future development. ISGS reports that subsidence due to karst features seems to be fairly rare	Low
Vulnerability	Land subsidence movements are not selective - all structures (building, sidewalks, driveways, fences, streets, curbs, etc.) in the immediate area will be affected with a subsidence event. The type and extent of damage to structures directly relates to their physical orientation and location in the subsidence area. Ground movements can also damage water and sewer lines, as well as other utilities. In most cases damages range from minor to moderate in severity. Repair or renovations are usually sufficient to restore structural integrity. However, in severe cases ground settlement and the resulting damages associated with land subsidence may require complete demolition and rebuilding. Due to the limited number of mined areas and their general locations in the county, the actual number of homes and commercially occupied structures located in or near potential subsidence areas, vulnerability is considered to be very low. Greatest vulnerability is in Coal Valley. Concentrations of historic coal mine sites are documented in and around the downtown area according to the Illinois State Geological Survey.	Low
Maximum Geographic Extent	The geographic extent of historic events has been limited to less than a city block in size and has been extremely isolated small events. The maximum extent is limited because of the small number of mined areas and their general geographic locations in the county. In general, known mines ring the metropolitan area of Rock Island County on the south, east and northwest. According to the Illinois State Geological Survey Map, known coal mines are located in and around downtown Coal Valley. Coal mine sites are also	Low

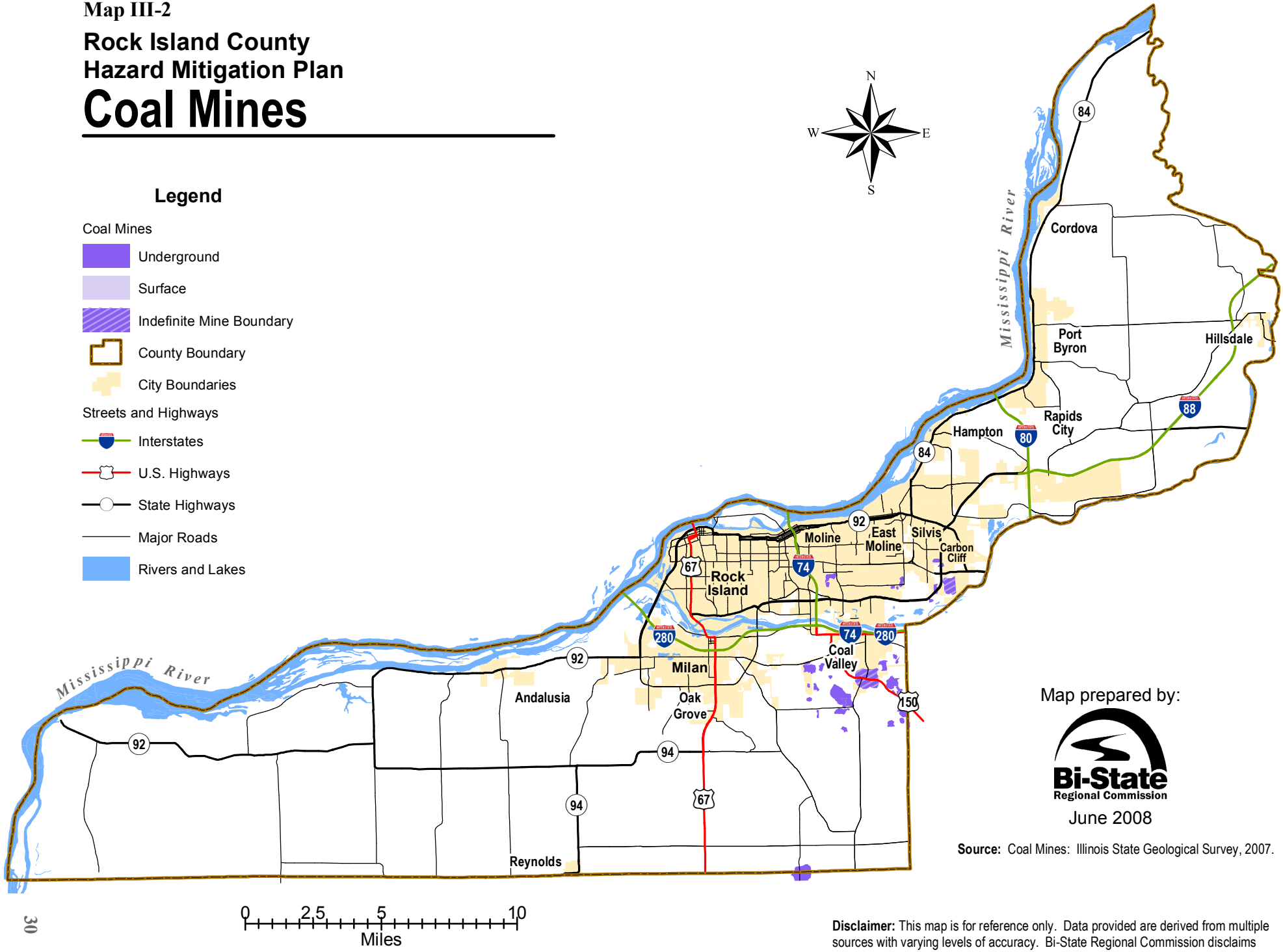
	identified between East Moline, Silvis and Carbon Cliff. Coal mines are also in the area of unincorporated Rock Island County in an area formerly known as Sleepy Hollow and in between Rapids City and Port Byron. In the City of Moline, coal mine sites have been identified in areas east of I-74 and south of the Avenue of the Cities. Approximately 2,688 acres or about one percent of county land area are undermined. (See Map III-2) Geological karst features are reported to occur in Rock Island County. The sinkhole incident noted by ISGS is a karst feature that has impacted the ground surface west of 11th Street in the City of Rock Island where the coal-bearing Pennsylanian strata was removed by the Mississippi River and the bedrock below the area is the Devonian limestone.	
Severity of Impacts to:	A) *Health and safety of persons in affected areas.* Very limited. Injuries and death are very unlikely. B) *Health and safety of response personnel.* Limited if any. C) *Continuity of operations.* None D) *Property, facilities, and infrastructure.* Property damage would be limited to a very small percentage of structures. Infrastructure damages would be more significant. Utilities such as pipelines, cables, power poles, etc. could be vulnerable to downward movements of the soil. May be of greater concern as new areas are developed. E) *Delivery of services.* Limited to only those services where infrastructure was impacted. For example, there may be minor power outages or water disruptions if a subsidence event would destroy significant underground utilities. F) *Environment.* Usually a naturally occurring event and environmental concerns would be negligible. In Rock Island County these would be on a very localized scale. G) *Economic and financial*. Land subsidence events have damaged homes and commercial structures, disrupted gas/electricity, water service, communications, and could even disrupt transportation routes. H) *Regulatory and contractual obligations.* None known. I) *Reputation of entity.* Occurrences would be very rare and would not have significant impact on the reputation of the jurisdiction.	Low
Speed of Onset	Subsidence events are very isolated and localized. They are very hard to predict in advance due to undermined and destabilized rock and soil conditions or movements below ground. Many times warning signs such as cracks and soil settlement do appear in advance and can be closely watched with inspections and over all monitoring of conditions. Events may occur over extended periods of time, although they have occurred very rapidly with little advance warning.	Medium
	County-wide average score	**11.00**

Third Priority Ranking

Map III-2

Rock Island County Hazard Mitigation Plan

Coal Mines



Map prepared by:

Bi-State Regional Commission

June 2008

Source: Coal Mines: Illinois State Geological Survey, 2007.

Disclaimer: This map is for reference only. Data provided are derived from multiple sources with varying levels of accuracy. Bi-State Regional Commission disclaims all responsibility for the accuracy or completeness of the data shown hereon.

Landslide		
Definition	A downward and outward movement of slope-forming materials reacting under the force of gravity.	
Description	Landslides occur when masses of rock, earth, or debris move down a slope. Landslides may be very small or very large, and can move at slow to very high speeds. Many landslides have been occurring over the same terrain since prehistoric times. They are activated by storms and fires and by human modification of the land. New landslides occur as a result of rainstorms, earthquakes, and various human activities. This information is reiterated by the Illinois State Geological Survey, which typically sees most landslides as the result of human interaction—toes of slopes cut away for roads or borrow or just more flat space. Other removals are associated with even small creeks, streams and rivers removing material and floods saturating bases of slopes than can increase soil pore water pressure and reduce strengths.	**Score**
Historical Occurrence	There have been several small-scale landslide events in Illinois, but none of significance that have resulted in injury or death. According to the Illinois State Geological Survey Circular 510, the geologic materials in Rock Island County provide adequate foundation for most types of construction. However, steep valley sides tend to be unstable where glacial till and/or Pennsylvanian shale underlies the loess. Areas of shale in the north bluff of the Rock River have produced occurrences of slumping or minor landslides in Rock Island County, notably in the Wildwood subdivision between the Cities of Rock Island and Moline in the early 1990's. Several residential structures were damaged or destroyed because of landslides on the bluff.	Low
Probability	A small portion of Illinois is moderately susceptible to landslides.	Low
Vulnerability	Those occupying structures overlooking river valleys and steep ravines are most vulnerable. These constitute a very small portion of homes and commercially occupied structures in Rock Island County.	Low
Maximum Geographic Extent	The geographic extent of historic events has been limited to less than a city block in size and have "run out" over the stretch of less than 100 yards. The maximum extent is very limited because of the county's flat agricultural land and gently rolling hills as opposed to steeper slopes. However, steep bluff areas of as much as 18 to 60% slope were identified in the Illinois Route 5 Corridor Study done in 1986. Areas of steep slope in combination with shale in the north bluff of the Rock River can be of concern for future development.	Low
Severity of Impacts to:	A) *Health and safety of persons in affected areas.* Very limited. Injuries and death are very unlikely except in the case of undetected slope failure or possible warning signs in structures that are located on steep slopes. B) *Health and safety of response personnel.* Limited if any. C) *Continuity of operations.* None. Locations not in bluff hazard area. D) *Property, facilities, and infrastructure.* Property damage would be limited to a very small percentage of structures. Infrastructure damages would be more significant. Utilities such as pipelines, cables, power poles, etc. are often vulnerable to downward movements of the soil. E) *Delivery of services.* Impacts limited to only those services where infrastructure was impacted. For example, there may be minor power outages or water disruptions if a landslide shifts or destroys underground utilities. F) *Environment.* Usually a naturally occurring event. In Illinois, these would be on a very localized scale. Slides may alter stream flow and direction until stream seeks a new channel. G) *Economic and financial.* Landslides have damaged homes, disrupted electricity, water service, communications, and transportation routes. Economic impacts would be secondarily associated with landslides H) *Regulatory and contractual obligations.* None known.	Low

	I) *Reputation of entity*. Occurrences would be very rare and would not have significant impact on the reputation of the jurisdiction.	
Speed of Onset	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, landslides can be detected if high potential landslide areas are monitored.	Medium
	County-wide average score	**10.29**

Third Priority Ranking

River Flood		
Definition	A rising or overflowing of a tributary or body of water that covers adjacent land not usually covered by water when the volume of water in a stream exceeds the channel's capacity.	
Description	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, waterway obstructions, or levee or dam failures. Often it is a combination of these elements that cause 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.	**Score**
Historical Occurrence	Between the Mississippi and Rock Rivers, river flood occurs periodically in Rock Island County. Flood stage for the Mississippi River at Lock and Dam 15 located between the Cities of Rock Island and Davenport, Iowa is 15 ft. Information about the highest historic crests as recorded by the National Weather Service are shown in a separate Floodplain Information section that follows this profile. River levels for the Rock River are recorded at two stations within Rock Island County: at Joslin and at Moline. Flood stage at both locations is 12 ft. Historic crests at each location are shown in the Floodplain Information section. Additionally, the National Climatic Center has recorded 17 flood events in Rock Island County since 1994, although most of these are urban and small stream flooding from high rainfall events. Flooding has been a regular and frequent hazard in the county. Besides the Great Flood of 1993, the most recent Presidential Declaration for flooding in the county occurred on May 10, 2001.	Medium
Probability	Given the history of this hazard in Rock Island County, it is highly likely that there may be other events each year, and a high likelihood that another major flood event requiring federal assistance will occur in the next 5 years. While numerous homes and businesses have been removed from the floodplain over the last decade, many still remain.	Medium
Vulnerability	The vulnerability from river flooding is quite delineated. Much work in the area of restricting development in flood hazard areas and mitigating flood prone properties has been accomplished in the county. However, the vulnerability to flood events occurring remains a major concern in our community. The magnitude of flood impacts within Rock Island County is described in the following section of Floodplain Information. Information from the National Weather Service Advance Hydrologic Prediction Service (AHPS) describes what areas and facilities are affected by rising flood waters as measured by river gauges at three locations in Rock Island County.	Medium

Maximum Geographic Extent	The Federal Emergency Management Agency 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 areas, or conservation land, but residential and commercial areas are impacted by river flooding as well. The Rock River forms an eastern boundary of Rock Island County for a distance of about 20 miles before flowing westward across the county to join the Mississippi River at the City of Rock Island. The Mississippi River forms a western boundary of the County for 60 miles. Land within the FEMA 100-year flood designation encompasses 20.68% of the total land area of Rock Island County. (See Map III-3) With recent revision of the Flood Insurance Rate Maps (FIRM) for Rock Island County, all municipalities and the unincorporated County have identified flood hazard areas, with the exception of Oak Grove, which is identified as a non-flood prone community.	Low
Severity of Impacts to:	A) *Health and safety of persons in affected areas.* Flooding impacts include potential loss of life. River flooding does not have as high of a risk as does flash flooding because of the slower onset of river flooding. B) *Health and safety of response personnel.* 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. C) *Continuity of operations.* Operations could be disrupted from direct impacts if facilities are in the floodplain and indirectly from loss of critical services to maintain operations. Back up power and other services can eliminate the impact to operations. D) *Property, facilities, and infrastructure.* Much damage occurred in losses from the floods of 1993 and 2001, but smaller-scale floods are a regular occurrence in this county. Usually flood damage losses are covered by flood insurance, but unfortunately much is not. Public assistance programs also cover a portion of these damages under a Presidential Declaration of Major Disaster, but apply only to certain eligible damages. E) *Delivery of services.* Damage and disruption of communications, transportation, electric service, and community services are likely in severe cases. Water treatment and wastewater treatment facilities are often located in or near the floodplain and are at high risk of flooding and eventually being taken offline. F) *Environment.* Hazards of fire, health and transportation accidents; and contamination of water supplies are likely affects of flooding situations as well. G) *Economic and financial.* 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. H) *Regulatory and contractual obligations.* None known I) *Reputation of entity.* The jurisdiction should pay careful attention to disclosing flood risk in the community and the enforcement of flood plain ordinances and regulations. Participation in the National Flood Insurance Program and providing accurate and up to date flood insurance rate maps will head off some allegations of poor service from the jurisdiction by its citizens.	Medium

Speed of Onset	Gauges along rivers and streams, and rain 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 the stream. The National Weather Service and the U.S. Army Corps of Engineers provides flood forecasts. Flood warnings are issued over emergency radio and television messages as well as the NOAA Weather Radio. People in the paths of river floods may have time to take appropriate actions to limit harm to themselves and their property.	Low
	County-wide average score	**22.76**

First Priority Ranking

FLOODPLAIN INFORMATION (ROCK ISLAND COUNTY AND INCORPORATED MUNICIPALITIES)

National Flood Insurance Program (NFIP) Participation

Flood Insurance Rate Map (FIRM) updated October 18, 2002 for all of Rock Island County

Community Name	**Community ID#**	**Date of NFIP entry**
Andalusia, Village of	170583#	Jan. 20, 1982
Carbon Cliff, Village of	170584#	June 1, 1982
Coal Valley, Village of	170585#	Dec. 4, 1979
Cordova, Village of	170586#	Dec. 1, 1981
East Moline, City of	170587#	Oct. 15, 1982
Hampton, Village of	170588#	Jan. 6, 1982
Hillsdale, Village of	170589#	July 19, 1982
Milan, Village of	170590#	Mar. 18, 1980
Moline, City of	170591#	Feb. 1, 1980
Oak Grove, Village of	170882	Non-flood prone community
Port Byron, Village of	170592#	Sept. 2, 1981
Rapids City, Village of	170593	Jan. 6, 1982
Reynolds, Village of	170883	Oct. 18, 2002
Rock Island, City of	175171#	June 9, 1972
Rock Island, County of*	170582#	Aug. 2, 1982
Silvis, City of	170595	October 18, 2002

*unincorporated

Floodplain Managers by Title

Village of Andalusia	Building Inspector
Village of Carbon Cliff	Director of Community & Administrative Services
Village of Coal Valley	Public Works Director
Village of Cordova	Building Inspector
City of East Moline	Director of Engineering
Village of Hampton	Building Inspector
Village of Hillsdale	Contracts with Rock Island County

Floodplain Managers by Title (continued)

Village of Milan	Building Inspector and Village Administrator
City of Moline	Land Development Manager
Village of Oak Grove	N/A Non Flood-Prone Community
Village of Port Byron	Building Inspector
Village of Rapids City	Building/Electrical Inspector
Village of Reynolds	Village Board
City of Rock Island	Building Official
County of Rock Island	Zoning Department (also consults with all municipalities)
City of Silvis	Building Inspector

Repetitive Loss Properties:

Repetitive Loss Properties are those that are insured under the National Flood Insurance Program (NFIP) and have more than once claim against that insurance for flood damage to the building and/or contents. Repetitive Loss Property Reports were provided by FEMA for data as of November 30, 2007. In review of that original data, it was found that a number of properties in unincorporated Rock Island County were incorrectly assigned to municipalities. The corrected tally is shown here. For privacy reasons, data is suppressed for jurisdictions with fewer than three repetitive loss properties. However, that data is included in the planning area totals.

	# Properties	# Losses	Total Payments**
Andalusia	***	***	***
Carbon Cliff	6	15	$279,836.28
Coal Valley	***	***	***
Cordova	***	***	***
East Moline	4	9	$52,349.56
Hampton	3	7	$44,157.90
Hillsdale	***	***	***
Milan	3	6	$41,078.90
Moline	7	16	$716,309.18
Oak Grove	N/A		
Port Byron	***	***	***
Rapids City	0		
Reynolds	0		
Rock Island, City of	***	***	***
Rock Island County*	50	165	$1,294,552.95
Silvis	0		

Planning Area Totals (includes all data)	82	239	$2,562,535.90

* Unincorporated. Note that 8 additional properties were removed from the original FEMA data for unincorporated Rock Island County. Three have been acquired and demolished, three have been elevated, and two are currently not livable or insurable. These properties accounted for an additional 30 losses with total payments of $452,800.
** Total payments include Building and Contents
*** Fewer than three repetitive loss properties

Utilizing voluntary flood plain acquisition programs, Rock Island County acquire 65 parcels between 1997 and 2006. Sixty-one of the parcels had structures that were demolished and removed. The remaining four parcels were empty lots adjacent to parcels with structures with the same owner.

Ordinance Adoption

Participating communities, with the exception of the Village of Oak Grove, have adopted and enforce a floodplain ordinance that meets or exceeds Federal requirements based on the Illinois State Model Ordinance. All ordinances have been updated and approved since the most recent map update dated October 18, 2002.

Requirements that Exceed Minimum NFIP

Illinois State Requirements that Exceed Minimum NFIP based on State Model Ordinance

- Lowest Floor Elevation: 1 ft freeboard above Base Flood Elevation (BFE)
- State provides model flood plain ordinance
- Flood Plain Development Permit Requirements
    - NFIP Minimum: Community shall review and issue floodplain development permits
    - State issues floodplain development permits for rural areas: Criteria – drainage areas of 10 sq. miles or more and bridges in areas draining 100 sq mi. or more
- Substantial Improvement
    - NFIP Minimum
        - Repair, reconstruction or improvement that exceeds 50% or more of the market value before improvement or repair
        - Structures that are substantially damaged/improved must meet elevation/flood proofing requirements
    - State Requirements
        - All post-FIRM additions are cumulative improvements and cumulative damage per State Model Ordinance

Flood Stage Information

River or Stream Name: Mississippi Dam 15 Tail
100-year Flood Elevation in feet: 565 per 1998 FIRM
1993 Peak Flood Elevation in feet: 565.1
Date of Peak Elevation: 07/09/1993

NOTE: U.S. Army Corps of Engineers study has recently adjusted 100-year flood elevation to 565.6 feet at Lock and Dam 15/ River Mile 483.

Other high water information or flood data from previous floods is listed below. Rank order of ten highest floods is indicated in parenthases.

Mississippi River Dam 15

Tail Gage zero elevation 542.50
06/17/1892 .....561.80 (6/7)
04/28/1952 .....561.13
04/28/1965 .....565.00 (2)
02/22/1966 .....561.50
04/26/1969 .....561.80 (6/7)
03/26/1973 .....561.34 (10)
05/09/1975 .....561.66 (9)
10/07/1986 .....561.72 (8)
04/25/1993 .....561.06
07/09/1993 .....565.13 (1)
04/20/1997 .....562.20 (5)
04/25/2001 .....564.80 (3)
05/09/2001 .....563.80 (4)

Source: U.S. Army Corps of Engineers, Rock Island

Note that major flooding occurred on the Mississippi River, cresting at 19.24 feet on 04/29/2008. This data has yet to be verified by the U.S. Corps of Engineers as the original data source. If confirmed, the April 2008 flood would be the 8th highest on record.

Rock River

River levels for the Rock River are recorded at two stations within Rock Island County: at Joslin and at Moline. Flood stage at both locations is 12 ft. Following are the ten highest historic crests at each location:

Joslin	**Moline**
1) 19.24 ft. on 06/07/2002	1) 16.15 ft. on 04/26/1973
2) 18.88 ft. on 02/23/1997	2) 15.79 ft. on 06/07/2002
3) 18.73 ft. on 05/31/1996	3) 15.70 ft. on 05/20/1974
4) 18.55 ft. on 06/16/2000	4) 15.31 ft. on 02/24/2997
5) 18.35 ft. on 03/26/1993	5) 15.25 ft. on 05/31/1996
6) 18.02 ft. on 02/27/2001	6) 15.20 ft. on 02/24/1971
7) 18.01 ft. on 02.22.1994	7) 15.10 ft. on 03/24/1979

Joslin	**Moline**
8) 17.81 ft. on 03/22/1979	8) 15.01 ft. on 06/17/2000
9) 17.74 ft. on 04/23/1973	9) 14.93 ft. on 06/12/1993
10) 17.69 ft. on 02/23/1971	10) 14.90 ft. on 3/11/1929

Note that ice jam flooding occurred on the Rock River in March 2008. River levels have yet to be confirmed by original data sources. The Rock River is reported to have crested at 16.4 feet at Moline on 03/06/2008 making this a record flood level.

Magnitude of Flood Effects

Information from the National Weather Service Advance Hydrologic Prediction Service (AHPS) describes the impact to vulnerable facilities as river levels rise at river gauge locations in Rock Island County

Mississippi River at Rock Island Lock and Dam #15

Flood categories in feet
13 ft. - Action Stage
15 ft. - Flood Stage
16 ft. - Moderate Flood Stage
18 ft. – Major Flood State
Highest crest of record: 22.63 ft. on 07/09/1993

Flood Impacts in Rock Island County

16.0 ft.: Water affects Moline's River Drive in the 4700 block.
16.5 ft.: Water affect the 4700 block of river Drive in Moline. Water is at the base of the flood wall gates at the downtown Rock Island riverfront.
19.0 ft.: Water affects Rock Island's Sunset Marina parking lot and River Drive in Moline from the 2700 to 4800 block.
20.0 ft.: Water affects building at Sunset Marina in Rock Island and Moline's River Drive from the 2300 to 5500 block.
21.0 ft.: Water affects Marquis Harbor Marina in Moline
22.0 ft.: Water affects 3rd Avenue at the John Deere Commons in Moline.
23.0 ft.: In Moline, water affects the parking lot at the I-Wireless Center.
25.0 ft.: Water reaches the top of the lowest section of Rock Island's flood wall in the The District.
27.0 ft.: Water reaches the bottom of the Arsenal Bridge deck.
27.5 ft.: Water affects Moline's water treatment plant.
29.0 ft.: Water reaches the top of the flood walls and levees in Rock Island and East Moline.

Rock River 2SE at Moline

Flood categories in feet
11 ft. - Action Stage
12 ft. - Flood Stage
13 ft. - Moderate Flood Stage
14ft. – Major Flood State
Highest crest of record: 16.38 ft. on 03/06/2008

Flood Impacts in Rock Island County

11.0 ft.: Water affects agricultural land upstream from Moline.
12.0 ft.: Water affects residences near the 27th Street bridge.
12.5 ft.: Water affects residences in the Friendship Farm area
13.0 ft.: Water affects homes on South Shore Drive in Moline and cuts off access to homes east of I-74 bridge. Water affects Vandruff's Island in rock Island and 7th Street in Coal Valley.
13.5 ft.: Water affects 60th Street south of John Deere Road in Moline and Green Valley Park. Water is also on Canal Road on Big Island.
13.8 ft.: Water affects 49th Avenue in Moline.
14.0 ft.: Water affects south Shore Drive and North Shore Drive in Moline west of the 27th Street bridge. Water limits access to homes on south Shore Drive east of the I-74 bridge. Water also affects portions of 60th Street south of John Deere Road.
15.0 ft.: Water affects business parking lots on 52nd avenue in Moline Water also affects most homes on South Shore Drive and North Shore Drive.
15.2 ft.: Water affects the lowest streets on Vandruff's Island.
15.5 ft.: Water affects the intersection of Highways 150 and 6. Steel Dam is under water in Milan.
17.5 ft.: The Sears Dam is under water in Rock Island.

Rock River 2E near Joslin

Flood categories in feet
11 ft. - Action Stage
12 ft. - Flood Stage
14 ft. - Moderate Flood Stage
16.5 ft. – Major Flood State
Highest crest of record: 19.24 ft. on 06/07/2002

Flood Impacts in Rock Island County

12.0 ft.: Water affects low-lying agricultural land.
12.5 ft.: Water affects some summer cottages along the river.
13.0 ft.: Flooding of unprotected agricultural land occurs. Water also affects Lundeen's Landing Campground.
13.7 ft.: Water affects Barstow Road between Barstow and Osborn.
14.0 ft.: Water affects residences in outlying areas immediately along the river, including basements, yards, driveways, and access roads.
15.0 ft.: Water affects residences in the Thompson addition
16.0 ft.: Water affects much of Barstow Road between Barstow and Osborn. Water also affects homes in Osborn.
18.0 ft.: Water reaches top of the Zuma Creek levee upstream of Barstow. Water affects a few homes on Docia Street in Hillsdale and on the county road south of town. Water also affects a few homes in Shady Beach.
18.3 ft.: Water affects the railroad tracks near Osborn.
18.4 ft.: Water affects Osborn Road at Osborn.
18.5 ft.: Water affects the lowest sections of Moline Road east of Erie as well as River Road.

Flood Impacts in Rock Island County (continued)

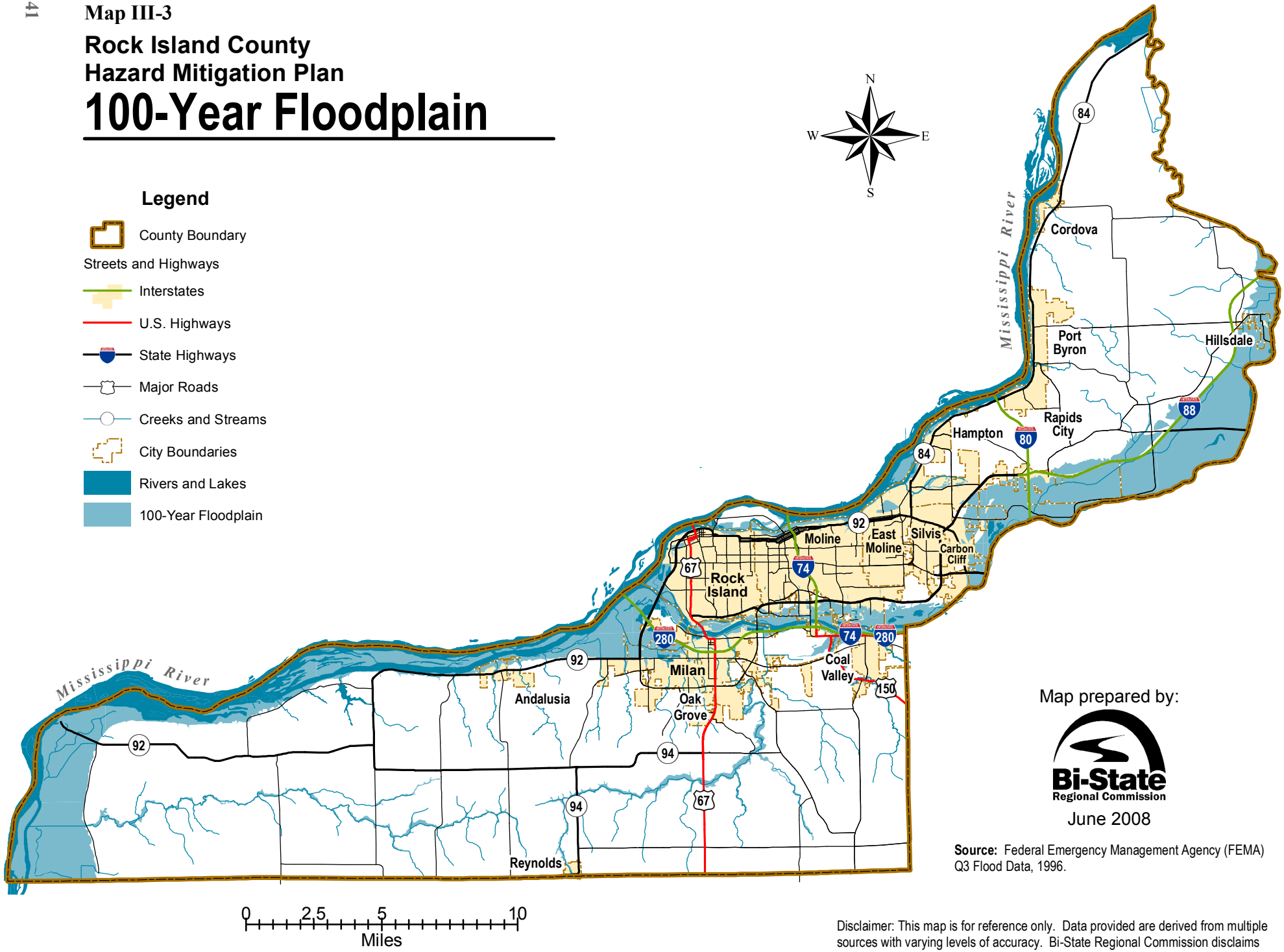
19.0 ft.: Water affects several homes in Hillsdale on Docia Street and on the county road south of town. Water also affects most houses in Osborn.
19.2 ft.: Water affects Barstow Road between Barstow and Illinois Highway 5.
19.5 ft.: Water affects much of Barstow Road between Barstow and Illinois Highway 5.
21.0 ft.: Water affects most of Hillsdale and much of Erie. Water also reaches the bottom of the Illinois Highway 92 bridge at Joslin.

Source: National Weather Service Advance Hydrologic Prediction Service (AHPS)

Map III-3

Rock Island County Hazard Mitigation Plan

100-Year Floodplain



Map prepared by:

Bi-State Regional Commission

June 2008

Source: Federal Emergency Management Agency (FEMA) Q3 Flood Data, 1996.

Disclaimer: This map is for reference only. Data provided are derived from multiple sources with varying levels of accuracy. Bi-State Regional Commission disclaims all responsibility for the accuracy or completeness of the data shown hereon.

Severe Storms Combined (Wind/Hail/Thunderstorms/Lightning)		
Definition	A combined hazard category that includes severe weather conditions such as thunderstorms (heavy rains with lightning and winds), strong or severe windstorms (greater than 58 mph) and large hailstorms (greater than 0.75 inches in diameter).	
Description	Severe and extreme weather conditions are common in the Midwest and can occur as consecutive systems, in clusters, or as individual isolated storm cells. Severe storms can produce tornadoes, high straight-line winds, excessive lightning, and large hail, and even flash flooding events. The National Weather Service considers a typical storm event as severe if it produces hail at least ¾ inch in diameter, winds exceeding 58 mph, tornadoes, or excessive and unusual amounts of damaging lightning. The Flash Flood and River Flood hazard profiles contain information about the magnitude of rainfall during severe storms. Information about the magnitude of wind and hail components of severe storms is contained in the tables following this profile.	**Score**
Historical Occurrence	Since 1950, the National Climatic Data Center reports a total of 273 severe storm events have occurred in Rock Island County. These events resulted in 3 reported deaths and 9 reported injuries. The severe weather events include tornadoes and thunderstorms with hail, lightening, and wind speeds ranging between 50 and 80 m.p.h. Large-scale extreme or severe weather events are experienced in all regions of the United States. Historically, severe storms are associated with strong low-pressure systems that produce thunderstorms and winter blizzards. Severe storms may develop or be an outgrowth of a typical thunderstorm weather system. Many times it is difficult to separate these types of weather events and distinguish them as individual hazard events. One system may spawn multiple events. Notable events in Rock Island County: --**May 10, 1996** Thunderstorm winds between 80 and 90 mph struck the Quad Cities Nuclear Power Plant operated by Exelon near Cordova. No damage was done to the plant or its operations; however, several small outbuildings sustained heavy damage, and a number of "tear away" tiles were blown off the main building of the facility. --**April 6, 1997** Strong gradient winds without a thunderstorm caused widespread and significant damage to trees and power lines. Gusts of 52 knots were recorded at the Quad Cities International Airport in Moline. --**May 18, 1997 and June 18, 1998** Hail recorded as 3.00 inches in diameter fell near Milan in two separate events. --**August 3, 1997** A line of severe thunderstorms brought widespread damaging winds and heavy rains. Wind gust of 91 mph reported. 46,000 electrical customers in the Quad Cities area were left without power due to widespread downed power lines. --**June 10, 1999** A man and woman fishing along the Rock River just east of the U.S 67 bridge in Milan were struck and killed by lightning. --**March 12, 2006** Thunderstorm event included record wind gust of 93 knots or 107 mph near the Quad Cities International Airport in Moline. A Hampton Inn under construction on the NE side of the airport was demolished and a nearby interstate highway sign was blown over. Many trees were downed in the area. Trinity Medical Center on 7th Street in Moline lost all electrical power for several hours. --**June 6, 2006** Lightning from storms struck two houses in Moline with considerable damage from resulting fires.	High

Probability	Available data indicates that Rock Island County has about 5-10 wind events each year where wind speeds could exceed 50 mph. Data on probability and frequency of hailstorms is limited, but indicates the possibility of two or three hailstorms could occur in a year's time. Generally, thunderstorms and lightning are a more common occurrence in the county and between 20 and 30 thunderstorms could occur on average per year. Due to the humid continental climate that the county experiences, typical ingredients of a severe storm event are often available to produce a damaging storm. There is a very high likelihood that a few of these thunderstorms could become severe and cause damage in the county each year.	High
Vulnerability	Agricultural crops such as corn and soybeans are particularly vulnerable to hailstorm damage. Hail can also do considerable damage to vehicles, roofs and buildings. Hail rarely results in loss of life directly although light injuries may occur. Mobile homes, vehicles, campgrounds, and other dwellings without secure foundations and/or basements are at the most risk when it comes to severe thunderstorms, windstorms and/or tornadoes. The elderly, very young and the physically or mentally handicapped are particularly vulnerable because of the lack of mobility to escape the path of destruction during these storms. Lightning presents the greatest immediate danger to people and livestock who are outdoors in unprotected areas.	Medium
Maximum Geographic Extent	Severe thunderstorms can be quite expansive with areas of localized severe conditions in an area of 5 to 25 miles wide. There can also be larger areas of heavy rain and strong winds around the main storm cell. The land area affected by hail events can be an average of 15 miles in diameter around the center of the parent storm system or in a smaller isolated cell. Unlike tornadoes, windstorms may have a destructive path that is 10s of miles wide that may cause significant damage to a wider area.	Medium
Severity of Impacts to:	A) *Health and safety of persons in affected areas.* Injury or death related to severe storms most often occurs when buildings collapse, people are hit by flying objects or are caught trying to escape the storm. Exposure to hail larger than a nickel can be very dangerous and life threatening. Lightning can cause death, serious injury, and substantial property damage. Severe storms can damage homes, businesses, break glass, destroy vehicles, and cause bodily injury to people, pets, and livestock. B) *Health and safety of response personnel.* Response personnel are exposed to the same risk as the general public when caught in severe storms without shelter. Work on ladders and with other apparatus during lightning and high winds can expose responders to higher risk situations. C) *Continuity of operations.* Severe storms can damage government facilities just as they could other property. Disruption of critical services can also affect operations. D) *Property, facilities, and infrastructure.* Impacts can range from broken tree branches, shingle damage to roofs, broken windows; all the way to complete destruction of homes (especially mobile homes), well-constructed buildings, infrastructure, loss of trees, and knocking vehicles off the roads. E) *Delivery of Services.* Should not usually be affected to a significant degree by hail. However, windstorms, tornadoes, and lightning can impact critical services and facilities, especially to electrical power. Buried utility services are not as vulnerable, but can be affected by system components located above ground. Severe thunderstorms occurring over a short period of time (especially when ground is saturated) can lead to flooding and cause extensive power and communication outages as well as agricultural crop damage. F) *Environment.* Severe storms occur naturally. Damages to the environment could result from hazardous materials spills and other contaminants to the	Medium

	environment. Generally though, the environment is resilient following most events. G) *Economic and financial.* Economic impacts can result from direct damages to facilities or business disruption from lack of critical services such as power. Crop damage is often associated with windstorms, hail and even lightning and flood damage. H) *Regulatory and contractual obligations.* Debris removal is a vital service that is often too vast for jurisdictions to handle alone without contractual assistance. I) *Reputation of entity.* Timely and adequate response, after severe storm impacts, will stave off any negative reputation that the jurisdiction could be exposed to. Clean up procedures should be established and planned for that include debris removal and disposal plans.	
Speed of Onset	Weather forecasting and predicting a storm's path has been constantly improving, with typical warning times varying from hours in advance to the 20-30 minute range prior to the occurrence of a severe storm. Generally, most storm systems can be seen approaching, however others can develop and hit without much warning. Weather forecasting and severe weather alerts and warnings issued by the National Weather Service usually provide residents and visitors alike adequate time to prepare for a severe storm situation. Isolated incidents and problems arise when these warnings are ignored.	Medium
	County-wide average score	**32.06**

First Priority Ranking

Wind magnitude

The Beaufort wind force scale is an empirical measure for describing wind speed originally based on observed sea conditions. The observed effects for land conditions are describe below.

Beaufort Force Number	**Wind Speed**		**Description**	**Observed effects**
	Knots	**MPH**		
0	>1	0	Calm	Smoke rises vertically.
1	1-3	1-3	Light air	Wind motion visible in smoke.
2	4-6	4-7	Light breeze	Wind felt on exposed skin, leaves rustle.
3	7-10	8-12	Gentle breeze	Leaves and small twigs in constant motion.
4	11-15	13-18	Moderate breeze	Dust, leaves, and loose paper lifted, small branches move.
5	16-21	19-24	Fresh breeze	Smaller trees sway.
6	22-27	25-31	Strong breeze	Large branches in motion, whistling heard in overhead wires.
7	28-33	32-38	Near Gale	Whole trees moving, effort needed to walk against wind.
8	34-40	39-46	Fresh Gale	Twigs broken from trees, cars veer on road.

Beaufort Force Number	Wind Speed		Description	Observed effects
	Knots	MPH		
9	41-47	47-54	Strong Gale	Larger branches break off trees, construction/temporary signs and barricades blown over, damage to tents and canopies.
10	48-55	55-63	Storm	Trees broken off or uprooted, shingles poorly attached or in poor condition peel off roofs.
11	56-63	64-73	Violent storm	Widespread vegetation damage, minor damage to most roof surfaces.
12	64-80	74-95	Hurricane	Considerable and widespread damage to vegetation, a few windows broken, structural damage to mobile homes and poorly constructed sheds and barns.

Hailstorm magnitude

A scale of hailstorm intensity has been developed by the Tornado and Storm Research Organization (TORRO) of the United Kingdom. The scale extends from H0 to H10 with its increments of intensity and damage potential related to hail size (distribution and maximum). Hail texture, numbers, fall speed, speed of storm translation, and strength of the accompanying wind are other factors that affect the damage impacts. The National Climatic Data Center records 76 hail events in Rock Island County between 4/27/1956 and 3/31/2007 with hail size of at least 0.75 inches. The scale as follows includes hail diameter size in both metric (mm) and inches measurements.

Size Code	Diameter		Description	Damage impacts
	mm	inches		
H0	5-9	0.2-0.4	Pea size	No damage.
H1	5-15	0.2-0.8	Marble size	Makes holes in leaves.
H2	10-20	0.2-1.2	Penny size	Strips leaves from plants.
H3	20-30	0.4-1.8	Nickel size	Breaks glass panels and can scrape paint.
H4	25-40	0.6-2.4	Golf ball size	Breaks windows and scrapes paint.
H5	30-50	0.8-3.0	Tennis ball size	Breaks some roof tiles, dents cars, strips bark.
H6	40-60	1.2-3.9	Baseball size	Breaks many roof tiles, damages roofs.
H7	50-75	1.8-4.9	Grapefruit size	Shatter roofs, serious damage to cars.
H8	60-90	2.4-5.0	Softball size	Cracks concrete roofs, splits trees, injury to people.
H9	75-100	3.2-5.0	Softball size	Marks concrete walls, kills people, fells trees.
H10	>100	4.0-7.0	Melon size	Destroys wooden houses, damages brick homes, kills people.

Severe Winter Storm		
Definition	Severe winter weather conditions that affect day-to-day activities. These can include blizzard conditions, heavy snow, blowing snow, freezing rain, heavy sleet, and/or extreme cold.	
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, collapse of 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 6 inches in a 12 hour period or freezing rain greater than 1/4 inch accumulation causing hazardous conditions in the community and 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 a critical speed of 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 Illinois 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.	**Score**
Historical Occurrence	Since 1950, Illinois has had a total of 276 severe winter storm events. While we are not as vulnerable as the early settlers, there have been recent accounts of injuries and deaths from severe snowstorms and extreme cold around the state. One Presidential Disaster Declaration for Illinois was made in 1990, and four other Emergency Declarations have occurred due to severe winter storms. The National Climatic Data Center reports 58 snow and ice events for Rock Island County between January, 1996 and March, 2007. Notable events include: --**December 6, 1994** Freezing rain, sleet and snow storm occurred in northwest Illinois in the vicinity of the Quad Cities. The ice storm caused thousands of tree limbs to break, taking power lines with them. The damage to lines, poles and equipment was extensive. Nearly 300,000 residents lost power. Repairs to damaged electrical equipment cost an estimated $1 million. Hardest hit were Moline, East Moline, Rock Island and the rural Illinois communities of Orion, Reynolds, and Sherrard. The weight of heavy snow brought down tree limbs and more than 300 Iowa-Illinois Gas and Electric employees worked around the clock during a four-day period to restore power. Thirty tree clean-up crews were required to clear tree limbs and fallen trees. --**April 10, 1997** Twelve to eighteen inches of heavy snow fell in several waves. Weight of snow was enough to collapse roofs of barns and sheds and damaged trees. Perhaps the greatest impact of the late season snow is that most cities had to re-tool trucks for snow removal after having just modified them for summer duty. Snow also slowed sand bagging efforts on the Mississippi River. --**January 1, 1999** Holiday travelers were stranded at the Quad City International Airport in Moline when airport crews were unable to keep up with 8-12 inches of blowing and drifting snow. --**March 8, 1999** Snow in amounts of 9-12 inches with thunder and lightning and wind gusts up to 40 mph forced many school and business closures.	Medium
Probability	Winter storms regularly move easterly and use both the southward plunge of	High

	cold arctic 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 Illinois, as well as other parts of the Midwest. The cold temperatures, strong winds, and heavy precipitation are the ingredients of winter storms. Most counties can usually expect 2 or 3 winter storms a season with an extreme storm every 3 to 5 years on average. A snowfall greater than 6" from one single storm occurs in approximately 49% of Illinois winters, while a large winter storm event of 10 inches or more will occur about once every 3 years. Experience has shown that no area can fully prepare for severe winter storms.	
Vulnerability	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 a 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 and fuel as well as feed, water and shelter for livestock, are unable to be met. Specific vulnerabilities for Rock Island County include roads and highways. Rock Island County is traversed by four Interstate Highways: I-80, I-280, I-88, and I-74. In addition, there are U.S. Routes 6, 150, and 67. Other transportation infrastructure within the County is described in a later community profile section. Other areas of vulnerability for Rock Island County during severe winter storms are the above ground power transmission lines. Electric power in Rock Island County is provided by MidAmerican Energy. Ice and/or heavy snow can bring down power lines, resulting in power outages impacting other utilities. Also, loss of power impacts indoor heating for residential, commercial, and agricultural facilities. People, pets, and livestock are also susceptible to frostbite and hypothermia during winter storms. Those at risk are primarily either engaged in an 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 create other hazards such as structural fires and carbon monoxide poisoning.	Medium
Maximum Geographic Extent	Winter storms are quite large and would likely impact multiple counties in Illinois. Certain areas may experience local variations in storm intensity and quantity of snow or ice. The Illinois Department of Transportation, Rock Island County road departments, and local public works agencies are responsible for the removal of snow and treatment of snow and ice with sand and salt on the hundreds of miles of streets and highways in Rock Island County.	Medium
Severity of Impacts To:	A) *Health and safety of persons in affected areas.* Since 1950, Illinois has had 63 injuries and 20 deaths related to severe winter storms. This does not include the automobile accidents and the casualties associated with them. B) *Health and safety of response personnel.* Response personnel are exposed to cold temperatures and traffic accidents when responding to victims needs. C) *Continuity of operations.* Operations can be limited or halted when critical services are not available, particularly if there are power outages. Staff may not be able to make it to the place of work, thus, limiting the continuity of operations. D) *Property, facilities, and infrastructure.* 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.	Medium

	This impacts transportation, trucking, and rail traffic. E) *Delivery of services.* 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 at least 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. F) *Environmental.* Winter storms are a natural occurrence and there would be no direct significant impact on the environment. G) *Economic and financial.* The cost of snow removal, repairing damage, and loss of business can have large economic impacts on the community. H) *Regulatory and contractual obligations.* Enforced snow ordinances allow the jurisdiction to more affectively open transportation routes. Delivery and adequate supplies of salt, sand, and saline are important inputs to the snow removal process. These contracts should be in place for the winter season. Removal of debris and reinstatement of energy are vital to safety of the public as well. Agreements should be in place with the power company to ensure power is restored in an effective and timely manner following the storm. I) *Reputation of the entity.* Effective and timely response to the snowstorm is key to maintaining a good reputation. Clearing streets and traffic routes of snow and ice are important factors to the mobile public.	
Speed of Onset	The National Weather Service has developed effective weather advisories that are promptly and widely distributed. Radio, TV, and Weather Alert Radios provide the most immediate means to do this. Accurate information is made available to public officials and the general public up to days in advance. Weather prediction capabilities have made significant improvements in recent years. There are several notifications made by the National Weather Service. These include winter storm watch, winter storm warning, blizzard warning, winter weather advisory, and a frost/freeze advisory.	Low
	County-wide average score	**29.76**

First Priority Ranking

Tornado	
Definition	A violent, destructive, rotating column of air in the form of a funnel-shaped cloud that progresses in a narrow, erratic path. Rotating wind speeds can exceed 200 mph and travel across the ground at average speeds of 25-30 mph.
Description	A tornado is a violent whirling wind characteristically accompanied by a funnel shaped cloud extending down from a cumulonimbus cloud. A tornado can be a

	few yards to about a mile wide where it touches the ground. An average tornado, however, is a few hundred yards wide. It can move over land for distances ranging from short hops to many miles, causing great damage wherever it descends. The funnel is made visible by the dust sucked up and by condensation of water droplets in the center of the funnel. The rating scale used to rate tornado intensity is called the Fujita Scale. **F0**: 40-72 mph (35-62 kt) **F1**: 73-112 mph (63-97 kt) **F2**: 113-157 mph (98-136 kt) **F3**: 158-206 mph (137-179 kt) **F4**: 207-260 mph (180-226 kt) **F5**: 261—318 mph (227-276 kt)	**Score**
Historical Occurrence	In the U.S., Illinois is ranked fifth in the number of strong-violent (F2-F5) tornadoes per 10,000 square miles. From 1953-2004, Illinois averaged 35 twisters per year. In Illinois, 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. The National Climatic Center reports 17 tornado events in Rock Island County between August 1959 and April 2006. Six of these were reported as magnitude F2 or F3. The most recent strong tornado (F3) was reported for March 13, 1990 near Cordova with one injury and $2.5 million in property damage.	Low
Probability	Historically, 30-40 tornadoes are confirmed in Illinois per year. Developed areas occupy a growing portion of Illinois and stand a likely chance of having a tornado occur in the next ten years. The average of the intervals between tornados for the 17 reported above is three years.	Medium
Vulnerability	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, the very young, and the physically and mentally handicapped are most vulnerable because of the lack of mobility to escape the path of destruction. People who may not understand tornado watches and warnings, due to language barriers, are also at risk.	Medium
Maximum Geographic Extent	Generally the destructive path of a tornado is only a couple hundred feet wide, but stronger tornadoes can leave a path of devastation up to a mile wide. Normally a tornado will stay on the ground for no more than 20 minutes; however, one tornado can touch ground several times in different areas. Large hail, strong straight-line winds, heavy rains, flash flooding, and lightning are also associated with severe storms and may spawn a tornado and cause significant damage to a wide area.	Medium
Severity of Impacts to:	A) *Health and safety of persons in affected areas.* 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. Since 1959, the 17 tornadoes have been recorded in Rock Island County resulted in 7 injuries and approximately $10.5 million in property damage. B) *Health and safety of response personnel.* Response personnel are exposed to the same risk as the general public when caught in the storm without shelter. C) *Continuity of operations.* 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. D) *Property, facilities, and infrastructure.* 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. E) *Delivery of services.* Tornadoes can impact many critical services such as	Medium

	electrical power. Buried services are not as vulnerable, but can be affected if their system components are located above ground. F) *Environment.* Tornadoes are a naturally-occurring phenomena. Damages to the environment could result from spills and other contaminants from the man-made environment. G) *Economic and financial.* Whole towns have been known to be "wiped off the map." Economic impacts can result from direct damages to facilities or business disruption from the lack of critical services such as power, gas, or water. H) *Regulatory and contractual obligations.* 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. I) *Reputation of entity.* Adequate warning is key to the positive reputation of the jurisdiction. Responding in a timely manner and reconstructing the community is also important. Bringing critical services back online quickly will ensure the residents can begin their personal recovery process.	
Speed of Onset	Tornadoes strike with an incredible velocity. Wind speeds may approach 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. Advancements in weather forecasting have allowed tornado watches and warnings to be delivered in advance to citizens in the path of these storms. The best lead-time for a specific severe storms and/or tornadoes is about 30 minutes. Tornadoes have been known to change paths very rapidly and thus limiting the time needed to take shelter. Tornadoes may not be visible on the ground due to blowing dust or driving rain and hail.	Medium
	County-wide average score	**26.71**

First Priority Ranking

Wildfire Hazard		
Definition	An uncontrolled fire in either a rural or wooded area that threatens life and property and is beyond normal day-to-day response capabilities.	
Description	Grassland and/or wildfires can occur when conditions are favorable such as during periods of drought when natural vegetation would be drier and subject to combustibility. As a scale of magnitude, Keetch and Byram (1968) designed a drought index specifically for fire potential assessment. It is a number representing the net effect of evapotranspiration and precipitation in producing cumulative moisture deficiency in deep duff and upper soil layers. It is a continuous index relating to the flammability of organic material in the ground. The Keetch-Byram Drought Index (KBDI) attempts to measure the amount of precipitation necessary to return the soil to full field capacity. It is a closed system ranging from 0 to 800 units and represents a moisture regime from 0 to 8 inches of water through the soil layer. At 8 inches of water, the KBDI assumes saturation. Zero is the point of no moisture deficiency and 800 is the maximum drought that is possible. At any point along the scale, the index number indicates the amount of net rainfall that is required to reduce the index to zero, or saturation. The inputs for KBDI are weather station latitude, mean annual precipitation, maximum dry bulb temperature, and the last 24 hours of rainfall. Reduction in drought occurs only when rainfall exceeds 0,20 inch (called net rainfall). The computational steps involve reducing the drought index by the net rain amount and increasing the drought index by a drought factor. The KBDI scale and description of moisture conditions is as follows: **KBDI = 0 –200**: Soil moisture and large class fuel moistures are high and do not contribute to fire intensity. Typical of spring dormant season following winter precipitation. **KBDI = 200 – 400:** Typical of late spring, early growing season. Lower litter and duff layers are drying and beginning to contribute to fire intensity. **KBDI = 400 – 600:** Typical of late summer, early fall. Lower litter and duff layers actively contribute to fire intensity and will burn actively. **KBDI = 600 – 800:** Often associated with more severe drought with increased wildfire occurrence. Intense, deep burning fires with significant downwind spotting can be expected. Live fuels can also be expected to burn actively at these levels. **Source**: United States Fire Service Wild Fire Assessment Service (WFAS)	**Score**
Historical Occurrence	The National Climatic Data Center contains no record of reported wildfires or forest fires for Rock Island County from 1950 to present time. Local fire departments or fire protection districts, particularly in more rural portions of Rock Island County, may have more history with occurrences of fires in grasslands, agricultural fields, or timber.	Low
Probability	Primarily because of the potential for lightening to trigger a grassland or woodland fire, there is a near 100% chance that a grassland or other form of wildfire in Rock Island County could occur each year. However, the latest Keetch-Byram Drought Index (KBDI) for August 19, 2008 reports an index level of less than 200 for the land area including Rock Island County.	Low
Vulnerability	Wildfires have proven to be most destructive in the western states, they have become an increasingly frequent and damaging phenomenon nationwide. People are becoming more vulnerable to wildfires by choosing to live in wooded and other outdoor settings. The value of exposed property is increasing at a faster rate than population. Rock Island County is less vulnerable to forest	Low

	and woodland fires because of the extremely large percentage of land that is dedicated and developed for agriculture. Grassland or cropland fires are more likely to occur in the county. Grass fires are often more easily contained and extinguished before there is damage to people or developed property. Often times, in the fall when crops are dry, large portions of crop fields may easily combust due to lightening strikes or when harvesting equipment overheats or throws off sparks. If this happens, it can be quite costly to the farmer in terms of lost production.	
Maximum Geographic Extent	Most grass fires are usually contained to highway right-of-way and rail right-of-way ditches or other geographically small areas and are less than a few acres in size. However, high winds can bring a small fire to a multi-acre grassfire within a matter of minutes. The extent is dependent upon conditions such as land use/land cover, moisture, and wind.	Low
Severity of Impacts to:	A) *Health and safety of persons in affected areas.* Minimal. Most grass fires destroy only the grasses, or crops, or other low land cover. B) *Health and safety of response personnel.* Injuries and/or deaths most often occur during efforts to fight the fire and are a result of natural causes such as heart attack or stroke. C) *Continuity of operations.* Minimal risk *D) Property, facilities, and infrastructure.* Property damage is usually limited to grass, small trees, etc. Occasionally a house or outbuilding can be damaged or destroyed if a fire gets out of control E) *Delivery of services.* Negligible impact F) *Environment.* Such fires often triggered by naturally occurring weather events, such as drought or lightning strikes. Large forest fires may result in erosion issues, but grass, plants, and trees generally start growing again as conditions permit. G) *Economic and financial.* Minimal risk. Potential crop damage. H) *Regulatory and contractual obligations.* None known. I) *Reputation of entity.* Minimal. Areas of potential risk are undeveloped.	Low
Speed of Onset	As mentioned above, most grassfires occur without warning and travel at a moderate rate. This situation depends upon conditions at the time such as moisture, wind, and land cover.	Medium
	County-wide average score	**15.88**

Third Priority Ranking

HUMAN-CAUSED HAZARDS

Fixed Radiological Incident		
Definition	An incident resulting in a release of radiological or nuclear material at a fixed facility to include power plants, hospitals, laboratories and the like.	
Description	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-1960s 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. Medical facilities may also have radiological materials.	**Score**
Historical Occurrence	Emergency classifications are divided into four categories. Each calls for a certain level of response from plant and government personnel. From least to most severe, the classifications are: Unusual Event, Alert, Site Area Emergency, and General Emergency. Since 1990, the Quad Cities Nuclear Power Plant operated by Exelon near Cordova has had 16 Unusual Events, 6 Alerts, and no Site Area Emergencies or General Emergencies.	Low
Probability	The Quad Cities Nuclear Power Plant is located approximately 3 miles north of the Village of Cordova on the Illinois bank of the Mississippi River. All	Low

	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, also, since they are closely regulated by a variety of federal, state, and local organizations, the likelihood of an incident is remote. Hospital facilities in Rock Island County which have radiological materials have recently upgraded facilities to avoid future incidents. Due to very strict nuclear regulatory restrictions, standards and inspections, as well as very detailed and established emergency response plans, the hazard planning Steering Committee has evaluated that the probability of a fixed radiological incident occurring in Rock Island County is less than 1% in the next 100 years.	
Vulnerability	Radiation exposure from the sun, radioactive elements in the soil and rocks, household appliances, and medical and dental x-rays account for most of the radiation exposure sources. 71% of radiation exposure sources in the U.S. comes from natural background radiation. Radon from rocks and soil provide 55% of all sources of radiation in the U.S. Cracked, poorly ventilated basements can contain high levels of radon and hence increase exposure to those in the house and spend significant time in the contaminated basement. Other 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.	Low
Maximum Geographic Extent	In 30 years of nuclear power production in the U.S., no deaths or serious injuries from radiation have been recorded among the general public. Except in a nuclear detonation, exposure to large amounts of radiation is less likely to cause large-scale damage, death, and injury than many of the conventional hazards we face. Wide-scale radiological hazards would come from naturally occurring radiation such as radon. According to the United States Geological Survey, all of Illinois has a high potential to geologic radon. All nuclear facilities in the United States identify a 10-mile radius as an Emergency Planning Zone and a 50-mile radius as an Ingestion Pathway Zone.	Medium
Severity of Impacts to:	A) *Health and Safety of persons in affected areas.* Negligible to Limited. Depending on the level of exposure, radiation can cause loss of life and long and short-term health effects. Time, distance, and shielding minimize radiation exposure to the body. Nuclear radiation above normal levels could be a health and safety consideration because of its ability to damage human cells biologically. B) *Health and safety of response personnel.* Negligible to Limited. 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 toxic materials. Proper training and equipment greatly reduce the risk to response personnel. C) *Continuity of operations.* None directly. D) *Property, facilities, and infrastructure* Negligible to Limited. Property damage can result from contamination and disruption of business because of evacuations. E) *Delivery of Services.* Negligible to Limited. Power plants may be taken off line for extended periods of time. Other impacts would be indirect and only if in the contaminated area. F) *Environment.* Limited to Critical. Damage to the environment can be very long-lasting depending on the half-life of the products involved. Land, water, and air would be affected. The land and water would have to be isolated until treated or product deteriorated to an acceptable level. G) *Economic and financial.* Negligible to Critical. If the land and facilities cannot be used for weeks, months, or even years, the loss of production would be devastating. Economic impacts would be multi-sector and long lasting, especially in and around the affected region. H) *Regulatory and contractual obligations.* Limited. Indemnification would be a vital issue to address. Because of the ownership of the facility by the private sector, the courts would have to address all of the diverse issues	Low

	related to damages direct and indirect. I) *Reputation of entity.* Reputation of the jurisdiction can be very affected because of the high profile of these events. The negative impact can be felt for decades following a contamination.	
Speed of Onset	Ionizing radiation cannot be seen, smelled, heard, or detected with human senses. Detection instruments are needed to indicate the existence of dangerous radiation. Distance from the incident would dictate the amount of time needed to avoid exposure from damaging radiation. Protective actions directed by state, county, and city officials would depend upon weather conditions and developments at the power plant. In an actual emergency, the public can turn to their local Emergency Alert System Station or NOAA Weather Radio.	Medium
	County-wide average score	**18.59**

Second Priority Ranking

Hazardous Materials Incident		
Definition	Accidental release of chemical substances, mixtures or potential explosions (chemical & grain elevator explosions) that present danger to the public health or safety during production or handling of materials during transportation or at a fixed facility.	
Description	Hazards of this nature may cause death or injury to persons, damage property, or damage the environment when released to soil, water, or air. Chemicals are manufactured and used in ever increasing types and quantities. As many as 500,000 products pose physical or health hazards and can be defined as "hazardous chemicals." Each year, over 1,000 new synthetic chemicals are introduced. Hazardous substances are categorized as toxic, corrosive, flammable, irritant, or explosive. Hazardous materials incidents generally affect a localized area and the use of planning and zoning can minimize the area of impact.	**Score**
Historical Occurrence	During the past ten-year period, The U.S. Department of Transportation's hazardous materials information system indicates that 162,511 transportation-related hazardous materials incidents have occurred nation wide. These incidents resulted in 141 fatalities and 2,783 injuries, and the related damages totaled $579,335,295. Local data on responses to hazardous materials incidents were found for the two-year period of 2006-2007. Fire departments responded to an average of 44 incidents per year for the City of Moline, 35 per year for the City of Rock Island, and 20 per year for the City of East Moline.	Low
Probability	Despite increasing safeguards, more and more potentially hazardous materials are being used in commercial, agricultural, and domestic activities. This situation is made worse by the increasing density of people and hazardous materials in and around Rock Island County. While chemical manufacturing locations are generally documented, other more localized sites may also be the source of a fixed hazardous materials incident or explosion. These might include residential misuse of materials, old landfills and dump sites, Leaking Underground Storage Tank (LUST) sites, illegal meth labs, grain elevator explosions, or even school chemistry or biology labs. With major interstate highways and railroads within the County, hazardous materials are being transported near or through populated areas. Based on state estimates of probability and the corroboration of incidents reported by local Fire Departments, there is a 100% chance of a fixed hazardous materials incident occurring in the next year.	Medium
Vulnerability	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	Low

	substances are at higher risk. Populations downstream, downwind, and downhill of a released substance are particularly vulnerable. Depending on the characteristics of the substance released, a larger area may be in danger from explosion, absorption, injection, ingestion, or inhalation. Occupants of areas previously contained by a persistent material may also be harmed either directly or through consumption of contaminated food and water. Facilities are required to have an off-site consequence plan that addresses the population of the surrounding area. Responding personnel are required to be trained to HAZMAT Operations Level to respond to the scene and those personnel that come into direct contact with substances released are required to have HAZMAT Technician level training.	
Maximum Geographic Extent	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 characteristics of the hazardous material or the volume of product involved, the affected area can be small as a room in a building or as large as 5 square miles or more. General wind patterns and climate data help in predicting spread of airborne materials. Many times, additional regions outside of 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.	Low
Severity of Impacts to:	A) *Health and safety of persons in affected areas*. Negligible to Critical. The release of some toxic gases may cause immediate death, disablement, or sickness if absorbed through the skin, injected, ingested, or inhaled. Some chemicals cause painful and damaging burns to skin if they come in direct contact with the body. B) *Health and safety of response personnel.* Negligible to Critical. 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. C) *Continuity of operations.* Negligible. None directly unless the incident occurs on or near critical facilities or services. D) *Property, facilities, and infrastructure.* Limited. Damage is usually limited to the immediate property involved. Proper decontamination is needed before the facilities go back into service. E) *Delivery of services.* Limited. Contaminated water resources may be unsafe and unusable, depending on the amount of contaminant. F) *Environment.* Limited to Critical. Contamination of air, ground, or water may result in harm to fish, wildlife, livestock, and crops. The release of hazardous materials into the environment may cause debilitation, disease, or birth defects over a long period of time. G) *Economic and financial.* Negligible to Limited. Loss of livestock and crops may lead to economic hardships within the community. H) *Regulatory and contractual obligations.* None known. I) *Reputation of entity.* Limited. Safe and timely response will greatly limit any damage to a jurisdiction's reputation. Proper warning and public information before, during, and after the incident can also limit reputation damage.	Medium

Speed of Onset	When managed properly under regulations, hazardous materials pose little risk. However, when handled improperly or in the event of an accident, hazardous materials and explosions can pose a significant risk to the population. Hazardous incidents usually occur very rapidly with little or no warning. Even if reported immediately, people in the area of the incident have very little time to be warned and evacuated. During some events, sheltering in-place is the best alternative to evacuation because the material has already affected the area and there is no time to evacuate safely. Public address systems, television, radio, and NOAA Weather Alert Radios are used to disseminate emergency messages about hazardous materials incidents.	High
	County-wide average score	**22.76**

First Priority Ranking

ASSESSING VULNERABILITY: OVERVIEW

This section analyzes the Rock Island County planning area's vulnerability to natural and man-made hazards in terms of community assets and population. This first part is a general profile of Rock Island County, which describes the county-wide planning area characteristics and its historic development. The format for this profile follows the outline suggested in Iowa Hazard Analysis and Risk Assessment: 2003 Local Guide.

COMMUNITY PROFILE: ROCK ISLAND COUNTY, ILLINOIS

Climate and Weather – Continental Climate with warm summers, cold winters, and a precipitation maximum in summer.

Average Winter Temperature	24.8° F	-4.0° C
Average Summer Temperature	73.2°	22.9°
Average Annual Precipitation*	38.04"	96.6 cm
Average Annual Snowfall	35.3"	89.6 cm

Average Wind Speed: 7.1 – 11.8 mph

* *Water equivalent*

Source: National Climatic Data Center, 1971-2000 Averages for Moline/Quad City Airport

Communications (Quad Cities Metro Area)

Newspapers	Radio Stations	Telephone Service	Public Safety
Daily & Sunday – 3 Weekly – 4	21	AT&T (in Illinois)	911 Service

Education

Population 3 years and over enrolled in school in Rock Island County: 37,839

(Source: US Bureau of Census, Census 2000)

Schools and Colleges

Rock Island County contains all or portions of the following school districts:
Hampton School District #29
United Township HS District #30
Silvis School District #34
Carbon Cliff-Barstow School District #36
East Moline School District #37

Moline Unit School District #40
Rock Island School District #41
Riverdale Community Unit School District #100
Sherrard Community Unit School District #200
Rockridge Community School District #300
Black Hawk Area Special Education District

There are three private or parochial schools in Rock Island County. Buildings that serve Augustana College, Black Hawk College, and Western Illinois University are also located within the County.

Labor, Economy, and Finance – Rock Island County

Labor Force	Unemployed	% Rate Unemployed
76,299	4,788	6.3%

Source: US Bureau of Census, Census 2000

Employment by Industry		
Agriculture, forestry, fishing and hunting, and mining	452	0.6%
Construction	4,112	5.8%
Manufacturing	13,145	18.4%
Wholesale Trade	2,639	3.7%
Retail Trade	8,530	11.9%
Transportation and warehousing, and utilities	4,239	5.9%
Information	1,879	2.6%
Finance, insurance, real estate, and rental and leasing	3,739	5.2%
Professional, scientific, management, administrative, and waste management services	5,275	7.4%
Educational, health and social services	13,309	18.6%
Arts, entertainment, recreation, accommodation and food services	6,943	9.7%
Other services (except public administration)	3,648	5.1%
Public administration	3,536	4.9%

Source: US Bureau of the Census, Census 2000

Personal Income

Median Household	$38,608
Median Family	$47,956
Per capita	$20,164

Source: U.S. Bureau of the Census, Census 2000

Employers in Rock Island County with 400 or more employees

Rock Island Arsenal
Deere & Company
U.S. Army Corps of Engineers
Trinity Regional Health System
Tyson Fresh Meats (IBP)
Black Hawk College
Exelon
Xpac (Export Packaging, Inc)
Performance Food Group (Thoms Proestler TPC)
KONE, Inc
Lee Enterprises
Augustana College
Jumer's Casino Rock Island
Modern Woodmen of America
Norcross Safety Products, LLC
3M
Roadway Express

Source: Dun & Bradstreet Marketplace, 1st qtr 2007 and Quad City Development Corporation, May 2007

Geography

Rock Island County is comprised of 452 square miles with a total land area of 426.75 square miles. The physical setting is dominated by the major rivers and streams, which flow across the County and along its borders. The Mississippi River extends for more than 60 miles along its western border and is no more than 14 miles distant from any point in the county. The Rock River forms the eastern boundary for a distance of almost 20 miles before flowing westward across the county to join the Mississippi at the city of Rock Island.

The topography is characterized by relatively flat upland areas, ranging from 700 to 800 feet above sea level, and river floodplains, which range from 580 feet above sea level at the northeast end of the county to 540 feet in the southwest. The Mississippi and Rock Rivers follow roughly parallel courses in the northern half of the county and are separated by a narrow upland tract, which itself is segmented by broad valleys connecting the Mississippi and Rock River floodplains. The extensive floodplains of Rock Island County are not restricted to areas immediately adjoining the major rivers.

Government Structure

Rock Island County is governed by a twenty-five member County Board elected by district to four-year terms. Elections are on a staggered basis. The County has both taxing and bonding

authority. County government provides court and law enforcement services, the Department of Public Works (road and bridge building and maintenance)**,** the Department of Public Health, a liquor commission, veterans assistance, community mental health facilities and services, county nursing homes, a forest preserve district and a zoning office which handles all inspections, platting and building permits. County board districts are distinct from townships. Townships within Rock Island County have elected supervisors and trustees and take care of assessments for property taxes. The County offers limited sewer services only to the unincorporated developed area of Coyne Center.

Other participating jurisdictions include incorporated municipalities that range from small villages to cities with sizeable staff. All the villages have a similar governmental structure with the President of the Board of Trustees as the Chief Executive Officer of the village. The President is generally elected for a four-year term, except for the Village of Port Byron, which has a two-year term for Village Board President. Six member of the Board of Trustees are elected and function as the legislative body of the village. All villages elect board members for four-year staggered terms. Villages include Andalusia, Carbon Cliff, Coal Valley, Cordova, Hampton, Hillsdale, Milan, Oak Grove, Port Byron, Rapids City, and Reynolds. The larger of the villages may also have a paid administrative position. These include Carbon Cliff, Coal Valley, and Milan.

Of the cities, East Moline has a mayor-council form of government. The Mayor is elected to a four-year term and is the Chief Executive Officer of the city. Council members are elected for each of seven wards and also serve four years. East Moline employs a City Administrator.

The City of Moline has a ward system of government. Council member are elected from seven wards and one at-large for four-year terms under a staggered system. The Mayor is elected at large for a four-year term. Moline has an elected City Clerk and Treasurer and employs a City Administrator.

The City of Rock Island also has a ward system of government. Council members are elected from seven wards for four-year terms under a staggered system. The Mayor is elected at large for a four-year term. Rock Island employs a City Manager.

The City of Silvis has a mayor-council form of government with two aldermen elected from each of four wards for staggered four-year terms. The Mayor is elected at large and presides over the Council, but only votes in special situations. Silvis employs a City Administrator who also serves as Public Works Director.

LOCAL HISTORY

Rock Island County was the home of the Sauk and Fox tribes of Native Americans for about one hundred years before the County became incorporated. These peoples lived, farmed, and hunted all along the Rock River Valley. Blackhawk was the last distinguished leader of these people, and his legacy remains in numerous landmarks that bear his name today. White settlements eventually pushed the Native Americans out of the area in 1832, but not without much bloodshed.

On February 9, 1831 the Illinois General Assembly established Rock Island County and defined its boundaries. In 1833 early pioneers approved formation of a county government with the first county election held on July 5th of that year. In 1856 petitions were submitted to the County Board requesting the formation of townships during the next election in November. In this election Col. George Davenport, John W. Spencer and George W. Harlan were the first County Commissioners elected along with Benjamin Axe being chosen first Sheriff and Levi Wells first County Coroner. This township form of government is still in existence after nearly 150 years.

The railroads played a significant role in the development of the area and the rail yards and "humping stations" that exist today in Silvis and Carbon Cliff are a remnant of that once thriving industry. Local coal was a stimulus to the development of the rail lines. Newspaper accounts at the turn of the nineteenth century report numerous mine openings for both coal and clay, mine fires, water supply and sulfur contamination problems, the building of huge mining scales, and the founding of many coal and rail companies. All this is evidence of the important role of coal and rail in the early development of the county-wide planning area.

The United States Census of Population taken in 1840 was the first census to list a population figure for Rock Island County; at that time, a total of 2,610 people lived in the county. By 1860, the population had jumped to 21,005 persons, and since then it has experienced both inclines and declines in population. In 1960, Rock Island County's population was 150,991, an increase of 148,381 people since the first census was taken one hundred and twenty years before. The period from 1890 to 1920 was one of rather rapid and sustaining population growth – during those thirty years 50,380 people were added to the county's population. This sustained growth, however, dropped abruptly during the 1920's when the population increase was only 5,894 people. During the Depression of the 1930's, the population of Rock Island County grew at a rate greater than the larger regions of which it is a part – the State of Illinois, the North Central Region, and the United States as a whole. Past population growth in Rock Island County has been characterized by sustained, but rarely "booming" expansion. More recent population trends are identified later in this section.

Dates of certificate of incorporation as issued by the Secretary of State of Illinois

Earlier dates of community settlement or founding as reported by the local jurisdiction are shown in parentheses.

Village of Andalusia – 1894 (1845)
Village of Carbon Cliff – 1907
Village of Coal Valley -1876 (1856)
Village of Cordova - 1894
City of East Moline - 1903
Village of Hampton – 1894 (1838)
Village of Hillsdale – 1951 (1895)
Village of Milan – 1893 (1870)
City of Moline – 1872 (1848)
Village of Oak Grove – 1956
Village of Port Byron - 1877 (1836)
Village of Rapids City - 1875
Village of Reynolds - 1897

City of Rock Island – 1879 (1841)
City of Silvis – 1907 (1906)

Source: Illinois Counties & Incorporated Municipalities, Illinois Secretary of State, May 2006

Housing

Housing data comes from the U.S Bureau of Census, Census 2000.

Units in Structure		
1-unit detached	45,552	70.6%
1-unit attached	1,642	2.5%
2 units	3,277	5.1%
3 or 4 units	2,392	3.7%
5 to 9 units	2,657	4.1%
10 to 19 units	2,212	3.4%
20 or more units	4,481	6.9%
Mobile home	2,254	3.5%
Boat, RV, van, etc.	22	–
Total Housing Units	64,489	
Year Structure Built		
1999 to March 2000	439	0.7%
1995 to 1998	1,699	2.6%
1990 to 1994	1,530	2.4%
1980 to 1989	4,137	6.4%
1970 to 1979	9,940	15.4%
1960 to 1969	11,210	17.4%
1940 to 1959	18,714	29.0%
1939 or earlier	16,820	26.1%
Home Ownership and Median Rent		
Occupied housing units		60,712
Specified owner-occupied units		37,099
Median value		$78,900
Specified renter-occupied units		18,228
Median rent		$450
House Heating Fuel		
Utility gas	52,888	87.1%
Bottled, tank, or LP gas	1,730	2.8%
Electricity	5,288	8.7%
Fuel oil, kerosene, etc.	177	0.3%
Coal or coke	–	–
Wood	160	0.3%
Solar Energy	–	–
Other fuel	306	0.5%
No fuel used	163	0.3%

Infrastructure

Rock Island County is traversed by four Interstate Highways: I-80, I-280, I-88, and I-74. In addition, there are U.S Routes 6, 150, and 67. Six automobile bridges span the Mississippi River within Rock Island County's limits: the I-80 Bridge, the Iowa-Illinois (I-74) Bridge, the Government Bridge, the Centennial Bridge, the I-280 Bridge, and the Muscatine Bridge. The Quad City International Airport, located in Moline, Illinois, offers commercial air service for the Quad City Metropolitan Statistical Area and beyond. Railway companies operating within the County include the Burlington Northern Santa Fe, Iowa Chicago & Eastern, and Iowa Interstate. Waterways within the County include the commercially navigable Mississippi River, the Rock River, and Copperas Creek (both the Rock River and Copperas Creek are tributaries of the Mississippi River). Lock and Dam 14, 15, and 16 on the Mississippi River are located within the County borders. Source water for municipalities in the County comes from either the Mississippi River or individual wells. Water treatment facilities are operated by individual municipalities and are located in the following communities; Coal Valley, East Moline, Milan, Moline, Port Byron, Rock Island, and Silvis. Wastewater is also treated by individual municipalities with treatment facilities located in East Moline, Milan, Moline (North and South facilities), and Rock Island (Mill Street and Southwest facilities).

Medical and Healthcare

Rock Island County is served by three hospital campuses: Genesis Medical Center, Illini Campus in Silvis, Trinity 7th Street Campus in Moline, and Trinity West Campus in Rock Island.

Population

The following population data comes from the U.S. Bureau of Census, Census 2000, for Rock Island County.

Total Population	149,374	
Population by Gender		
Male	72,545	48.6%
Female	76,829	51.4%
Percent Population by Age		
0-19	27.0%	
20-44	34.1%	
45-65	23.8%	
65+	15.1%	
Median Age	37.8	

Population by Ethnicity – Race alone or in combination with one or more other races:

	Number	Percent
White	130,273	87.2%
Black or African American	12,419	8.3%
American Indian and Alaska Native	994	0.7%
Asian	1,881	1.3%
Native Hawaiian and Other Pacific Islander	83	0.1%
Some other race	6,670	4.5%
Hispanic or Latino (of any race)	12,791	8.6%

Households by Type	Number	Percent
Total households	60,712	100.0%
Family households (families)	39,162	64.5%
With own children under 18 years	17,575	28.9%
Married couple family	29,826	49.1%
With own children under 18 years	11,786	19.4%
Female householder, no husband present	7,054	11.6%
With own children under 18 years	4,540	7.5%
Non-family households	21,550	35.5%
Householder living alone	18,328	30.2%
Householder 65 years and over	7,609	12.5%

Average household size	2.38 persons
Average family size	2.97 persons

AREA	1970	1980	1990	2000	% CHANGE 1970-2000
ROCK ISLAND COUNTY	166,734	165,968	148,723	149,388*	-10.4%
Village of Andalusia	950	1,238	1,052	1,050	10.5%
Village of Carbon Cliff	1,369	1,578	1,492	1,689	23.4%
Village of Coal Valley	3,008	3,800	3,527*	3,606	19.9%
Village of Cordova	589	697	638	651*	10.5%
Village of East Moline	20,832	20,907	20,147	21,431*	2.9%
Village of Hampton	1,612	1,873	1,601	1,626	0.9%
Village of Hillsdale	539	731	489	588	9.1%
Village of Milan	4,873	6,371	5,753*	5,348	9.7%
City of Moline	46,237	45,709	43,080*	43,768	-5.3%
Village of Oak Grove	618	695	626	728*	17.8%
Village of Port Byron	1,222	1,289	1,002	1,535	25.6%
Village of Rapids City	656	1,058	932	953	45.3%
Village of Reynolds	610	701	583	508	-16.7%
City of Rock Island	50,166	47,036	40,630*	39,684	-20.9%
City of Silvis	5,907	7,130	6,926	7,269	23.1%
Unincorporated Area	27,546	25,155	20,167	19,466	-29.3%

ASSESSING VULNERABILITY: IDENTIFYING STRUCTURES

DETERMINING COMMUNITY ASSETS

An outline and definition of assets was taken from the state and local hazard mitigation planning how-to guide Understanding Your Risks: Identifying Hazards and Estimating Losses, FEMA document 386-2 published August 2001. The following types of facilities were considered. General information about the presence of these types of facilities in the county-wide planning area is mentioned here in italics as available. However, a description of the facilities selected by participating jurisdictions is included within the individual multi-jurisdiction risk assessments later in Section III.

A. Critical Buildings and Facilities

- Essential Facilities: Essential to the health and welfare of the whole population and are especially important following hazard events. The potential consequences of losing them are so great, that that should be carefully inventoried. Be sure to consider not only their structural integrity and content value, but also the effects on the interruption of their functions because t***he vulnerability is based on the service they provide rather than simply their physical aspects.***
  - Hospitals: *Genesis and Trinity Healthcare systems*
  - Other medical facilities
  - Police stations
  - Fire stations
  - Emergency operations centers
  - Evacuation shelters
  - Schools and colleges: *Black Hawk College, Augustana College, and Western Illinois University*
- **Transportation Systems**
  - Airways: airports, heliports: *Quad City International Airport*
  - Highways: bridges, tunnels, roadbeds, overpasses, transfer centers
    - *Interstate Highways: I-80, I-280, I-88, and I-74*
    - *U.S Routes 6, 150, and 67*
    - *Six automobile bridges span the Mississippi River within Rock Island County's limits: the I-80 Bridge, the Iowa-Illinois (I-74) Bridge, the Government Bridge, the Centennial Bridge, the I-280 Bridge, and the Muscatine Bridge*
    - *Rock River bridges*
  - Railways: trackage, tunnels, bridges, rail yards, depots
    - *Burlington Northern Santa Fe and Iowa Interstate railroads (Iowa Chicago & Eastern operates on Burlington Northern tracks within the County)*
  - Waterways: canals, locks, seaports, ferries, harbors, drydocks, piers
    - *Mississippi River(commercially navigable)*
    - *Rock River and other tributaries of the Mississippi River*
    - *Lock and Dam 14, 15, and 16 on the Mississippi River are located within the County borders*

- **Lifeline Utility Systems**
  - Potable water
    - *Water treatment operated by individual jurisdictions*
  - Wastewater
    - *Wastewater treatment provided by individual jurisdictions*
  - Oil
  - Natural Gas: *MidAmerican Energy*
  - Electric Power: *MidAmerican Energy*
  - Communications Systems
- **High Potential Loss Facilities**
  - Nuclear Power Plants: *Quad Cities Nuclear Power Plant*
  - Dams *as documented in the Dam and Levee Failure Hazard Profile*
  - Military Installations: *Rock Island Arsenal*
- **Hazardous Material Facilities:** Includes facilities housing industrial/hazardous materials, such as corrosives, explosives, flammable materials, radioactive materials, and toxins

B. ***Vulnerable Populations:*** can include small children, persons with disabilities, elderly persons or non-English speaking residents that may require special response assistance or special medical care after a disaster.

Rock Island County
Vulnerable populations countywide:

Under 5 years of Age:	9,486 or 6.4% of total
Persons with Disability (all age groups):	24,291 or 8.0%
65 years and older:	22,564 or 15.1%

Language spoken at home other than English:

There are 4,939 residents, or 3.5% of the population, 5 years and over that speak English less than "very well".

Source: U.S. Census 2000

C. **Economic Elements:** could affect the local or regional economy if significantly disrupted
--Major employers *Listed previously*
--Financial centers

D. ***Special considerations*:** such as areas of high-density residential or commercial development that, if damaged, could result in high death tolls and injury rates
--Shopping districts and malls
--Southpark shopping mall
--Avenue of the Cities commercial development
--Individual municipality downtown business and commercial districts
--High density residential developments
--High rise residential or commercial buildings

--High-attendance event venues, such as sports fields, entertainment facilities, etc
--*I-wireless Center*
--College dorms: *Augustana College*

E. **Historic, cultural, and natural resource areas:** including areas that may be identified and protected under state or federal laws
--*Deere-Wiman Center, Moline*
--*Butterworth Center, Moline*

F. **Other important facilities:** which help ensure a full recovery of your community following a hazard event.
--Government functions
--Major employers or banks
--Certain commercial establishments, such as grocery homes, hardware stores, and gas stations

Rock Island County
- City Halls, Village Halls, Police, and Fire Stations
- Public Works Buildings
- Rock Island County Building
- U.S. Postal Offices and Facilities
- Federal Buildings/Courts

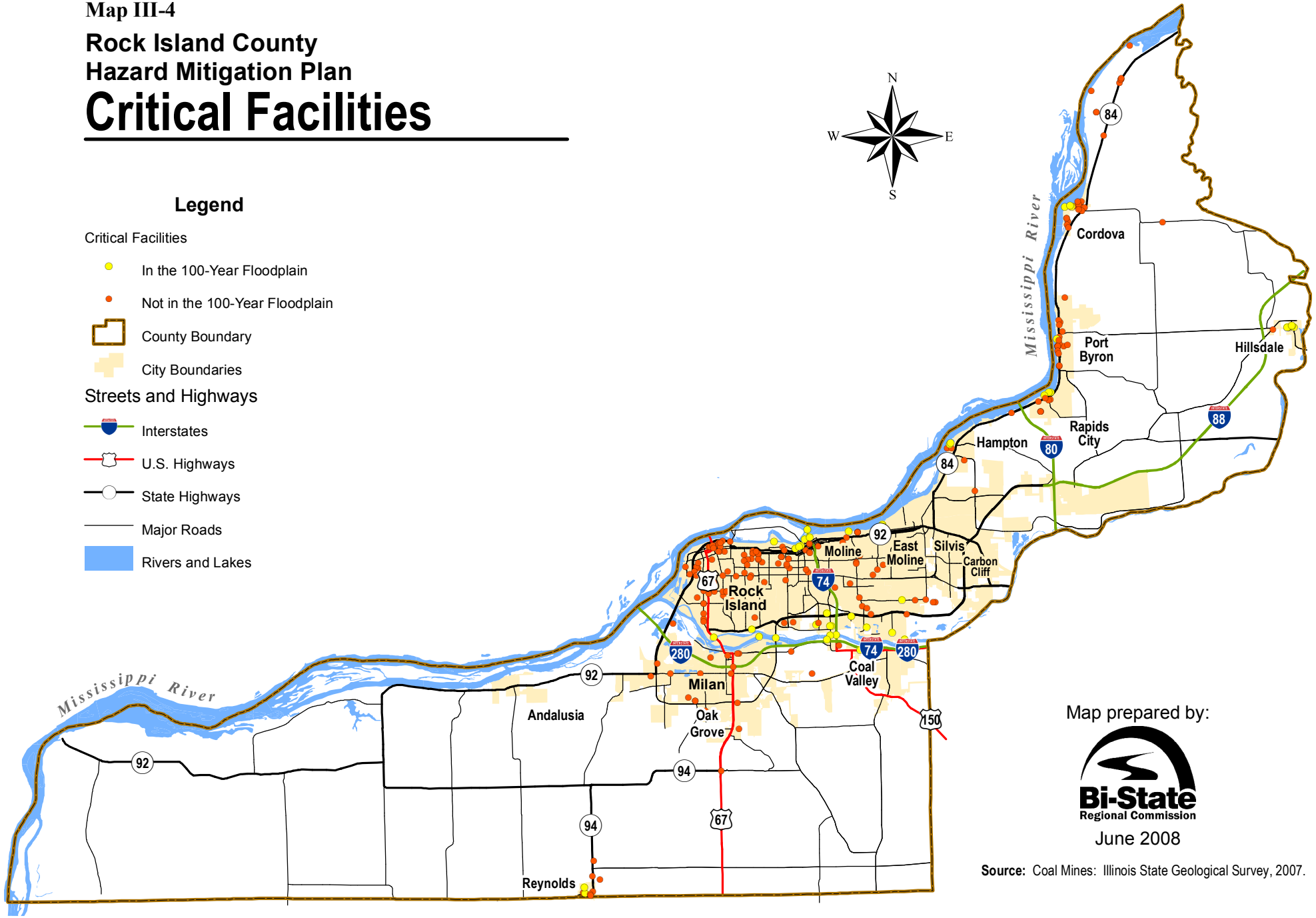
CRITICAL FACILITIES

Participating jurisdictions were asked to inventory community assets that could be damaged by a hazard event using the samples listed above as a guide. They individually determined which ones they considered critical facilities. These assets and critical facilities are described in general terms for each participating jurisdiction in the Multi-Jurisdiction Risk Assessment section. While specific site addresses are not included in this document for security reasons, the selected critical facilities have been mapped for the planning area as a whole and in relation to the 100-year floodplain areas. (See Map III-4) A total of 254 facilities were identified from the lists provided by the individual jurisdictions. Of these, 46 or 15% were found to be located within the 100-year Floodplain as represented on the map. Since this has been an initial effort to identify critical facilities, the list may be further refined in future plan updates.

Map III-4

Rock Island County Hazard Mitigation Plan

Critical Facilities



Map prepared by:

Bi-State Regional Commission

June 2008

Source: Coal Mines: Illinois State Geological Survey, 2007.

Disclaimer: This map is for reference only. Data provided are derived from multiple sources with varying levels of accuracy. Bi-State Regional Commission disclaims all responsibility for the accuracy or completeness of the data shown hereon.

ASSESSING VULNERABILITY: ESTIMATING POTENTIAL LOSSES

Estimating potential losses due to natural hazards is recommended in the hazard analysis and risk assessment portion of the local hazard mitigation plan, but is required only for flood hazards according to the funding which supports this plan process. The FEMA hazard mitigation planning guidance offers methodology for calculating potential losses due to hazards. However, this required a level of detail for individual structures not readily available for the county-wide planning area. The following analysis is based on best available data for flood hazard.

Tax assessment data for structures were examined as a basis for determining the total value of structures in the county-wide planning area. Tax assessment is based on one third of the full valuation. In order to establish full value, the tax assessment figures were multiplied times three. Using the categories of types of structures in the tax assessment data, the total value of structures was estimated. With the use of GIS mapping, the parcel shape file was matched with the FEMA digital flood map. This yielded an indication of which structures are located in the 100-year or 1% regulatory floodplain. The value of the structures in the floodplain was recalculated from assessment data and compares with total valuation to give the following proportionate estimation of potential losses from flood hazard.

Structure type	Value (in millions)	Value in floodplain (in millions)	% in Floodplain
Commercial	1,257.6	151.8	12.1%
Industrial	653.9	53.4	8.2%
Residential	4,517.1	199.4	4.4%
Farm Structures	15.6	1.2	7.7%
Total	6,444.2	405.8	6.3%

This methodology only provides a worst-case estimate. Not every structure in the regulatory flood plain will be damaged or destroyed to the full amount of its value in any given flood event.

ASSESSING VULNERABILITY: ANALYZING DEVELOPMENT TRENDS

Land uses in the Rock Island County planning area are shown in Map III-5. The map is part of a larger Future Land Use brochure developed for the Quad Cities Illinois/Iowa by the Bi-State Regional Commission in 2003. The map provides the ability to view generalized future land use plans for the area in a comprehensive manner. In developing this map, the comprehensive/land use plans for the jurisdictions were used. Note that some smaller jurisdictions did not have land use plans, and in those cases zoning information was used. Municipal plans took precedence over county plans since their extraterritorial jurisdiction extends 1.5 miles in Illinois. The land use categories used on the map provide transition between different jurisdictions while allowing for a variety of land uses. Although the land use categories on the map were selected to reduce discrepancies, the task of fitting each jurisdiction's specific land uses to these categories was difficult. It is important to emphasize that these are generalized land use classifications, and

questions regarding specific parcels of land should be directed to the appropriate jurisdiction. Every jurisdiction has different factors for classifying land use.

Existing land use is concentrated on the peninsula between the Mississippi and Rock River. The largest cities in the planning area, Moline, Rock Island, and East Moline, make up the Illinois portion of the Quad Cities metropolitan area. Earliest settlement is generally along the Mississippi River. With commercial development of natural resources in timber, clay and coal, railroads stimulated settlement further out. Commercial development, shown in red, and industrial development, shown in lavender, are generally concentrated along major transportation corridors.

Development Trends

With limited space remaining on the peninsula, development pressures for residential growth are radiating out of the core urban area. While the current development pattern is still fairly concentrated within the boundaries of Interstates 80 and 280, the desired future growth pattern is shown by areas mapped as low-density residential in the light yellow color. Some of this future development is shown south of the Rock River and in a corridor of U.S. Route 67. Recent opening of the west Rock River Bridge, known formally as Veterans Memorial Bridge at Carr's Crossing, has increased growth pressures in this direction, especially for the Village of Milan area. Other planned future development connects the Mississippi River towns of the upper part of the County. The attraction of the rivers for residential development also extends downriver below the confluence of the Rock River with the Mississippi and toward the Village of Andalusia. The geographic distribution of flood plain, substantial slope, and former coal mine sites identified in the risk assessment means that future development needs to be carefully planned and regulated to avoid hazard risks.

Rock Island County has jurisdiction over land uses in the unincorporated area. These land uses are largely agricultural and open spaces with the exception of limited residential development and pockets of industrial development in unincorporated areas, such as north of Cordova. While the future land use map shows large areas of low-density residential development, in reality, immediate growth pressure will likely stay close to the largest cities. The following is a summary of development plans for the larger municipalities in order of population size.

City of Moline

The City's most recent comprehensive plan was adopted November 13, 2001. A description of future land use is taken from that plan. The South Rock Planning District is generally bounded by the Rock River on the north, the City of Coal Valley on the east. The vast majority of this area is not in the city limits and will need to be annexed. The Quad City International Airport is located in the District and is the single largest land use. The airport has many impacts on adjacent land use such as noise, structure height, approach zones, traffic and utilities. New residential development will occur south of Indian Bluff Road and utilities will need to be extended to the area. This means considerable line extension with few users and, therefore, the cost of providing utilities may become an issue. The floodplain is a real concern and must be addressed where development occurs.

This southern development area is the future economic driver of Moline. The city plans to move forward with annexation so that it can help guide new development rather than end up trying to correct development problems that could have been prevented. Some development has occurred, but the city has the opportunity to create the vision of a new planned community that incorporates community planning and sustainable development principles.

City of Rock Island

The City's comprehensive planning focuses on neighborhoods. There are two parallel strategies being pursued by the City of Rock Island for development and redevelopment. They are: 1) to promote infill development in the older areas of the City north of the Rock River and 2) to promote new development south of the Rock River. The infill in older developed areas is represented by the New Old Chicago Plan (July 2006) and the Columbia Park Plan (December 2004). The Southwest Area Plan (December 2000) promotes residential, commercial and industrial development that is sensitive to the natural features of the area such as slopes, ravine, trees, drainage areas and creeks. All development is contemplated to reflect the City Council's goals of sustainability and energy conservation.

The City sees the New Old Chicago Plan implementation occurring over the next 10 years, with Columbia Park being a 20-year time frame. The Southwest Area is expected to be the City's long-range growth area over the next 20 to 50 years.

City of East Moline

The comprehensive plan for the City was completed in 1999, with the demographics section and Future Land Use Map updated in 2006. Changes within the existing corporate limits identify a mixed-use area, known as The Quarter, between 7th Street and Deere Harvester and 13th Street and the Mississippi River. Infill of light industrial uses in available space north of 13th Avenue and residential uses south of the central business is proposed. Growth through annexation is proposed to occur to the east along Illinois Routes 5 and 92 and Interstate 88 to Interstate 80 and north to the Mississippi River. Light industrial development is expected to occur to the south of IL5/IL92 and I88. Residential development is expected to occur to the north of this area. Commercial development is proposed in the northwest quadrant of the I88 and I80 interchange.

City of Silvis

Silvis adopted its comprehensive plan in 1998. In that plan, few changes were proposed for the exiting corporate limits. Infill and conversion of residential uses were proposed to concentrate commercial development along 1st Street between 6th and Crosstown Avenues and along 1st Avenue and Illinois Route 92. The newly annexed area to the south to of the City was expected to change from open space to commercial south of Colona Road and east of 10th street. During public input, expanded commercial and residential development was suggested east of Illinois Route 5 and north of Colona Road. In the longer term, existing subdivisions near the Friendship Farms area may be annexed to the City and remain in residential use. Recognizing the wetland and flood prone areas of the Rock River, these areas were proposed to remain in open space use whenever possible.

Village of Milan

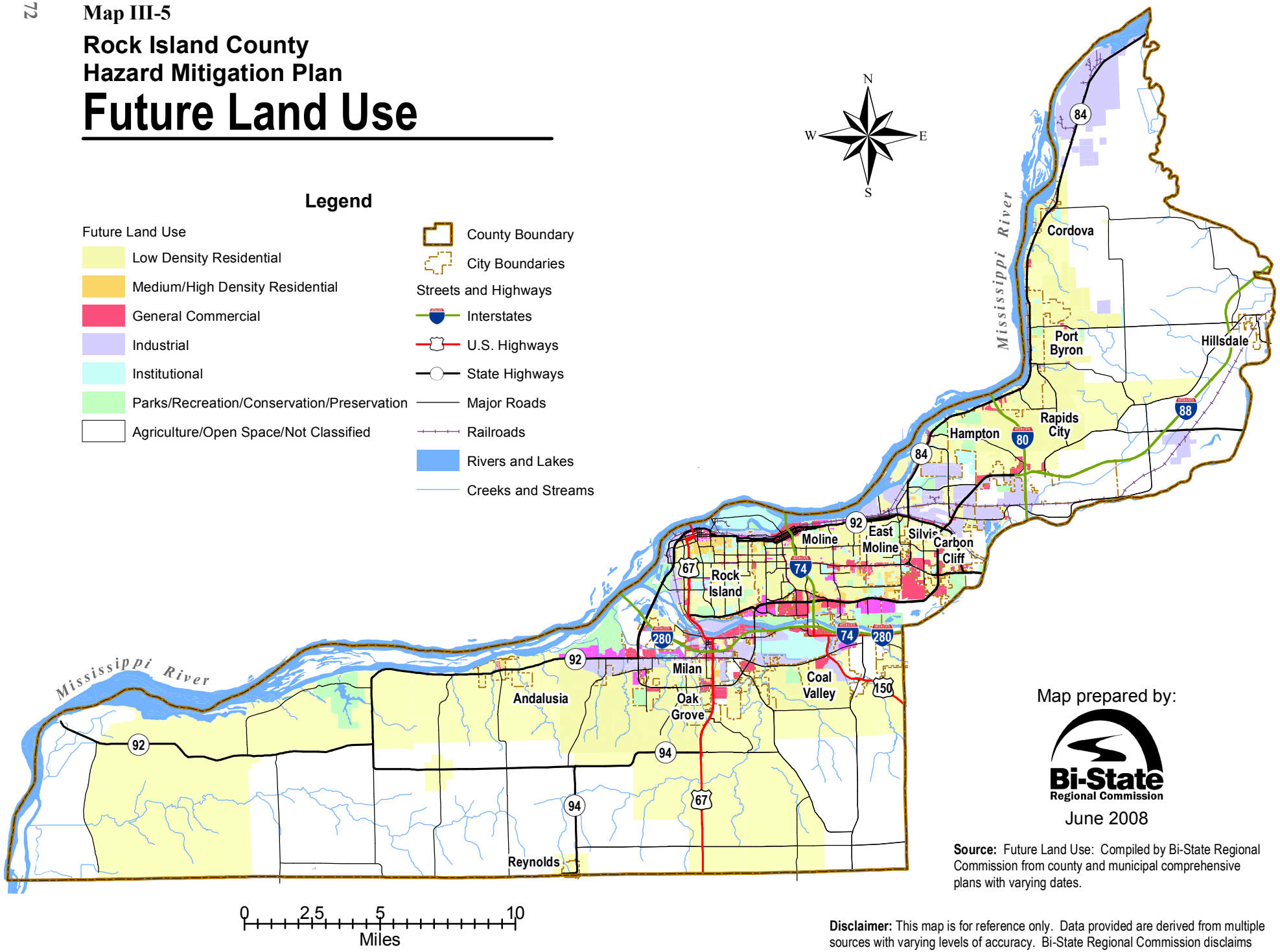
Milan's comprehensive plan was completed February 2006. Milan's future land uses would more than double the land area of the existing community from 6.9 square miles to a projected 15.7 square miles in the long-term 25-year plan horizon. The bulk of this growth is planned in low-density residential south of the current community boundaries, increasing from 12% currently to 29% of the land area of the future community. Guidelines for residential development include respect for landforms and integrated open spaces in general and additional specific guidance in environmentally sensitive areas.

Within current boundaries, commercial and industrial uses will expand and infill existing locations. A new use within current boundaries is a significant mixed-use area on the east side to allow for flexibility of changing market demand. Also new in both current and proposed community boundaries is a substantial area of conservation use where passive recreation may occur. These areas are projected to account for 20% of the future land area and provide protection of wetlands and/or floodplains, areas of significant slope and/or woodland, as well as wildlife habitat.

Map III-5

Rock Island County Hazard Mitigation Plan

Future Land Use



Map prepared by:

Bi-State Regional Commission

June 2008

Source: Future Land Use: Compiled by Bi-State Regional Commission from county and municipal comprehensive plans with varying dates.

Disclaimer: This map is for reference only. Data provided are derived from multiple sources with varying levels of accuracy. Bi-State Regional Commission disclaims all responsibility for the accuracy or completeness of the data shown hereon.

MULTI-JURISDICTIONAL RISK ASSESSMENT

As described in the previous section on Profiling Hazards, each of the participating jurisdictions evaluated the hazards identified for the planning area. Each jurisdiction was asked to score the hazards profiled based on the methodology in Attachment III-1 for the following categories:
--Historical Occurrence
--Probability
--Vulnerability
--Maximum Geographic Extent
--Severity of Impacts
--Speed of Onset
Each jurisdiction was asked to score the hazards based on their own local perspective and to note any additional information for the profile specific to its jurisdiction. The individual community scores were combined and averaged to provide the basis for determining the ranking and priority of the identified hazards for the whole planning area.

The following individual jurisdiction risk assessments provide comparable data regarding population and land area. A geographic summary notes specific features that distinguish the jurisdiction from the planning area as a whole. The hazard priority provides a list of the top ranking hazards based on the hazard profile scoring and adjusted as needed based on local experience. This section also explains any differences in hazard ranking compared to the planning area. Finally, the Critical Facilities section summarizes structures identified as important to the jurisdiction that may be vulnerable to hazard impacts. The specific lists of Critical Facilities were mapped in relation to the 100-year floodplain for the County-wide planning are as a whole as presented in Map III-4.

ANDALUSIA

--2000 Census population 1,050
-- 0.7% total County population
--Ranks 11 of 16 jurisdictions in size
--Land area 1.17 sq. miles
--0.2% total planning area
--Ranks 12 out of 16 jurisdictions

Geography:

Andalusia is located in the lower southwest portion of Rock Island County on the Mississippi River below the confluence of the Rock River. Because of the Mississippi River islands in that location, Andalusia is not on the main Mississippi River channel, but on the backwater area called Andalusia Slough. Most of the older developed area is north of Illinois Route 92. Most of this area is part of the Mississippi River flood plain, but protected by levees. South of Route 92 begins some of the river bluff area with more slopes and ravines and timbered areas. It is noted that a new residential addition is being developed in an area with some slope issues. However, existing planning mechanisms provide subdivision and site review along with regulatory erosion controls.

Hazard Priorities:

Severe Storms (combined)
River Flood
Tornado
Dam or Levee Failure
Extreme Heat/ Drought

Andalusia rates Severe Storms (Combined) in the same position as the planning area as a whole. The frequency of occurrence in the planning area and the related problems triggered by this hazard, such as power outages, make this a priority hazard for many of the jurisdictions in the planning area. Unlike the planning area as a whole, Andalusia replaces the Severe Winter Storms hazard with River Flood. Obviously with substantial river frontage this is a major concern. Flood protection has been provided by a levee. This levee was constructed by the U.S. Army Corps of Engineers and has been maintained by the Village, but it no longer meets current requirements for FEMA flood plain certification. Because the levee is structurally deficient in levee base size and materials, it will probably require total reconstruction to meet a certifiable level—a long-term project. For this reason, Andalusia has included Dam and Levee Failure as a priority hazard, while this is ranked lower for the planning area as a whole. The Tornado and Extreme Heat hazards are also ranked as most important hazards, similar to the first priority ranking for the planning area. Andalusia scored Drought the same as Extreme Heat, probably for the relationship between the two hazards in terms of impact to water supply and wildfire potential.

Critical Facilities:

Andalusia listed six structures. These are primarily local government facilities, including the Village Hall, water, maintenance, police and fire. Also included is the U.S. Post Office. Because of the geography of the area, all of these facilities are in the flood plain but for the levee protection. It is noted that the well heads for the Village's water supply are within the floodplain. In the event of a flood, the water source could be super chlorinated for a time. However, doing this for a longer period of extended flood conditions could burn out pump equipment. The long-term solution would be to move the well heads to a better location. This will entail realigning the water distribution system in relation to the water tower.

CARBON CLIFF

--2000 Census population 1,689
    --1.1% total County
    --Ranks 8 of 16 jurisdictions in size
--Land area 2.08sq. miles
    --0.4% total county area
    --Ranks 9 of 16 jurisdictions

Geography:

The Village of Carbon Cliff is on the east end of the peninsula of land between the Mississippi and Rock Rivers that characterizes the central portion of Rock Island County. The northwest corner of Carbon Cliff is about two to three miles from the Mississippi River, but there is a small

portion of Rock River frontage to the south and east of the Village. Illinois Route 84 separates the bluff line from the flood plain. Unlike the Mississippi River towns in the upper portion of the county, the bluff line is to the west of Route 84 and the land to the east is part of the Rock River floodplain. With historic development based on mining and the railroad, Iowa Interstate Railroad tracks cross the Village from northwest to southeast. The oldest development is between the bluff line and the railroad tracks and the 100-year flood plain line meanders through this portion of town. The elevation toward and east of the railroad tracks declines even more. The Village is surrounded by wetlands on the north and east sides.

Newer residential development is in the bluff area where there are also two unnamed tributary creeks with accompanying floodplains. Heavy rains can cause flash flooding from the bluff area and add to the drainage problems on the lower side of town. Also on this lower side, historic coal mine sites have been mapped that contribute to the Village's name. In an Illinois Route 5 Corridor Study done by Bi-State Regional Commission in 1986, one mine was described as having extensive shafts that run in several directions of a couple of blocks. Clay was also mined, but there is no documentation of a mine site.

Hazard Priorities:

Severe Storms/River Flood
Flash Flood
Severe Winter Storms
Land Subsidence/Extreme Heat
Tornado

Priority hazards for Carbon Cliff were adjusted in rank from the way the hazard profiles were initially scored. Based on local experience, the hazards of Severe Storms (Combined) and River Flood moved to the top of the list. The Severe Storms (Combined) share the same ranking as the planning area as a whole. However, for Carbon Cliff River Flood was scored equally high. With the flood plain and wetlands described in the Geography section above, severe storms may produce heavy rains that contribute to river-related flooding. Flash floods also rank higher than for the planning area as a whole. With run off from the bluff area, it is easy to see why stormwater drainage is a major issue for the Village.

Carbon Cliff includes most of the same hazards that the planning area ranked as first priority, but in different order. An exception is Land Subsidence, which scored equally with Extreme Heat for Carbon Cliff to put it in the top ranking. A history of mining in the Village as described makes subsidence an issue of concern. Incidents of Extreme Heat can happen as much as annually within the planning area. Tornado also is a first priority hazard for the planning area that Carbon Cliff includes in its top-ranked list.

Critical Facilities:

Carbon Cliff listed 20 structures in its inventory of community assets. Sixteen of these are noted as critical and include village services and infrastructure, such as Village Hall, fire, police, and water and sewer infrastructure. Two school buildings are included as critical facilities, as are the railroad tracks that pass through town. Critical facilities located east of Route 84 may be in or near the 100-year flood plain. Two housing areas were noted for vulnerable populations. Two

commercial convenience outlets were listed as other important facilities, providing local services and economic continuity following major hazard events.

COAL VALLEY

--2000 Census population 3,606
--2.4% total County
--Ranks 7 of 16 jurisdictions in size
--Land area 2.76 sq. miles (includes portion in Henry County)
--0.5% total planning area
--Ranks 7 of 16 jurisdictions

Geography:

The Village of Coal Valley ranks at about the middle of the jurisdictions participating in this planning process, both in terms of population and land area. With developed land within a bluff line south of the Rock River, Coal Creek and Shaffer Creek and bluff slopes provide conditions for the occurrence of flash flooding. U.S Routes 6 and 150 go through Coal Valley, with I280 just out side the Villages northern border along the Rock River.

Historic coal mine sites that name Coal Valley are concentrated in and around the downtown area. However, no information about structural damage from land subsidence due to mine sites could be found for even the oldest of buildings that anyone can recall at this time. A coal mine found more recently in development along Route 150 in the 300 block east was filled in. The existence of coal mine sites in the vicinity of the Quad City International Airport will be a concern for future development for both Coal Valley and that portion of the City of Moline that crosses the Rock River to the west.

Hazard Priorities:

Tornado
Flash Flood
tied Severe Storms (Combined)/
Severe Winter Storms
Hazardous Materials Incident

Incidents of winds uprooting large trees that block main roads have been reported by Coal Valley. While these have not been confirmed as tornados, the severe winds and resulting damage move Tornado, Severe Storms (Combined), and Severe Winter Storms into priority hazards for the Village. These are also First Priority hazards for the planning area as a whole, since these weather-related incidents may occur annually. Earthquake Hazard, which had been scored highly in the hazard profiles, was moved out of the top five for Coal Valley and replaced with Flash Flood. The initial scoring for Earthquake did not agree with actual historical occurrence or probability and vulnerability. Flash Flood as a top priority hazard differs from the planning area rankings, which include River Flood as a First Priority hazard. However, from the description of geographic differences above, the bluffs, slopes and creeks in Coal Valley make Flash Flood a greater priority as a hazard. A levee and flood gates along I280 at the Village's northern border provides flood protection from Rock River flooding. Diesel pumps had been used at the levees to move flood

waters that seeped under the roads, whether from Rock River or creek flooding. These pumps are currently out of service and the Village is looking into an automatic gate and system of replacement pumps that will be available in town as needed to divert water at the levee site.

Hazardous Materials Incident also ranks as a priority hazard for Coal Valley, as it also ranks for the planning area as a whole. With two U.S. highway routes through the Village, there have been incidents of highway spills involving kerosene and diesel fuel. Other hazardous materials incidents noted include fuel tanker overspills at local gas stations and occasional ammonia discharges from a meat packing plant.

Critical Facilities:

Coal Valley listed 25 structures in its list of community assets. Ten of these include local government infrastructure critical to continued operations, such as the fire station, wells and pumping stations, maintenance garage, and Village Hall. The U.S. Post Office is a federal facility included in the list of critical facilities. Eight structures listed include private businesses providing essential services, such as banks, gas stations, and the power company. Other structures listed note locations of potentially vulnerable populations, such as schools, child day care, and mobile homes.

CORDOVA

--2000 Census population 651
- --0.4% total County
- --Ranks 14 of 16 jurisdictions in size

--Land area 0.57 sq. miles
- --0.1% total planning area
- --Ranks 15 of 16 jurisdictions

Geography:

The Village of Cordova is one of the smaller participating jurisdictions in terms of land area and population. The Village is located on the Mississippi River, which forms its corporate boundary on the west. The 100-year flood plain elevation follows the River shoreline, but most of the streets are above this elevation. A tributary drainage area of the 100-year flood elevation crosses the Village through a central part where the Mississippi River takes a slight bend. North of this drainage area, the elevation rises so that the 100-year flood plain of the Mississippi River is much narrower than in the southern portion of the Village. Although most of the developed area of the Village appears to be above the 100-year flood elevation, periods of high river flooding may hamper access to parts of the Village.

As with the other river towns in upper Rock Island County, the Burlington Northern and Santa Fe Railroad tracks and Illinois Route 84 run parallel to the Mississippi River through portions of the corporate limits of Cordova. However, unlike those river towns where the highway and train track separate the bluff line from the flood plain, the Mississippi River bluff turns east of Cordova, leaving the landscape relatively flat. The open area between the Mississippi River and the bluff line is part of the old river bottom. As a result, the soil in this area is sandier than in other parts of the County.

Hazard Priorities:

Radiological Incident
Hazardous Materials Incident
tied Extreme Heat/Severe Storms(Combined)/Severe Winter Storms

With the Quad Cities Nuclear Power Plant just a few miles north of the corporate limits, Cordova ranks Radiological Incident high as a priority hazard compared to the planning area as a whole. Although the 10-mile evacuation planning radius for the plant may touch other Rock Island County jurisdictions, Cordova is the nearest neighbor and scores this as one of its top five hazards. With the railroad and state highway running through town, regular freight transportation is perceived as a hazard. In addition, several businesses in and near Cordova are listed as Critical Facilities because of the sensitive materials handled. As a result, Cordova ranks Hazardous Materials Incident higher than the planning area when scored on the basis of Vulnerability, Severity of Impacts and Speed of Onset. The remaining priority hazards for Cordova include the same extreme weather hazards that were noted for the planning area as whole. Severe Storms (Combined), Severe Winter Storms, and Extreme Heat were similarly scored based on Historic Occurrence and Probability, which is a least annually for the planning area. Although experiencing the most recent tornado incident in the County in 1990, Tornado and River Flood hazard profiles ranked lower for Cordova than for the planning area as a whole.

Critical Facilities:

Cordova listed 35 facilities in its inventory of community assets. About 12 of these include local government structures and infrastructure, including the Village Hall, water and wastewater treatment, bridges, and emergency services and communication. Several river-related facilities were noted, such as boat docks and barge terminals. Private businesses include several chemical facilities as major employers, both in and near corporate limits. Other businesses listed provide convenience outlets for food and gasoline. For vulnerable populations, places where large numbers of people may congregate, large employers with potentially hazardous materials, and housing for seniors and the disabled were noted.

EAST MOLINE

--2000 Census population 21,431
    --14.3% total County
    --Ranks 3 of 16 jurisdictions in size
--Land area 11.01 sq. miles
    --2.1% total planning area
    --Ranks 4 of 16 jurisdictions

Geography:

The City of East Moline is located in the central part of Rock Island County on east end of the peninsula between the Mississippi River and the Rock River. East Moline only has frontage on the Mississippi River. The corporate limits meet the City of Moline to the west and south and the City of Silvis to the east. Although East Moline does not have frontage on the Rock River, the flood plain of the Rock River reaches into the northeast portions of the City north of Silvis

and the Village of Carbon Cliff. Sugar Creek as a tributary of the Mississippi also has its floodplain in this northeast area. A system of levees along the Mississippi River and Sugar Creek protect areas that would otherwise be in the 100-year floodplain.

Illinois Route 92 travels east and west through the City and roughly marks the separation between the Mississippi River floodplain to the north and the bluff line that forms an east-west spine in this central peninsula. Much of the southern portion of East Moline is characterized by upland slopes and ravines. Illinois Route 84 turns north between East Moline and Silvis into the upper portion of the County. The Burlington Northern and Santa Fe Railroad tracks parallel the Mississippi River through the northern and older developed portion of East Moline until the tracks turn north paralleling Route 84 in the upper county. Route 92 joins Illinois Route 5 on a diagonal across the northeastern portion of East Moline. The farthest eastern portion of the corporate boundaries in this section includes the interchange of Illinois 92/5 and Interstate 80.

Hazard Priorities:

tied Severe Storms (Combined)/
Severe Winter Storms
Tornado
River Flood
Extreme Heat

The top five hazard profiles as scored by East Moline fall in roughly the same rank order as the first priority hazards for the planning area as a whole. Severe Storms (Combined) and Severe Winter Storms occur regularly within the planning area and have a probability of occurring at least annually. Tornado is next for both East Moline and the planning area. River Flood changes places with Extreme Heat in priority ranking for East Moline compared to the planning area. Without the protection of the levee system, considerable areas would be in the 100-year flood plain. Also, as new development moves to the northeast, it is vulnerable to the Rock River flood plain where there is no levee protection. Extreme Heat is next in ranking and can be expected to occur at least annually in the planning area. In addition to a regular probability of occurrence, Extreme Heat may trigger other hazards, such as power outages, making this a priority hazard for both the planning area and East Moline. The priority hazards for East Moline differ from the planning area as a whole in that the City did not include Hazardous Materials Incident in its priority list at this time.

Critical Facilities:

East Moline included 22 facilities on its list of community assets. Of these, 14 were designated as critical facilities. Critical facilities include those for administration and operation of essential community services and infrastructure, such as City Hall, police and fire stations, water and wastewater treatment, and engineering and maintenance. The City also included the Mississippi River levee system as a critical facility. Finally, five senior housing facilities were listed among the critical facilities for their concentration of a vulnerable population. In addition to these critical facilities, other community assets include schools, community centers, and the East Moline Correctional Center. These were designated as locations of vulnerable populations. The John Deere Harvester Works plant was listed as an economic asset and also for the large number of employees who might be considered a vulnerable population in a hazard event.

HAMPTON

--2000 Census population 1,626
--1.0% total County
--Ranks 9 of 16 jurisdictions in size
--Land area 1.73 sq miles
--0.3% total planning area
--Ranks 10 of 16 jurisdictions

Geography:

The Village of Hampton is located in the upper portion of Rock Island County on the Mississippi River upstream from the City of East Moline. Illinois Route 84 and Burlington Northern and Santa Fe railroad tracks pass through Hampton roughly parallel to the Mississippi River shoreline, marking a dividing line between steeper bluff areas and flatter land to the River. The oldest developed part of Hampton is on the Mississippi River side west and below the highway/railroad line. First Avenue runs along the Mississippi River at the western corporate limits. The central portion of the Village east of First Avenue to the highway is above the 100-year flood elevation, although some parts are at the 500-year flood elevation. However, south to where First Avenue becomes River Road and north where First Avenue becomes Water Street, the elevation declines back to Zone A 100-year flood levels. Even without a levee, Hampton weathers many spring Mississippi River flood seasons without serious flooding. However, severe, high Mississippi River floods are a threat at the northern and southern ends of the Village below the highway and restrict access. More recent development is generally found at the level of the highway and above the hills and ravines of the bluff line.

Hazard Priorities:

River Flood
Severe Storms (Combined)
Tornado
Extreme Heat
Hazardous Materials Incident

Because of its position on the Mississippi River, River Flood ranks higher as a priority hazard than it does for the planning area as a whole. The next hazards—Severe Storms (Combined), Tornado and Extreme Heat—rank in roughly the same order as the planning area first priority hazards. Hampton's vulnerability to these hazards is similar to that of the rest of the planning area. Mitigation actions considered for multiple hazards include adding to the siren warning system.

Because of the railroad tracks that pass through town, Hazardous Materials Incident is a priority hazard for Hampton as it is for the planning area. It is reported that at least one freight train passes through Hampton per day carrying anhydrous ammonia and a derailment could have serious impacts.

Critical Facilities:

Hampton listed 13 facilities, largely those for Village operations, including the Village Hall, police and fire departments, and Maintenance Services Building. Eight of the facilities listed

refer to water or wastewater infrastructure. The Hampton Heritage Center is also a Village facility and is an important cultural asset. While it appears that most of these facilities are not within the 100-year flood elevation, access within the lower part of the Village may be hampered in years of high Mississippi River floods.

HILLSDALE

--2000 Census population 588
- --0.4% total County
- --Ranks 15 of 16 jurisdictions in size

--Land area 0.69 sq. miles
- --0.1% total planning area
- --Ranks 13 of 16 jurisdictions

Geography:

The Village Hillsdale is one of the smaller jurisdictions participating in the Rock Island County Pre-Disaster Mitigation Plan in both population and land area. Hillsdale is in a geographically flat part of Rock Island County, which can contribute to widespread flooding from the Rock River. All but a few structures within the corporate limits are in a flood plain area. The most severe incident of flooding in recent record occurred February 20, 1997. Heavy rains in combination with frozen soil and ice jams caused the Rock River to reach a record crest of 18.77 feet at Joslin. Despite massive sand-bagging efforts, the combination of high water and ice broke through levees near Erie and Hillsdale. Hillsdale was 95% covered in knee-deep water with some areas over ten feet deep. Eighty percent of Hillsdale's residents were evacuated.

There are no other geographic features that distinguish Hillsdale from the other jurisdictions in the County in regard to naturally occurring hazards. However, in regard to the human-cause hazards identified in this planning process, several trains a day pass through downtown and the Quad Cities Nuclear Power Plant at Cordova is within 12-15 miles.

Hazard Priorities:

River Flood
Severe Winter Storms
tied Hazardous Materials Incident
Radiological Incident
Severe Storms (Combined)

Compared to the planning area as a whole, Hillsdale ranks River Flood highest among priority hazards. This is understandable in light of the geography and flooding incident described above. The Village intends to repair and reconstruct a flood protection levee to the 100-year flood level. This will eliminate the flood flow from one end of town.

Hillsdale also ranks the hazards of Severe Winter Storms and Severe Storms (Combined) in the same top priority as the planning area as a whole, but in slightly different order. These weather events may occur annually across the entire planning area. However, because of particular features described above for Hillsdale, the human-caused hazards of Hazardous Materials

Incident and Radiological Incident, are rate higher for Hillsdale than for the planning area as a whole. With daily freight trains passing through the middle of the Village, the potential for a hazardous materials spill is considered to be of concern. Also, the relatively close distance to the nuclear power plant at Cordova rates this as a priority hazard for Hillsdale compared to other jurisdictions. With these other priorities, Tornado moves out of the top five ranking compared to the planning area.

Critical Facilities:

Hillsdale listed seven structures in its inventory of community assets. Three of these are government facilities, including the Village Hall/Police Station, the Fire Protection District facility, and the U.S. Post Office. The other four structures listed are local businesses included for essential services and economic continuity. These include the grain elevator, bank and two convenience stores with gasoline. It was noted that with a small community, everyone turns out to help with flood incidents, including sandbagging threatened properties or moving books from the library.

MILAN

--2000 Census population 5,348
- --3.5% total County
- --Ranks 6 of 16 jurisdictions in size

--Land area 6.98 sq. miles
- --1.3% total planning area
- --Ranks 5 of 16 jurisdictions

Geography:

The Village of Milan is located south of the Rock River. It is bordered by the southwest portion of the City of Rock Island on the west and by the Quad City International Airport on the east. The land area consists of the Rock River floodplain, a north facing bluff, and Mill Creek with its highly dissected valley sides, lesser creeks, terraces and rolling upland plains. The downtown area of Milan is located in the Rock River Valley and is within the 100-year floodplain or special flood hazard area due to the proximity of the Rock River. A certified levee protects Milan's downtown from flooding events on the Mississippi and Rock Rivers as well as Mill Creek. The area along Mill Creek is also within the 100-year floodplain and extends southeast from the present Village limits.

The transition from the Rock River Valley to the upland area is marked by a distinct topographic change from flat low land to slopes. The higher land south of the current Village limits is characterized by rolling terrain. Mill Creek is responsible for much of the topography in this part of Rock Island County. The more level land along the ridge tops is interspersed with very steep, wooded slopes. No historic coal mine sites are recorded in this part of the County.

Hazard Priorities:

Severe Storms (Combined)
Severe Winter Storms
Extreme Heat
Tornado
River Flood

Based on questions about the original scoring of the hazard profiles, the priority hazards for Milan were adjusted according to local experience. As a result, Milan's priority hazards parallel the First Priority hazards for the planning area as a whole. As is typical of the planning area, Severe Storms (Combined), Severe Winter Storms, and Extreme Heat can occur at least annually. River Flood is considered a priority hazard from the several sources that impact Milan, including the Rock River, the Mississippi River and Mill Creek as described in the geography section above. Although floodplain areas are protected by a system of levees, continued certification of those levees is an ongoing concern.

Critical Facilities:

Milan listed 10 facilities in its inventory of community assets. Four of these are related to essential village services, including police, fire, water, and wastewater treatment. Other critical infrastructure includes bridges and river-related levees and dam. Two business locations were noted for the services provided and the economic contribution to the community. This includes a telecommunications transmission center and a major grocery complex. Although protected by the levee system, a number of these sites would otherwise be located in the 100-year floodplain.

MOLINE

--2000 Census population 43,768
    --29.2% total County
    --Ranks 1 of 16 jurisdictions in size
--Land area 16.88 sq. miles
    --3.2% total planning area
    --Ranks 3 of 16 jurisdictions

Geography:

The City of Moline is the largest municipality in terms of population. It is located on the peninsula between the Mississippi and Rock Rivers in the center portion of Rock Island County. Moline is bordered by the City of Rock Island to the west and by the City of East Moline to the east. The Mississippi River runs from east to west through this area known as the Quad Cities, so the Mississippi River is Moline's northern border. Rock Island Arsenal is located on an island of the Mississippi River between Moline and the City of Rock Island. Bluffs facing the Mississippi River to the north and the Rock River to the south form a spine running east to west across the peninsula. As a result, the center portion of Moline is in an upland area that drains off both north and south in steep slopes and ravines.

On the south, Moline touches and crosses the Rock River in several locations. Historic coal mine sites are recorded generally east of I-74 and south of the Avenue of the Cities.

Transportation features include Interstate 74 north and south through the center of City with major interchanges at Illinois Route 5 and I-280. Tracks for the Iowa Interstate Railroad roughly parallel the Mississippi River across the north of the City through the oldest downtown and industrial developed areas.

Hazard Priorities:

Severe Winter Storms
Hazardous Materials Incident
tied Flash Flood/Severe Storms (Combined)
Extreme Heat

Based on scoring of the hazard profiles and local experience, priority hazards for the City of Moline include most of the same hazards as identified as first priority for the planning area as a whole. Differences from the planning area include the second place ranking of Hazardous Materials Incident. With freight transfer by railroad and major highways through developed areas, the frequency and probability of hazardous materials spills is a major concern for the fire department. Flash Flood replaces River Flood for Moline as a priority hazard compared to the planning area. For the Mississippi River, areas of the 100-year floodplain are generally north of the railroad tracks to the Mississippi River. Ben Butterworth Parkway along the edge of the Mississippi provides a buffer and most structures are outside the floodplain. Mississippi River flooding may impact road access and some sewer and water lines, but there is minimal property damage. Access issues for new development east of I74 for RiverTech and the Western Illinois University campus will be mitigated with an all-weather access road. On the Rock River side, much of Moline's river frontage and the 100-year flood plain is taken up by Green Valley Park. Residential development along the Rock River on North Shore and South Shore Drives remains in unincorporated Rock Island County. Flash flood tied with Severe Storms (Combined) in Moline's scoring. With both north and south facing bluffs, heavy rains and run-off in steep or ravine areas have a more immediate and severe impact on structures and foundations. Therefore, urban flash flooding has a higher priority for Moline.

Critical Facilities:

The City of Moline listed 72 facilities in its inventory of community assets. Of these, 30 are designated as critical and include major infrastructure, such as water and sewer system facilities, major medical centers, and bridges. Bridges listed separately include I-74 bridges over Mississippi and Rock Rivers. Other transportation-related facilities listed as critical include the Quad City International Airport, railroads, and the transit system center. Business facilities included as critical relate to electrical energy transmission and fuel products storage. Other local government facilities include City Hall, police and fire departments, library, and municipal garage. Areas noted for vulnerable populations include schools and colleges, child day care, elderly housing and assisted living, low income or minority housing concentrations, and medical facilities. Facilities where large numbers of people may congregate are listed, including arenas and shopping centers. Historic or cultural facilities include the Deere-Wiman House and the Butterworth Center.

OAK GROVE

--2000 Census population 728
- --0.5% total County
- --Ranks 13 of 16 jurisdictions in size

--Land area 0.60 sq. miles
- --0.1% total planning area
- --Ranks 14 of 16 jurisdictions

Geography:

Oak Grove was incorporated as a Village in 1956. It is one of the smaller of the 16 participating communities in the planning area ranking 14 in land area and 13 in population. The only geographic distinction noted for Oak Grove is that it is the only community designated as non-flood prone in the latest FEMA flood map study. Otherwise, the small land area of the incorporated Village is rather flat and surrounded by agricultural uses. Oak Grove scored the Expansive Soils hazard higher than the planning area as a whole, but it is not considered a priority hazard. Without areas of flood plain or slope, soil limitations for any future development are probably minor.

Hazard Priorities:

Severe Winter Storms
Tornado
Severe Storms (Combined)
Extreme Heat
Drought

Four of the hazard priorities listed for Oak Grove are the same as for the planning area as a whole, but in slightly different order. Except for Tornado, the weather-related hazards of Severe Winter Storms, Severe Storms, and Extreme Heat are common to the planning area. For communities with small land area, such as Oak Grove, a tornado could be much more devastating than in a larger community. In addition to the direct effects of these weather events, there may be secondary impacts with power outages and structural damage.

In exception to the First Priority Hazards for the planning area, Oak Grove included Drought within the five highest scoring hazards. This was attributed to the impacts of drought on the agricultural uses that surround the Village. Extended periods of serious drought may also have an impact on the local water supply.

Critical Facilities:

Oak Grove listed only the Village Hall as a specific structure that would be critical if lost in a disaster. Although it is a small structure, it is reported that it could possibly also be used as shelter for residents whose homes are damaged or destroyed by a disaster event. It was noted that Oak Grove has two mobile home parks, Oak Grove and Woodland, that might be potentially more vulnerable in a weather-related hazard event.

PORT BYRON

--2000 Census population 1,535
--1.0% total County
--Ranks 10 of 16 jurisdictions in size
--Land area 2.44 sq. miles
--0.4% total planning area
--Ranks 8 of 16 jurisdictions

Geography:

The Village of Port Byron is in the upper portion of Rock Island County just north of Rapids City. Since the Village is located upstream of the westward bend of the Mississippi, the river forms the western corporate limits. There is a bluff just above the river's edge, so that most of the oldest parts of the Village are outside the 100-year flood plain. However, there are some pockets where the flood plain crosses Main Street along the river, which may affect access to parts of the Village during major floods. As with other river towns in the upper part of the County, Illinois Route 84 travels the line between the higher river bluffs and the flatter land going toward the river. However, instead of paralleling the highway at the upland bluff line, the Burlington Northern and Santa Fe railroad tracks travel right on the edge of the river bluff between Main Street and the Mississippi. The railroad bed forms somewhat of a levee protecting the bluff at the river's edge from erosion.

While original settlement is at the river's edge, newer residential development is in the upland bluff area above and east of Route 84. Because of the slopes and ravines, flash flooding can be an issue in heavy rains. No issues of land subsidence or landslide are reported for the area. Historic Coal mining activity has been mapped in unincorporated areas between Port Byron and Rapids City.

Hazard Priorities:

Severe Storms (Combined)
tied Extreme Heat/River Flood
tied Flash Flood/Tornado
Hazardous Materials Incident

The hazard rankings as originally scored by the Village in the hazard profile evaluations were adjusted to reflect local experience of priority hazards. The highest ranking hazard, Severe Storms (Combined), is common to the planning area as a whole. Unlike the planning area, however, Port Byron has Extreme Heat and River Flood ranking higher and replacing Severe Winter Storms as a priority hazard. Extreme Heat is also seen as occurring at least annually within the planning area. With Mississippi River frontage, the threat of flooding is higher for Port Byron. Next, Tornado as a hazard is in a similar ranked position as the planning area, but is tied with Flash Flood as a priority hazard for Port Byron. As described in the Geography section above, more recent development has been in the upper bluff areas. Port Byron moved Hazardous Materials Incident to a priority hazard ranking, as it is for the planning area as a whole. With daily freight trains moving through the Village, the concern for a possible Hazardous Materials Incident is high. Tank cars carry a variety of chemicals, including some that may react in contact

with water. With the train tracks right at the edge of the Mississippi River, a derailment or spill would be a hazard for Port Byron as well as for communities downstream that use the river as a primary water source.

Critical Facilities:

Port Byron listed 42 structures in its inventory of community assets, of which 21 are noted as critical. Of the critical facilities, several are located at the Village Municipal Building in addition to administrative functions, including police, fire department, emergency operations, and a warming center. Other essential services are also noted, such as water and wastewater treatment. Transmission facilities for electrical power, natural gas, and radio communication are listed, as are transportation facilities such as Illinois Route 84 and those related to the Burlington Northern and Santa Fe railroad tracks. Several commercial facilities are noted that may handle sensitive materials. A church and day care are listed as locations of vulnerable populations. In addition, the Village lists several commercial establishments that would be important for recovery and economic continuity in the event of a disaster. An ambulance station is listed as a medical facility and a park and the Mississippi River are listed as natural resources. The Village also included its summer Tug Fest event on the Mississippi, which draws large numbers of people.

RAPIDS CITY

Jurisdiction name: Rapids City
--2000 Census population 953
    --0.6% total County
    --Ranks 12 of 16 jurisdictions in size
--Land area 1.69 sq. miles
    --0.3% total planning area
    --Ranks 11 of 16 jurisdictions

Geography:

Rapids City is in the upper portion of Rock Island County on the Mississippi River. Because of the bend in the River here, the Mississippi River forms the northwest corporate boundary of the Village. Rapids City is upstream and just east of where I80 crosses the Mississippi River. The Village of Port Byron is upstream to the north and meets the Rapids City corporate limits. Similar to other river towns in the upper part of the County, Illinois Route 84 and the Burlington Northern and Santa Fe railroad track run in a parallel line to the Mississippi River and mark the change in geography between the bluff line and the flatter land surface at the riverfront. First Avenue in the older historic area of development follows the Mississippi shore line and is within the 100-year flood elevation. However, the elevation rises approaching the line of the highway and railroad track, so that portions of the older development are not in the 100-year flood zone. Newer development is south of the highway where the bluffs rise into hills and ravines.

Hazard Priorities:

Severe Storms (Combined)
Tornado
Severe Winter Storms
Extreme Heat
River Flood

Rapids City shares the same ranking of priority hazards as the planning area as a whole. The only difference is that Rapids City scored Tornado slightly higher, so that this hazard changes place with Severe Winter Storms as in the planning area priorities. Rapids City shares the same probability of occurrence of these weather-related hazards as the rest of the planning area. Since the Severe Storms (Combined) and Severe Winter Storms are found to occur at least annually in the planning area, the weather extremes have a high priority for most of the participating jurisdictions. River Flood is a priority for Rapids City with much of its historic development near the Mississippi riverfront. However, the bulk of the land area of Rapids City is at or above the bluff line, so the maximum geographic extent of River Flood as a hazard is comparatively minor.

Although not scored as ranking in the top five, the Hazardous Materials Incident as a hazard is next in line, especially in terms of the speed of onset. With freight trains passing through Rapids City on a daily basis, the possibility of a hazardous materials spill is ranked in the same order as for the planning area as a whole.

Critical Facilities:

The Village of Rapids City listed 12 facilities as community assets. Half of those are associated with Village operations and are considered critical. This would include the Village Hall, Public Works building, and water and wastewater infrastructure. Other facilities are important to economic continuity within the Village. These include the public boat dock and restroom, a bank, and convenience stores. With the exception of the public boat dock, all the facilities listed appear to be located above the 100-year flood elevation.

REYNOLDS

--2000 Census population 508
    --0.3% total County
    --Ranks 16 of 16 jurisdictions in size
--Land area 0.37 (includes part in Mercer Co.)
    --0.1% total planning area
    --Ranks 16 of 16 jurisdictions

Geography:

The Village of Reynolds is the smallest of the participating jurisdictions both in terms of population and land area. Reynolds has no major river frontage. However, the head of Mill Creek is a source of occasional minor flooding. There are no other unique geographic features noted, since the land area of the incorporated Village is relatively small and flat. The Village is surrounded by undeveloped agricultural uses and no specific soil limitations are noted for future

development.

Hazard Priorities:

Severe Storms (Combined)
Tornado
Severe Winter Storms
Wildfire
Extreme Heat

Compared to the hazard priorities of the planning area as a whole, Reynolds includes four of the same weather hazard events in slightly different order. As with the rest of the planning area, Severe Storms, Severe Winter Storms, and Extreme Heat are weather events that are likely to occur annually with both direct and secondary impacts. Reynolds has rated Tornado hazard slightly higher than the planning area as a whole. With a small land area, a tornado touchdown could have devastating impacts to a village the size of Reynolds. All of these weather-related hazards may have power outages as a secondary impact. Reynolds recognizes this and is in the process of storm-proofing the lift station and city water pumps with back-up generators as its priority mitigation action.

The most distinct difference between Reynolds and the planning area is that Wildfire has replaced River Flood in its list of priority hazards. As noted above, there is no major river frontage in Reynolds. With only the head of Mill Creek identifying a Special Flood Hazard Area, the occurrence of flooding is consider infrequent and minor. However, wildfires have occurred from agricultural burning in the open areas surrounding the Village. It is reported that the local rural fire protection district may be called out 5-6 times in a dry fall season for agricultural fires that have gotten out of control.

Critical Facilities:

Reynolds listed nine structures in its list of community assets. None appear to be in a flood hazard area. Six of these are related to Village operations. The Village Hall is listed as an important facility with the fire department, water, and wastewater infrastructure listed as critical. The grade school is also listed as a critical facility and location of a vulnerable population. Two businesses are also listed. One operates for farm service and has agricultural chemicals and fuel on site. A bank location is also listed. Local businesses are important for recovery and continued economic activity in the event of a disaster.

ROCK ISLAND

--2000 Census population 39,684
    --26.7% total County
    --Ranks 2 of 16 jurisdictions in size
--Land area 17.99 sq. miles
    --3.4% total planning area
    --Ranks 2 of 16 jurisdictions

Geography:

The City of Rock Island is the second largest jurisdiction in Rock Island County in terms of population; second only to the City of Moline. However, the City is the largest municipality in land area after the unincorporated County. The older developed areas of the City occupy the toe of the peninsula between the Mississippi and Rock Rivers. In addition, the City has annexed a sizable area southwest of the Rock River. The geology of the peninsula includes bluff lines from both rivers. Bluff areas also are present in the southwest area starting at about 85th Avenue West along the old Rock River flood plain basin. In addition, the southwest area has more undeveloped or agricultural land uses, which makes for higher incidence of grassland wildfires in dry years.

In addition to features that pose natural hazards, Rock Island has both highway and freight rail infrastructure that increases the potential for hazardous materials incidents, from truck traffic and rail shipment of ethanol.

Hazard Priorities:

Severe Storms (Combined)
Severe Winter Storms
Hazardous Materials Incident
River Flood
Tornado

The hazard profiles, which were scored as the top five for the City of Rock Island, closely resemble the same ones selected as first priority for the planning area as a whole. Severe Storms (Combined) and Severe Winter Storms ranked highest with frequency of occurrence at least annually in the whole planning area. The City of Rock Island ranked Hazardous Materials Incident higher than the planning area. With considerable movement of materials by highway and freight rail in a largely developed area, there is greater historical occurrence, vulnerability, and probability of a hazardous materials incident than in less populated portions of the planning area.

River Flood as a hazard also has a priority for the City of Rock Island with two rivers within it corporate boundaries. It was noted in particular that the severity of impacts from river flooding could be greater without the protection of the levees, especially on the Mississippi River side of the City. The flood protection levee system on the Mississippi River was constructed by the U.S. Corps of Engineers, but the City has the responsibility to inspect and maintain these levees. The oldest and most densely populated portion of the City is below the Mississippi River bluff line, including the City's downtown area and municipal buildings. Tornado as a hazard also ranked as a priority hazard for the City of Rock Island after Hazardous Materials Incident and River Flood.

Critical Facilities:

The City of Rock Island listed 78 facilities in its list of community assets. Ten of these are for City operation and infrastructure, including City Hall, fire and police departments, water, and wastewater treatment facilities. Five structures listed are related to Rock Island County administration and operations. Federal facilities include a Federal Building and U.S. Post Office. Fourteen of the facilities listed may include vulnerable populations, including child day care and

senior, disabled, and low-income housing. In addition, 19 school or training facilities are listed with another 16 directly related to the Augustana College campus. Large gathering areas, such as stadiums, arenas, or theaters are listed. The City has included communications facilities, such as radio, television or telecommunications. Several businesses are included that handle sensitive materials, such as fuel or other hazardous materials.

ROCK ISLAND COUNTY (UNINCORPORATED)

--2000 Census population 19,466
- --13.0% total County population
- --Ranks 4 of 16 jurisdictions in size

--Land area 447.12 sq. miles unincorporated only
- --85.6% total planning area
- --Ranks 1 out of 16 jurisdictions

Geography:

Rock Island County is the lead jurisdiction in this multi-jurisdictional plan. The unincorporated land area is the largest of all the jurisdictions in the planning area. While having the fourth largest population of all the jurisdictions, with such a large land area, it is the least densely developed. Undeveloped and agricultural land makes up a large part of the unincorporated area. Rock Island County also has the most river frontage of all the jurisdictions, with the Rock and Mississippi Rivers making up a good portion of its borders. Also because of its large land area, Rock Island County has a sample of more of the different geographic features of the county within its jurisdiction. Larger areas of floodplain, slope, and soils with limitations for development all pose potential hazards for future development.

Hazard Priorities:

Severe Winter Storms
Severe Storms (Combined)
Flash Flood/River Flood (tied)
Tornado
Extreme Heat

Compared to the hazard priorities of the planning area as whole, Rock Island County has the same first two hazards, but in reverse order with Severe Winter Storms scoring higher than Severe Storms (Combined). Similarly, Extreme Heat is listed as a priority because of frequency of occurrence. Tornado also rates as a priority because of the greater probability of some damage within the larger geographic area of the unincorporated County. Also, the lower density development in the unincorporated area has less access to warning systems and shelters than in more compact municipalities. With a larger land area under its jurisdiction, the geographic extent of weather events in unincorporated Rock Island County is greater than the other jurisdictions, but severe impacts in any one given area of development may have less probability.

As expected, River Flood ranks higher for Rock Island County than for the planning area as a whole. Flash Flood was moved up from its originally scored position to tie with River Flood. With the occurrence of ice jams on the Rock River causing flooding with little advance warning,

it is easy to see why Flash Flood is equal to River Flood in Rock Island County priority. Indeed, ice jam flooding raised the Rock River levels at the Moline gauge location to record levels in March 2008 while this plan was in development.

Critical Facilities:

A number of community assets for Rock Island County are located within incorporated jurisdictions. Critical facilities, such as the Rock Island County Courthouse and the Rock Island County Office Building, are already listed for the City of Rock Island where they are located. Since some assets for Rock Island County were listed with the municipalities, this reduced the number of remaining assets to list. As a result, Rock Island County has identified six critical facilities, generally located in unincorporated areas. These facilities include the county emergency management office, the Highway Department building, and several rural fire protection district stations located in the unincorporated area.

SILVIS

--2000 Census population 7,269
- --4.9% total County
- --Ranks 5 of 16 jurisdictions in size

--Land area 4.21 sq. miles
- --0.8% total county area
- --Ranks 6 of 16 jurisdictions

Geography:

The City of Silvis ranks as the fifth largest jurisdiction in the planning area by population and as sixth by land area. The City is bordered by the City of East Moline on the north and west and by the Village of Carbon Cliff on the east. Located on the peninsula between the Rock and Mississippi Rivers, there are areas of river bluff and steep slopes. However, the corporate boundaries of the City do not touch or include either river. There is a flood plain and wetland area north of the rail yard to the northern boundary of the City. There is a flood protection levee in this area that also runs west into East Moline. The historic rail yard and trackage in this northern area was used as a place to reassemble train cars. There is still considerable freight traffic, but less than at its historic peak.

Historic records of coal mine activity show some sites located between Silvis and East Moline. No mine subsidence issues are reported for Silvis. However, coal mine locations may be in currently unincorporated or undeveloped areas and maybe an issue for future development.

Hazard Priorities:

Severe Storms (Combined)
Severe Winter Storms
Flash Flood
Tornado
Hazardous Materials Incident

The City of Silvis has the same two top ranked hazards as the county-wide planning area as a whole. Both Severe Storms (Combined) and Severe Winter Storms occur in the planning area at least annual and create other hazards, such as power outages. Although numerically scored as a tie with Severe Storms (Combined), it was decided to move Hazardous Materials Incident down in the list, but still within the top five. This moved Flash Flood to third place for Silvis as opposed to the River Flood, which is a First Priority for the planning area. As noted in the geographic narrative above, Silvis does not have any river shoreline for direct river flooding. However, with the bluff and steep slopes, urban flooding may occur with heavy rainfall as a Flash Flood hazard. Tornado is included as a top hazard, as it is for the rest of the planning area. Hazardous Materials Incident, though moved out of its first place tie in scoring, matches the priority ranking of this hazard with the planning area. As described in the narrative, there is considerable freight rail activity in Silvis. In addition, there are Illinois Highway routes 5, 92 and 84 which add highway and truck traffic to the potential for Hazardous Materials Incident within the corporate boundaries of Silvis.

IV. MITIGATION STRATEGY

LOCAL HAZARD MITIGATION GOALS

As risk assessment and analysis developed vulnerabilities and priorities for the county-wide planning area, local goals and objectives were developed. The language and structure of hazard mitigation goals and objectives from other resources and plans were examined and considered. Resources reviewed included the FEMA Hazard Mitigation How-To Guides, the 2004 Illinois Natural Hazard Mitigation Plan, and the Local Hazard Mitigation Plan prepared for Davenport, Iowa. Because this is a multi-jurisdictional plan, the goals are broad and apply to the county-wide planning area as a whole as agreed upon by the plan Steering Committee. Within these broad goals and objectives, individual jurisdictions may differ in the hazards they have as priorities. The Steering Committee reviewed the Goals and Objectives and determined to sequence the goals to show importance in descending order with the most important goal first.

Goals:

1. Goal: Protect human life and health.

   Objectives:
   - 1.1. Evaluate and coordinate warning systems
   - 1.2 Identify shelters and resources for protection

2. Goal: Minimize the need for rescue and relief efforts associated with all hazards.

   Objectives:
   - 2.1. Identify vulnerable populations and households
   - 2.2. Coordinate information exchange among rescue and response agencies

3. Goal: Minimize damage and displacement of private property, including both residential and commercial.

   Objectives:
   - 3.1. Minimize prolonged business interruptions due to all hazards
   - 3.2. Minimize displacement of residents due to all hazards

4. Goal: Minimize expenditure of community resources for response and recovery resulting from all hazards.

   Objectives:
   - 4.1. Improve coordination and communication among jurisdictions for mitigation actions
   - 4.2. Evaluate and continue ongoing mitigation efforts

5. Goal: Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, bridges and roads.

Objectives:
- 5.1. Expand emergency operations procedures already established for Mississippi River flooding and other priority hazards
- 5.2. Identify vulnerabilities of public facilities to all high-priority hazards

6. Insure that the public is adequately informed of the potential for all hazards to occur and of the means of warning, mitigation, and recovery available within the County-wide planning area.

   Objectives:
   - 6.1. Continue public information and education efforts
   - 6.2. Focus on vulnerable populations, households and businesses

IDENTIFICATION AND ANALYSIS OF MITIGATION ACTIONS

FEMA guidance for pre-disaster hazard mitigation planning requires examining a comprehensive range of mitigation actions and projects for each hazard. Six broad categories are used in FEMA guidance documents to describe a range of mitigation measures.

RANGE OF MITIGATION MEASURES

1. **Preventive Measures (PM).** Government administrative or regulatory actions or processes are developed and implemented that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Preventative measures are used to keep problems from getting started or getting worse. Mitigation measures that fall into this group include planning and zoning, building codes, conducting technical studies, inspection, enforcement, implementation, hazard analysis and risk assessment, security, capital improvement programs, open space preservation, and storm water management regulations. Community participation in the National Flood Insurance Program (NFIP) also protects both individuals and the community as a whole from devastating losses.
2. **Property Protection (PP).** These are measures that involve the modification of existing buildings or structures to protect them from a hazard(s), or removal from the hazard area. They are implemented in order to remove people, property, and businesses permanently out of unsafe areas where, in terms of wise disaster planning, they should not have been in the first place. Property protection measures include acquisition, elevation, relocation and structural retrofits.
3. **Public Education and Awareness (PE).** These measures help to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. These measures include outreach projects, real estate disclosure, hazard information centers, and school age and adult education programs.
4. **Natural Resource Protections (NR).** These are actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor protections and restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.

5. **Emergency Services (ES).** These actions protect people and property during and after a disaster event in order to minimize its impact and preserve the community's health and safety. Emergency services include warning systems, monitoring systems, response and recovery planning, emergency response services, evacuations, protection of critical facilities, acquisition of equipment to facilitate the delivery of theses services, and training for responders in emergency situation.
6. **Structural Projects (SP).** These projects involve the construction and maintenance of structures to reduce or redirect the impact of a hazard away from at-risk populations and facilities. Such structures include, but are not limited to, dams, levees, floodwalls, seawalls, retaining walls, and safe rooms.

As previously determined by the Steering Committee, mitigation actions for this initial county-wide plan would focus on hazards identified as a first priority. Those first priority hazards include:

Severe Storms (Combining Wind/Hail/Rain/Lightning, etc.)
Severe Winter Storms
Tornado
Extreme Heat
River Flood
Hazardous Materials

The identified hazards and their ranking may differ somewhat for individual jurisdictions based on their unique conditions within Rock Island County. However, all jurisdictions include most of these county-wide hazards and the overall prioritization was agreed to by the Steering Committee.

EVALUATION OF ALTERNATIVE MITIGATION ACTIONS

As an initial effort, the Steering Committee brainstormed possible mitigation actions to address the First Priority Hazards. These were sorted by the six categories within the comprehensive range of mitigation action to identify where other actions might be considered. The original action concepts were edited into consistent language of actionable items. Next, the actions were assigned to appropriate Goals and Objectives and numbered accordingly. During the process of developing hazard mitigation actions, a number of suggestions were added to the original list. These are noted as appropriate in the evaluation.

Actions were evaluated according to the STAPLEE method recommended by FEMA guidance for local hazard mitigation planning. This method provides a systematic way of evaluating the opportunities and constraints of implementing a particular mitigation action in the local jurisdiction. STAPLEE is an acronym for evaluating each action in terms of Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) factors for implementation. A more detailed explanation of the STAPLEE evaluation method is in Appendix IV-1. A sample of the STAPLEE worksheet is included as Appendix IV-2.

Staff did the first round of evaluation with the Deputy Director of Rock Island County Emergency Management Agency (EMA). This first round eliminated duplications and actions that were already being done appropriately by other agencies. Staff also did the initial STAPLEE analysis. The full list of mitigation actions considered and those recommended as a priority were presented to the Steering Committee for review.

Because of the extensive detail of the STAPLEE analysis, that information is included as a separate Appendix IV-3. This appendix contains the list of all actions considered, the first priority hazard or hazards addressed, and the category of Mitigation Measure. The STAPLEE evaluation form is summarized there along with comments. The summary indicates whether the action is recommended as a priority. Actions not included as priorities are also listed with reasons for elimination. Information includes whether the action applies to existing or new community assets and a brief Benefit/Cost review.

Following Steering Committee review and concurrence, the priority actions selected are summarized in the following Table IV-1.

Table IV-1
Priority Mitigation Actions for Planning Area

Goal	Strategy	Estimated Cost	Funding	Timeframe	Implementation/Administration
1.1.1	Test warning systems (Multiple hazards) Preventive Measure	Ongoing	Local	Ongoing	Rock Island County Emergency Management Agency (No additional cost as part of routine maintenance)
1.1.2	Evaluate siren systems for adequate warning coverage (Multiple hazards) Emergency Services	N/A	Local	Ongoing	Rock Island County Emergency Management Agency (Additional costs for more sirens may be identified in course of evaluation)
1.1.3	Review tornado response plan (Tornado) Preventive Measure, Emergency Services	N/A	Local	Ongoing	Rock Island County Emergency Management Agency (Cost in staff time as necessary)
1.1.4	Coordinate flood warning systems (River Flood) Preventive Measure	N/A	Local	Ongoing	Rock Island County Emergency Management Agency (Cost in staff time as necessary)
1.1.5	Consider route changes for transportation of hazardous materials (Hazardous Materials) Preventive Measure	N/A	Local State	1-5 Years	Rock Island County Emergency Management Agency with Illinois DOT (Additional costs may be identified in evaluation)
1.2.1	Consider safe room construction where vulnerable populations may not have other sources of shelter (Tornado, Severe Storms (Combined) Structural Project	Dependent on size and location	FEMA 75% Local 25%	1-5 Years	Chief elected officials of participating jurisdiction (Timing dependent on available funding)
1.2.2	Establish warming or cooling centers (Severe Winter Storms and Extreme Heat) Emergency Services	N/A	Local	1-5 Years	Rock Island County Emergency Management Agency (Additional costs may be identified depending on available facilities)

Goal	Strategy	Estimated Cost	Funding	Timeframe	Implementation/Administration
1.2.4	Identify flood shelter facilities and develop use agreements (River Flood) Emergency Services	N/A	Local	1-5 Years	Rock Island County Emergency Management Agency (Additional costs may be identified depending on available facilities)
2.1.1	Identify locations of vulnerable populations, such as elderly. (Extreme Heat and other hazards) Public Education and Awareness/Preventive Measure	N/A	Local	1-5 Years	Rock Island County Emergency Management Agency
2.2.1	Designate or coordinate emergency routes (Multiple hazards) Emergency Services	N/A	Local State	1-5 Years	Rock Island County Emergency Management Agency with Illinois DOT (Cost in staff time as necessary)
2.2.2	Develop a coordinated resource list for equipment, such as snowmobiles, 4-wheel vehicles, etc. to share among jurisdictions in emergency events (Multiple hazards) Emergency Services	N/A	Local	1-5 Years	Responsibility of participating jurisdictions in coordination with Rock Island County EMA. Cost in staff time as necessary
2.2.3	Formalize intergovernmental cooperation as needed (Multiple hazards) Preventive Measure/ Emergency Services	N/A	Local	1-5 Years	Rock Island County Emergency Management Agency (Cost in staff time as necessary)
2.2.4	Update levee certification (River Flood) Preventive Measure/Property Protection	Estimated $50,000 - $200,000	Federal State Local	1-5 Years	Chief elected officials of participating jurisdictions (Certification costs vary depending on complexity of levee system. Smaller jurisdictions will likely require outside funding resources.)
2.2.5	Seek funding to undertake rehabilitation or reconstruction of levees as needed for certification (River Flood) Structural Project	Unknown	Federal State Local	1-10 Years	Chief elected officials of participating jurisdictions (Reconstruction costs may be beyond ability of most participating jurisdictions without additional funding resources)

Goal	Strategy	Estimated Cost	Funding	Timeframe	Implementation/Administration
2.2.6	Coordinate with U.S. Army Corps of Engineers (USACE) for flood warning and response (River Flood) Emergency Services	N/A	Local	1-5 Years	Rock Island County Emergency Management Agency (Cost in staff time as necessary)
2.2.9	Look for more information on hazardous materials incidents for the next plan update and distinguish between fixed sites and transportation-related incidents (Hazardous Materials) Preventive Measure	N/A	Local	1-5 Years	Rock Island County Zoning Department (Cost in staff time as necessary)
3.2.1	Enforce and update building codes to 2009 International Code Series (Multiple hazards) Preventive Measure	No additional cost	Local	1-5 Years	Building inspectors for participating jurisdictions (No additional cost as a part of routine enforcement)
3.2.2	Assure that mobile homes have adequate tie downs (Multiple hazards) Preventive Measure	No additional cost	Local	Ongoing	Building inspectors for participating jurisdictions (No additional cost as a part of routine enforcement)
3.2.4	Continue NFIP compliance by enforcing local flood plain ordinances based on State of Illinois Model Code, which exceeds NFIP minimum requirements. Details in Floodplain Information section. See also 3.2.5	No additional cost	Local	Ongoing	Floodplain ordinance enforcement official for each participating jurisdiction (No additional cost as a part of routine enforcement)
3.2.5	Enforce flood plain ordinances that follow the State of Illinois model, which is mores stringent than NFIP in regard to language concerning substantial damage, substantial improvement, and cumulative damage (River Flood) Property Protection	No additional cost	Local	Ongoing	Floodplain ordinance enforcement official for each participating jurisdiction (No additional cost as a part of routine enforcement)
3.2.6	Elevate properties (River Flood) Property Protection	Dependent on individual structures	Up to $30,000 NFIP ICC	Ongoing	Responsibility of individual property owners per NFIP enforcement. (No additional cost to participating jurisdictions as part of routine enforcement)

Goal	Strategy	Estimated Cost	Funding	Timeframe	Implementation/Administration
3.2.7	Consider voluntary flood acquisition programs (River Flood) Property Protection	Unknown	FEMA 75% Local 25%	5-10 Years	Chief elected officials of participating jurisdictions (Dependent on requests for voluntary acquisition from individual property owners and availability of resources)
4.1.2	Designate shelter locations (Multiple hazards) Emergency Services/ Public Education and Awareness	N/A	Local	1-5 Years	Rock Island County Emergency Management Agency (Costs dependent on available facilities)
4.1.3	Coordinate flood response (River Flood) Emergency Services	N/A	Local	Ongoing	Rock Island County Emergency Management Agency (Cost in staff time as necessary)
4.1.4	Seek funding for staff training in stormwater management (River Flood) Preventive Measure	Unknown	Federal State Local	1-5 Years	Rock Island County Emergency Management Agency (Make use of outside resources as available for training costs)
4.2.2	Develop procedures for sand bag clean up after floods (River Flood) Natural Resources	Unknown	Local	1-5 Years	Rock Island County Emergency Management Agency (Cost in staff time as necessary. Additional costs to implement procedures dependent on occurrence of flood event.)
4.2.3	Consider use of prisoners from East Moline Correctional Facility for sandbagging (River Flood) Emergency Services	Unknown	State	1-5 Years	Rock Island County Emergency Management Agency (State costs attributable to prison system)
4.2.4	Review local ordinances to assure that requirements for roofing snow loads are maintained or increased to at least 30 lbs (Severe Winter Storms) Property Protection	N/A	Local	Ongoing	Rock Island County Zoning Department (Cost in staff time as necessary)

Goal	Strategy	Estimated Cost	Funding	Timeframe	Implementation/Administration
4.2.5	Refine identification of critical facilities in more detail for the next plan update, especially structures on the 100-year flood plain (Multiple hazards) Preventive Measure	N/A	Local	1-5 Years	Rock Island County Zoning Department (Cost in staff time as necessary)
5.1.1	Identify critical facilities, such as lift stations, where back-up power generators should be installed (Multiple hazards) Emergency Services	Unknown	Federal State Local	1-5 Years	Rock Island County Emergency Management Agency (Cost dependent on size and use of generator needs identified. May require outside funding resources.)
5.1.2	Seek funding for local training on fire code enforcement (Hazardous Materials) Emergency Services	Unknown	Federal State Local	Ongoing	Rock Island County Emergency Management Agency (Cost of additional training may not be budgeted and may require outside resources)
5.1.4	Identify critical waterways and flood plain areas that may be subject to hazardous materials spills (Hazardous Materials) Natural Resources	N/A	Local	Ongoing	Rock Island County Emergency Management Agency (Cost of staff time as necessary)
5.2.2	Protect waterways from hazardous materials spills (Hazardous Materials) Natural Resources/ Preventive Measure	Unknown	Federal State Local	Ongoing	Rock Island County Emergency Management Agency (Cost unknown unless and until need is identified in 5.1.4. Depending on need, outside resources may be required.)
5.2.4	Research options to protect sewer systems to the 100-year flood level (River Flood/Preventative Measure)	N/A	Local	1-5 Years	Rock Island County Zoning Department (Cost of staff time as necessary)
6.1.2	Encourage purchase of NOAA radios for residents and facilities that house vulnerable populations or are venues for large crowds of people (Multiple hazards) Preventive Measure/Public Education and Awareness	Estimated at about $50 per NOAA radio	Federal State Local	Ongoing	Rock Island County Emergency Management Agency (Depending on identified need, outside resources may be required)

Goal	Strategy	Estimated Cost	Funding	Timeframe	Implementation/Administration
6.1.4	Make educational materials about flood areas, regulations, mitigation measures, and insurance limitations available to the public (River Flood) Public Education and Awareness	No additional cost	Local	Ongoing	Rock Island County Emergency Management Agency (No additional costs making use of currently available materials)
6.2.1	Establish programs for storm warnings (Multiple hazards) Public Education and Awareness	N/A	Local	Ongoing	Rock Island County Emergency Management Agency (Cost in staff time for coordination as necessary)
6.2.2	Encourage development of check-on-neighbor programs (Multiple hazards) Preventive Measure/ Public Education and Awareness	N/A	Local	Ongoing	Rock Island County Emergency Management Agency with Red Cross (Cost in staff time for coordination as necessary)

MULTI-JURISDICTION MITIGATION ACTIONS

In addition to the priority actions identified for the planning area as a whole, each participating jurisdiction identified at least one of its own actions to carry out. Staff assisted with the STAPLEE evaluation of these actions as shown in Appendix IV-4. The evaluations were reviewed by the jurisdictions and the actions were identified as priorities. The individual jurisdiction priority actions are summarized in Table IV-2.

Table IV-2
Multi-Jurisdiction Priority Actions

Goal	Strategy	Estimated Cost	Funding	Timeframe	Implementation/Administration
3.2	Village of Andalusia Village of Carbon Cliff Village of Coal Valley Village of Cordova City of East Moline Village of Hampton Village of Hillsdale Village of Milan City of Moline Village of Port Byron Village of Rapids City Village of Reynolds City of Rock Island Rock Island County City of Silvis Continue NFIP compliance by enforcing local flood plain ordinances based on State of Illinois Model Code, which exceeds NFIP minimum requirements. Flash Flood and River Flood hazards/ Preventive Measure	No additional cost	Local	Ongoing	Responsibility of flood plain ordinance enforcement official for each jurisdiction listed.
4.2	Village of Andalusia Reconstruct levee to meet 100-year flood certification. River Flood/Structural Measure	$1,000,000 estimated	Federal Local	1-5 Years	President of Village Board of Trustees (Enlist assistance from USACE. Outside finding sources required. Project dependent on available funding.)

Goal	Strategy	Estimated Cost	Funding	Timeframe	Implementation/Administration
5.2	Village of Andalusia Relocate well head out of flood plain and realign distribution system with water tower River Flood, Extreme Heat, and Drought/Structural Measure and Preventive Measure	$1,000,000 estimated	Federal State Local	5-10 Years	President of Village Board of Trustees (Final engineering costs unknown at this time. Project dependent on outside funding resources.)
5.2	Village of Carbon Cliff Alleviate flooding from stormwater runoff by designing and installing stormwater management improvements encompassing Best Management Practices Flash Flood and River Flood/ Structural Project	Estimated $3.7 million	Federal Local	Ongoing	President of Village Board of Trustees (Short-term project dependent on available funding. Preliminary engineering design and construction plans have been completed.)
4.2	Village of Coal Valley Purchase one 6"diesel pump and flood gate River Flood and Severe Storms (Combined) hazards/Emergency Services	Estimated $49,000	Federal Local	1-5 Years	President of Village Board of Trustees (Project dependent on available funding)
5.2	Village of Cordova Purchase generators for emergency backup Multiple hazards/ Emergency Services	$66,000 for lift station $71,000 for water tower and well pump	Federal Local	1-5 Years	President of Village Board of Trustees (Short-term project. Project dependent on availability of outside funding.)
4.2	City of East Moline Purchase pumps and generator (for stand-by power) for flood gates. River Flood and Severe Storm (Combined)/ Structural Project	Unknown	Federal State Local	1-5 Years	Mayor and Department of Fire and Rescue (Project timing dependent on availability of outside funding sources)
1.1	Village of Hampton Purchase two warning sirens @ $17,000 each Multiple hazards/Emergency Services	$32,000	Federal Local	1-5 Years	Police Chief (Completion dependent on the availability of outside funding sources)

Goal	Strategy	Estimated Cost	Funding	Timeframe	Implementation/Administration
4.2	Village of Hillsdale Repair and reconstruct area levee to 100-year flood level. River Flood Hazard/Structural Measure	Estimated $45,000-$50,000	Local	Ongoing	President of Village Board of Trustees (Short-term project. Land acquired. Project will eliminate flood water entry from one end of town.)
5.1	Village of Milan Establish written procedure for severe weather and hazard events. Multiple Hazards/Preventative Measures and Emergency Services	N/A	Local	1-5 Years	President of Village Board of Trustees and Fire, Police, and Public Works Departments
1.2	City of Moline Purchase back-up generators for fire stations	Estimated $82,000	X	1-5 Years	Mayor and City Emergency Management Coordinator (Short-term project depending on the availability of funds)
1, 2 and 3	City of Moline Secure outside funding to update and enhance the City's emergency services preparedness plan	Estimated $5,000-$10,000	Federal State Local	1-5 Years	Mayor and City Emergency Management Coordinator (Short-term project depending on the availability of funds)
1.1 and 6	Village of Oak Grove Purchase and install siren warning system to replace Coyne Center sirens that have been disconnected. Multiple hazards/Emergency Services	$15,953.75	Federal Local	1-5 Years	President of Village Board of Trustees (Project dependent on available funding)
1.2 and 3.1	Village of Oak Grove Work on municipal building as a potential shelter space Multiple hazards/Emergency Services	Unknown	Federal State Local	1-5 Years	President of Village Board of Trustees (Project dependent on available funding)
1.2 and 5.1	Village of Port Byron Purchase building for Emergency Operations Center (EOC) with heating/cooling shelter facilities. Extreme Heat and Severe Winter Storms Emergency Services	$1.2 million	Federal State Local	5-10 Years	President of Village Board of Trustees (Project dependent on available funding)

Goal	Strategy	Estimated Cost	Funding	Timeframe	Implementation/Administration
7.2	Village of Rapids City Establish warming and/or cooling center Severe Winter Storm and Extreme Heat/Emergency Services and Structural Project measures	Negligible for existing building	Local	1-5 Years	President of Village Board of Trustees (Short-term project)
1.2 and 6.2	City of Rock Island Establish coordinated warming and/or cooling centers Severe Winter Storm and Extreme Heat/Emergency Services and Structural Project measures	Minimal for existing buildings	Local	1-5 Years	Mayor in coordination with Township officials (Short-term project)
5.2	Village of Reynolds Purchase and install back-up generators for lift station and water supply pumps Multiple Hazards/ Emergency Services Measure	$50,000	Federal Local		President of Village Board of Trustees (Short-term project dependent on availability of funding resources)
1.2 and 6.2	City of Rock Island Establish coordinated warming and/or cooling centers Severe Winter Storm and Extreme Heat/Emergency Services and Structural Project measures	Minimal for existing buildings	Local	1-5 Years	Mayor in coordination with Township officials (Short-term project)
3.2	Rock Island County Pursue voluntary acquisition program for Barstow area trailer park. River Flood/Property Protection	Unknown at this time	Federal Local	1-5 Years	Rock Island County Zoning Department (Project dependent on availability of outside funds and voluntary participation of property owners)
5.1	City of Silvis Establish written procedures for severe weather hazard events Multiple hazards /Preventive Measures and Emergency Services	Minimal	Local	1-5 Years	Mayor and Police, Fire, and Public Works Departments (Short-term project)

V. PLAN MAINTENANCE PROCESS

MONITORING THE PLAN

Rock Island County will be the lead in overall monitoring of the plan. The Steering Committee structure as described in the Planning Process section will be maintained to assure that each jurisdiction participates. Jurisdictions will be asked to fill vacancies at least annually to maintain a primary contact for the plan maintenance process. The Rock Island County Zoning Department will schedule an annual meeting of the Steering Committee to track the progress made on implementation of priority actions for both the planning area and individual jurisdictions. Generally, municipalities with their own ordinances and enforcement procedures will be responsible for monitoring their individual mitigation actions. At the annual meeting, the Steering Committee will also review the plan and make recommendations whether plan amendments or updates are needed due to changing conditions.

EVALUATING THE PLAN

Criteria used in evaluating the plan will be based on the success of carrying out priority mitigation actions as identified in the Plan. As part of the annual meeting described above, the Steering Committee will also evaluate whether events of the previous year have affected the priority ranking of identified hazards. Finally, the Steering Committee will evaluate whether the benefits of the priority actions are addressing the identified goals and objectives of the plan. The Rock Island County Zoning Department will be responsible for preparing periodic progress reports on the plan. This report will be copied to the Chief Elected Officials of the participating jurisdictions and other primary contacts as appropriate.

UPDATING THE PLAN

The plan will be updated within five years of the date of the Federal Emergency Management Agency's (FEMA) approval of the plan as required by part 201.6(c)(4)(i) of the Local Hazard Mitigation Plan Review Crosswalk. The plan may be updated earlier at the discretion of the Steering Committee, or in the event of a Presidential Disaster Declaration, which requires an update by regulation. The County Zoning Department will be responsible for collecting and maintaining information pertinent to future plan updates based on recommendations of the Steering Committee. Any changes will be documented and appended to the plan document in a section titled "Amendments" until such time as a full update is scheduled. If no earlier update is needed, the Steering Committee will evaluate the need for funding assistance for the update at its third annual meeting. This will allow time to make an application for planning grant funds and identify whether a contract with a consultant will be necessary for the update process. Actions to undertake the plan update should be scheduled so that there is continuity of FEMA approval for the applicable plan document.

INCORPORATION INTO EXISTING PLANNING MECHANISMS

Early in the planning process, participating jurisdictions were asked to list their own existing local planning mechanisms and ordinances to evaluate what was already in place to incorporate the requirements of the mitigation plan. These lists are summarized in a matrix of existing planning mechanisms for the participating jurisdictions as shown in Appendix II-8.

What:
For this initial plan, incorporating requirements of the mitigation plan will focus on existing planning mechanisms common among participating jurisdictions. These include:

-Comprehensive/Land Use Plans
-Subdivision Regulations
-Zoning Ordinances
-Building Codes
-Flood Plain Management Ordinances

Comprehensive/land use plans, or subdivision regulations for communities without a current comprehensive plan, provide the guidance for a community's ongoing and future development. The remaining ordinances and regulations listed above provide the enforcement tools for those development plans.

Who:
Rock Island County Zoning Department will collect information on review and incorporation of requirements of the mitigation plan. Rock Island County Zoning Department contracts enforcement of many of the above-listed planning mechanisms for a number of the smaller jurisdictions in the County. Larger communities with their own planning and ordinance enforcement officials will review their own existing planning mechanisms. These larger communities can communicate any adjustments in their planning mechanisms through their representation on the Steering Committee.

How:
Existing planning mechanisms will be reviewed for consistency with the requirements of the Local Hazard Mitigation Plan in order to avoid duplication of efforts among jurisdictional departments or enforcement officials. Risk analysis and vulnerability data from the Local Hazard Mitigation Plan should be incorporated in the comprehensive/land use plans of each participating jurisdiction during regular review and update cycles. Risk analysis and vulnerability data and mitigation actions will be incorporated into enforcement tools where appropriate. For example, references to the scale of earthquake intensity may be appropriate to Building Codes. Any adjustments or amendments to existing planning mechanisms will be made through the regular review cycle of the participating jurisdiction. Inconsistencies found between existing planning mechanisms and the Local Hazard Mitigation Plan should be reported to the Rock Island County Zoning Department for the annual plan review meeting.

When:
Rock Island County Zoning department will report at least annually on the progress of incorporating requirements of the mitigation plan through the meeting of the Steering Committee as described in the Monitoring the Plan section above. Any issues reported of inconsistency between the Local Hazard Mitigation Plan and existing planning mechanisms will be considered for Plan amendments or updates.

CONTINUED PUBLIC INVOLVEMENT

Rock Island intends to make use of its website for continued public involvement. The website has been used in the plan process to keep the public informed about plan document drafts in progress and Steering Committee meetings. The website will continue to be used to post the final Local Hazard Mitigation Plan document as adopted and approved by FEMA. The website also contains related hazard mitigation resources and links. Annual Meetings of the Steering Committee will be publicized in the local newspaper of general circulation and the meeting notice will also be posted at the website. Progress reports will also be posted to the website as issued. Public comments on the plan process or document will be recorded and reported at the Annual Meeting of the Steering Committee.

APPENDICES

APPENDIX I-1

CORRESPONDENCE FROM FEMA REGARDING PLAN APPROVAL

U.S. Department of Homeland Security
Region V
536 South Clark Street, Floor 6
Chicago, IL 60605

FEMA

APR 6 2009

Mr. Ron Davis
State Hazard Mitigation Officer
Illinois Emergency Management Agency
1035 Outer Park Drive
Springfield, Illinois 62704

Dear Mr. Davis:

Thank you for submitting adoption documentation for the Rock Island County Hazard Mitigation Plan. The plan was reviewed based on the local plan criteria contained in 44 CFR Part 201, as authorized by the Disaster Mitigation Act of 2000. Rock Island County met the required criteria for a local hazard mitigation plan and the plan is **approved** for the County, the City of Rock Island, and the Villages of Andalusia, Coal Valley, Hampton, Hillsdale, Milan, Moline, Port Byron and Rapids City. However, formal approval of this plan for the remaining participating jurisdictions in Rock Island County **is contingent** upon the adoption of the plan by those jurisdictions.

The approval of this plan ensures continued availability of the full complement of Hazard Mitigation Assistance (HMA) Grants. All requests for funding, however, will be evaluated individually according to the specific eligibility and other requirements of the particular program under which the application is submitted.

Over the next five years, we encourage Rock Island County to follow the plan's schedule for monitoring and updating the plan, and continue their efforts to implement the mitigation measures. The plan must be reviewed, revised as appropriate, resubmitted, and approved within five years in order to continue project grant eligibility.

Please pass on our congratulations to the community on completing this significant action. If you or the community has any questions, please contact Jonathan (J.P.) Marsch at (312) 408-5226.

Sincerely,

Norbert Schwartz, Director
Mitigation Division

RECEIVED
APR 0 8 2009
Illinois Emergency Management Agency

www.fema.gov

U.S. Department of Homeland Security
Region V
536 South Clark Street, Floor 6
Chicago, IL 60605

FEMA

Mr. Ron Davis
State Hazard Mitigation Officer
Illinois Emergency Management Agency
1035 Outer Park Drive
Springfield, Illinois 62704

APR 29 2009

Dear Mr. Davis:

Thank you for submitting additional adoption documentation for the Rock Island County Hazard Mitigation Plan. The plan was reviewed based on the local plan criteria contained in 44 CFR Part 201, as authorized by the Disaster Mitigation Act of 2000. Rock Island County met the required criteria for a local hazard mitigation plan and the plan is now **approved** for the City of Silvis and the Villages of Carbon Cliff, Cordova, and Oak Grove.

The approval of this plan ensures continued availability of the full complement of Hazard Mitigation Assistance (HMA) Grants. All requests for funding, however, will be evaluated individually according to the specific eligibility and other requirements of the particular program under which the application is submitted.

We encourage these communities to work with Rock Island County to follow the plan's schedule for monitoring and updating the plan, and continue their efforts to implement the mitigation measures.

Please pass on our congratulations to the community on completing this significant action. If you or the community has any questions, please contact Jonathan (J.P.) Marsch at (312) 408-5226.

Sincerely,

Norbert Schwartz

Norbert Schwartz, Director
Mitigation Division

www.fema.gov

U.S. Department of Homeland Security
Region V
536 South Clark Street, Floor 6
Chicago, IL 60605

FEMA

SEP 25 2008

Mr. Ron Davis
State Hazard Mitigation Officer
Illinois Emergency Management Agency
1035 Outer Park Drive
Springfield, IL 62704

Dear Mr. Davis:

Thank you for submitting the Rock Island County Hazard Mitigation Plan for our review. The plan was reviewed based on the local plan criteria contained in 44 CFR Part 201, as authorized by the Disaster Mitigation Act of 2000, as well as the Flood Mitigation Assistance Program (FMA). Rock Island County met the required criteria for a multi-jurisdictional hazard mitigation plan. Formal approval of this plan is contingent upon the adoption by the participating jurisdictions of this plan. Once FEMA Region V receives documentation of adoption from the subgrantee (and other jurisdictions, as appropriate), we will send a letter of official approval to your office.

We look forward to receiving the adoption documentation and completing the approval process for Rock Island County.

If you or the community has any questions, please contact me at (312) 408-5226.

Sincerely,

Jonathan (J.P.) Marsch, Mitigation Planner
Risk Analysis Branch
Mitigation Division

Attachments: Local Plan Review Sheets

www.fema.gov

APPENDIX I-2

SAMPLE RESOLUTION

Exhibit 1: Adoption Resolution

(Name of Jurisdiction) _____

(Governing Body) _____

(Address) _____

RESOLUTION

WHEREAS, *(Insert name of Jurisdiction)*, with the assistance from *(Insert name of Plan Author)*, has gathered information and prepared the *(Insert name of the Multi-Jurisdictional Plan)*; and,

WHEREAS, the *(Insert name of the Multi-Jurisdictional Plan)* has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, *(Insert name of Jurisdiction)* is a local unit of government that has afforded citizens an opportunity to comment and provide input in the Plan and actions in the Plan; and

WHEREAS, *(Insert the name of the governing body)* has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by *(Insert the name of the governing body)* that *(Insert name of Jurisdiction)* adopts the *(Insert name of the Multi-Jurisdictional Plan)* as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this _____ day of _____, 200____ at the meeting of the *(Insert the name of the governing body)*.

Insert appropriate signature lines and dates

_____
(Mayor, Village Clerk, County Board Chair, etc.)

Source: Mlti-Jurisdictional Mitigation Planning; State and Local Mitigation Planning How-To Guide Number Eight; FEMA 386-A; August 2006

APPENDIX I-3

COPIES OF SIGNED MULTI-JURISDICTION ADOPTIONS

RESOLUTION NO. 644

Village of Andalusia
Village President and Board of Trustees
221 1st ST, P.O. Box 789
Andalusia, IL 61232

WHEREAS, the Village of Andalusia, with the assistance from Rock Island County the Bi-State Regional Commission, has gathered information and prepared the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan; and,

WHEREAS, the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44C.F.R. 201.6; and

WHEREAS, The Village of Andalusia is a local unit of government that has afforded citizens an opportunity to comment and provide input in the Plan and actions in the Plan; and

WHEREAS, the Village of Andalusia has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by the Village Trustees that the Village of Andalusia adopts the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 2nd day of February, 2009 at the meeting of the Village Board of Andalusia.

Village President, Village of Andalusia

PASSED: February 2, 2009

AYES: Trustees
Hollerud
Balmer
Bagwell
Einfeldt
Weber

APPROVED: February 3, 2009

ABSENT: Anderson

ATTEST:

Village Clerk

Village of Carbon Cliff

RESOLUTION NO. 09-01

A Resolution Of The Village Of Carbon Cliff In Support Of The Approval And Adoption Of The Rock Island County Pre-Disaster Mitigation (PDM) Plan.

RESOLUTION

WHEREAS, *the Village of Carbon Cliff*, with the assistance from *Rock Island County*, has gathered information and prepared the *Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan;* and,

WHEREAS, the *Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan* has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, *the Village of Carbon Cliff* is a local unit of government that has afforded citizens an opportunity to comment and provide input in the Plan and actions in the Plan; and

WHEREAS, *the Village President and the Village Board of Trustees of The Village of Carbon Cliff* has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by the Village President and the Village Board of Trustees of *the Village of Carbon Cliff* that *the Village of Carbon Cliff* adopts the *Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan* as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 20th day of January, 2009 at the meeting of the Village President and Board of Trustees for the *Village of Carbon Cliff.*

Kenneth Williams, Village President

Attest: Karen L. Hopkins

Karen Hopkins, Clerk

2009-00-01

Village of Coal Valley, Illinois

A RESOLUTION by the President and Board of Trustees for the Village of Coal Valley, Illinois, to adopt the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan:

RESOLUTION

WHEREAS, the Village of Coal Valley, with the assistance from the County of Rock Island, has gathered information and prepared the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan; and,

WHEREAS, the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, the Village of Coal Valley is a local unit of government that has afforded citizens an opportunity to comment and provide input in the Plan and actions in the Plan; and

WHEREAS, the Village of Coal Valley has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by the President and Board of Trustees that the Village of Coal Valley adopts the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 18th day of Feb, 2009 at the meeting of the Board of Trustees.

President of the Board of Trustees

ATTEST:

Village Clerk

RESOLUTION # 2009- 1

A RESOLUTION IN SUPPORT OF THE APPROVAL AND ADOPTION OF THE ROCK ISLAND COUNTY PRE-DISASTER MITIGATION PLAN (PDM)

WHEREAS, the Village of Cordova, Rock Island County, Illinois, with the assistance from the Bi-State Regional Commission (BSRC), has gathered information and prepared the Pre-Disaster Mitigation Plan; and

WHEREAS, the Pre-Disaster Mitigation Plan has been prepared in accordance with FEMA requirement at 44 C.F.R. 201.6; and

WHEREAS, the Village of Cordova is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, the Village of Cordova has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED that the Village of Cordova hereby approves and adopts the Pre-Disaster Mitigation Plan as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 19 day of March, 2009 at the meeting of the Village of Cordova, Rock Island County, Illinois and APPROVED by the President of the Village of Cordova, Rock Island County, Illinois this 19 day of March, 2009.

Ayes: Fred Geruing, Jon Ward, Lynn Fidler, Ken McCoat, Patsy Fidler + Cindy Barber

Nays: ∅

Absent: ∅

Mike McCullough, President

ATTEST:

Sharon E Peterson

Sharon Peterson, Clerk

R – 09 – 48

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF EAST MOLINE, ILLINOIS, ADOPTING THE ROCK ISLAND COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

WHEREAS, the City of East Moline, Illinois, with assistance from Rock Island County and the Bi-State Regional Commission, has gathered information and has prepared the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan; and

WHEREAS, the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan has been prepared in accordance with the Federal Emergency Management Agency ("FEMA") requirements at 44 C.F.R. 201.6; and

WHEREAS, the City of East Moline, Illinois, is a local unit of government that has afforded citizens an opportunity to comment and provide input in the Plan and actions in the Plan; and

WHEREAS, the City of East Moline, Illinois, has reviewed the Plan and affirms that the Plan will be updated no less than every five (5) years; and

WHEREAS, the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan was developed to meet the requirements of the Disaster Mitigation Act of 2000, also known as "DMA 2000"; and

WHEREAS, DMA 2000 places increased emphasis on local mitigation planning, and requires local governments to develop and submit mitigation plans as a condition of receiving Pre-Disaster Mitigation ("PDM") and Hazard Mitigation Grant Program ("HMGP") project funds from the Federal Emergency Management Agency ("FEMA"); and

WHEREAS, in addition to supporting ongoing mitigation actions, the Plan assesses the vulnerability of the planning area to all natural hazards and, in this initial plan, some human-caused hazards; and

WHEREAS, the Plan identifies priority mitigation actions and establishes a process for implementation and maintenance of the Plan; and

WHEREAS, Rock Island County received a grant of Pre-Disaster Mitigation ("PDM") planning funds to initiate the Local Hazard Mitigation Plan process, and all 15 of the incorporated municipalities in Rock Island County agreed to participate in order to make it a county-wide multi-jurisdictional plan; and

WHEREAS, the active participation of all of these jurisdictions is recorded within the plan document and, as each jurisdiction adopts the Plan, it receives the same eligibility to apply for and receive its own FEMA project funds as described above; and

WHEREAS, the City Council now finds that adopting the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan would be in the best interests of the City of East Moline.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF EAST MOLINE, ILLINOIS, that the City adopt the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan.

Adopted this 18th day of May, 2009.

Approved this 18th day of May, 2009.

Mayor of the City of
East Moline, Illinois

ATTEST:

City Clerk of the City of
East Moline, Illinois

THE CITY OF EAST MOLINE INCORPORATED APRIL 8, 1907 ILLINOIS

I hereby certify that the foregoing is a true and correct copy of a resolution passed by the City Council at a meeting held on the 18th day of May A.D. 2009.

CITY CLERK OF THE CITY OF EAST MOLINE

F:WTP/Diane/EM/Resolutions/LocalHazardMitigationPlan.Adopt.5.18.09.doc

Resolution No. 08-01

R E S O L U T I O N

WHEREAS, the Village of Hampton, with the assistance from Rock Island County, has gathered information and prepared the Rock Island County Multi-Juristictional Local Hazard Mitigation Plan; and

WHEREAS, the Rock Island County Multi-Juristictional Local Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and

WHEREAS, the Village of Hampton is a local unit of government that has afforded citizens an opportunity to comment and provide input in the Plan and actions in the Plan; and

WHEREAS, the President and Board of Trustees of the Village of Hampton has reviewed the Plan and affirms that the Plan will be updated no less than every five years.

NOW THEREFORE, BE IT RESOLVED by the President and Board of Trustees of the Village of Hampton that the Village of Hampton adopts the Rock Island County Multi-Juristictional Local Hazard Mitigation Plan as this jurisdiction's Multi-Hazard Mitigation Plan and resolves to execute the actions in the Plan.

ADOPTED this 17th day of NOVEMBER, 2008 at the meeting of the President and Board of Trustees of the Village of Hampton.

Sean McKay, President
Village of Hampton

Attest:

Michael J. Toalson, Clerk

NOV 26 2008

Village of Hillsdale
Hillsdale Village Board of Trustees
415 Main St. Box 134 Hillsdale, IL 61257

RESOLUTION

WHEREAS, Village of Hillsdale, with the assistance from Rock Island County, has gathered information and prepared the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan; and,

WHEREAS, the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R.201.6; and,

WHEREAS, Village of Hillsdale is a local unit of government that has afforded citizens an opportunity to comment and provide input in the Plan and actions in the Plan; and

WHEREAS, Hillsdale Village Board of Trustees, has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by Hillsdale Village Board of Trustees that adopts the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 17th day of November, 2008 at the meeting of the Hillsdale Village Board of Trustees.

Hillsdale Village Mayor Hillsdale Village Clerk

NOV 2 0 2008

RESOLUTION 09-3

WHEREAS, the Village of Milan, with the assistance from Rock Island County, has gathered information and prepared the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan; and

WHEREAS, Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6: and

WHEREAS, the Village of Milan is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, the Village of Milan Board of Trustees has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by the Milan Board of Trustees that the Village of Milan adopts the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 2nd day of March, 2009 at the meeting of the Milan Village Board of Trustees.

Duane Dawson

Duane Dawson, Mayor

Attest:

Barbara L Lee

Village Clerk

Council Bill/Resolution No. 1022-2009
Sponsor: _____

A RESOLUTION

APPROVING AND ADOPTING the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan.

WHEREAS, the City of Moline, with the assistance from Bi-State Regional Commission, has gathered information and prepared the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan; and

WHEREAS, the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and

WHEREAS, the City of Moline is a unit of local government that has afforded citizens an opportunity to comment and provide input in the Plan and actions in the Plan; and

WHEREAS, the City of Moline City Council has reviewed the Plan and affirms that the Plan will be updated no less than every five years.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MOLINE, ILLINOIS, as follows:

That the Mayor and City Clerk are hereby authorized to approve and adopt, on behalf of the City of Moline, the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan; provided said Plan is substantially similar in form and content to that attached hereto and incorporated herein by this reference thereto as Exhibit "A," and has been approved as to form by the Law Director.

CITY OF MOLINE, ILLINOIS

Mayor

February 24, 2009
Date

Passed: February 24, 2009
Approved: March 3, 2009

Attest: _____
City Clerk

APPROVED AS TO FORM:

_____
Law Director

Appendix I-1

Exhibit 1: Adoption Resolution

(Name of Jurisdiction) Village of Oak Grove

(Governing Body) Village Board

(Address) PO Box 566, Milan, IL 61264

RESOLUTION

WHEREAS, *(Insert name of Jurisdiction)*, with the assistance from *(Insert name of Plan Author)*, has gathered information and prepared the *(Insert name of the Multi-Jurisdictional Plan)*; and,

WHEREAS, the *(Insert name of the Multi-Jurisdictional Plan)* has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, *(Insert name of Jurisdiction)* is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, *(Insert the name of the governing body)* has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by *(Insert the name of the governing body)* that *(Insert name of Jurisdiction)* adopts the *(Insert name of the Multi-Jurisdictional Plan)* as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 4 day of Nov, 200 8 at the meeting of the *(Insert the name of the governing body)*.

Insert appropriate signature lines and dates

Gerhard A. Thoard

(Mayor, Village Clerk, County Board Chair, etc.)

Source: Multi-Jurisdictional Mitigation Planning; State and Local Mitigation Planning How-To Guide Number Eight; FEMA 386-A; August 2006

RESOLUTION R080809A

RESOLUTION ADOPTING THE ROCK ISLAND COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

WHEREAS, The Village of Port Byron, with the assistance from Rock Island County, has gathered information and prepared the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan; and,

WHEREAS, the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, The Village of Port Byron is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, The Village of Port Byron Board of Trustees has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by The Village of Port Byron Board of Trustees that the Village of Port Byron adopts the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan as the jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 8th day of September 2008 at the meeting of the Port Byron Board of Trustees

ROLL CALL VOTE: Ayes: Wells, Goodwin, Healy, French, VanDriessche and Calvert
Absent: None
Nayes: None

Name: Donna McCormick
Donna McCormick

Title: President
President

Certified to be a true and accurate copy, passed and adopted on the above date.

Name: Janet Fletcher
Janet Fletcher

Title: Village Clerk
Village Clerk

(SEAL)

Exhibit 1: Adoption Resolution 11-11-08

Village of Rapids City
Village President and Board of Trustees
1204-4th Avenue, P.O. Box 134
Rapids City, IL 61278

RESOLUTION

WHEREAS, Village of Rapids City, with the assistance from Rock Island County, has gathered information and prepared the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan; and,

WHEREAS, the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R.201.6; and ,

WHEREAS, the Village of Rapids City is a local unit of government that has afforded citizens an opportunity to comment and provide input in the Plan and actions in the Plan; and

WHEREAS, The President and the Village Board of Trustees of The Village of Rapids City has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by the President and the Village Board of Trustees of the Village of Rapids City adopts the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 11th day of November, 2008 at the meeting of the Village of Rapids City.

Rapids City Village President

Rapids City Village Clerk

NOV 13 2008

Exhibit 1: Adoption Resolution

(Name of Jurisdiction)	Village of Reynolds, Illinois
(Governing Body)	Village Board of Reynolds, Illinois
(Address)	PO Box 158, Reynolds, IL 61279-0158

RESOLUTION

WHEREAS, *Village Board of Reynolds, Illinois,* with the assistance from *Rock Island County Board,* has gathered information and prepared the *Multi-Jurisdictional Local Hazard Mitigation Plan;* and,

WHEREAS, the Multi-Jurisdictional Local Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R. 20A; and,

WHEREAS, the *Village Board of Reynolds, Illinois* is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, *Village Board of Reynolds, Illinois* has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by *the Village Board of Reynolds, Illinois* that *Village of Reynolds, Illinois* adopts the *Multi-Jurisdictional Local Hazard Mitigation Plan* as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 13th day of April, 2009, at the meeting of the *Village Board of Reynolds, Illinois.*

Said vote being: YEAS: 6 NAYS: 0 ABSENT: 0

Minnie E Rooney
PRESIDENT

ATTEST: _____

_____
VILLAGE CLERK, MARK ALLEN

RESOLUTION NO. 41-2008

WHEREAS, the City of Rock Island, with the assistance from Rock Island County and the Bi-State Regional Commission, has gathered information and prepared the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan; and,

WHEREAS, the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, City of Rock Island is a local unit of government that has afforded citizens an opportunity to comment and provide input in the Plan and actions in the Plan; and

WHEREAS, the City of Rock Island has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED by the City Council that the City of Rock Island adopts the Rock Island County Multi-Jurisdictional Local Hazard Mitigation Plan as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 10th day of November, 2008 at the meeting of the City Council of the City of Rock Island.

MAYOR OF THE CITY OF ROCK ISLAND

PASSED: November 10, 2008

AYES: Alderman
Brooks
Conroy
Pauley
Tollenaer
Mejia-Caraballo
Murphy
Austin

APPROVED: November 11, 2008

ATTEST: Aleisha L. Patchin
CITY CLERK

NAYS: None

RESOLUTION NO. 2008-12

CITY OF SILVIS, ILLINOIS

WHEREAS, The City of Silvis, with the assistance from Rock Island County, has gathered information and prepared the Rock Island County Multi-Jurisdiction Local Hazard Mitigation Plan; and,

WHEREAS, the Silvis Pre-Disaster Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and,

WHEREAS, The City of Silvis is a local unit of government that has afforded citizens an opportunity to comment and provide input in the Plan and actions in the Plan; and

WHEREAS, Rock Island County has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED effective upon the date of this Resolution, The City of Silvis adopts the Rock Island County Multi-Jurisdiction Local Hazard Mitigation Plan as this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 29th day of December, 2008 at the meeting of the Silvis City Council.

Ayes: 7 Nays: ~~0~~ Absent: 1

Lyle E Lohse

Lyle E. Lohse
Mayor, City of Silvis

Attest:

Barbara J. Fox

Barbara J. Fox
Clerk, City of Silvis

JAN 7 2009

APPENDIX II-1

PLANNING STAFF

Rock Island County
- Ray Nees, Director of Zoning
- Greg Thorpe

Bi-State Regional Commission
- Marianne Doonan, Senior Planner
- Mike Boesen, Senior Planner

STEERING COMMITTEE (PRIMARY CONTACTS IN BOLD)

Village of Andalusia	**Joe Dungan**, Building Inspection
Village of Carbon Cliff	**Karen Hopkins**, Village Clerk **Dawn Tubbs**, DOCAS Richard Wienandt, Trustee
Village of Coal Valley	**Pat Marsh**, Village Administrator **Larry Buechler**, Police Chief **C. Wayne Westphal**, Police Sergeant
Village of Cordova	**Sharon Peterson**, Village Clerk
City of East Moline	**Robert DeFrance**, Fire Chief **Richard Van Raes**, City Planner
Village of Hampton	**Robert Fuller**, Police Chief
Village of Hillsdale	**Jane Lundquist**, Village Clerk **Todd Nicholson**, Police Chief Sadie Bundy, Mayor Paul Dillin, Hillsdale Fire Protection District Jim Ringberg, Police Department
Village of Milan	**Chuck Layer**, Building Inspector Shawn Johnson, Captain
City of Moline	**Jeff Anderson**, City Planner **Ike Sederstrom**, Fire Department Mike Waldron, Public Works
Village of Oak Grove	**Bob Carey**, Trustee **Bob DeLaRosa**, Trustee

Village of Port Byron	**Don Carey**, Fire Department **Donna McCormick**, Village President Bryan Payne, Fire Department Larry Molitor, Zoning Dennis Healy, Trustee
Village of Rapids City	**Emilie Price**, Village Clerk **Thomas Gould**, Mayor
Village of Reynolds	**Ben Rowe**, Village Employee
City of Rock Island	**Alan Carmen**, Planning Administrator Jim Fobert, Assistant Fire Chief
City of Silvis	**Jim Grafton**, City Administrator
Rock Island County ESDA	**Gerry Borkhart**, Director **Steven Carlson**, Deputy Director (from 4-1-08)

APPENDIX II-2

MULTI-JURISDICTIONAL PLANNING PARTICIPATION

Participating Jurisdiction Meeting Attendance											
Jurisdiction	**Attendance at Meetings**										
	10/18/06	**1/24/07**	**4/4/07**	**7/25/07**	**9/26/07**	**11/28/07**	**1/23/08**	**2/27/08**	**3/26/08**	**4/23/08**	**5/28/08**
Bi-State Regional Commission	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rock Island County	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R.I. County Emergency Service & Disaster Assistance		Yes								Yes	
Village of Andalusia		Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Village of Carbon Cliff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Village of Coal Valley			Yes	Yes			Yes	Yes	Yes	Yes	
Village of Cordova		Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes
City of East Moline	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Village of Hampton	Yes	Yes	Yes	Yes			Yes				
Village of Hillsdale	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes
Village of Milan			Yes	Yes	Yes						
City of Moline		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Village of Oak Grove	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Village of Port Byron	Yes			Yes	Yes	Yes					
Village of Rapids City	Yes	Yes	Yes	Yes			Yes	Yes	Yes		
Village of Reynolds	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
City of Rock Island	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
City of Silvis	Yes	Yes			Yes	Yes	Yes	Yes	Yes		Yes

Attendance of Meetings October 2006 – May 2008

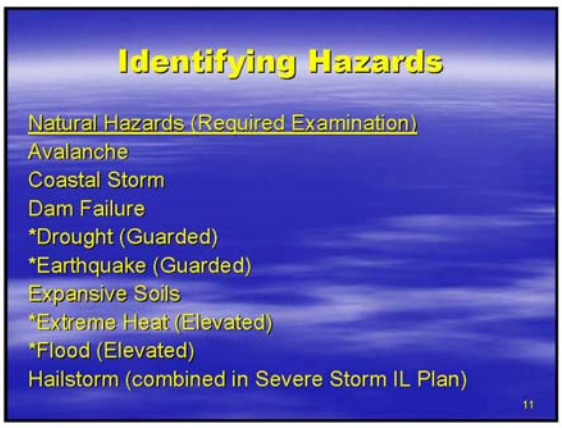
APPENDIX II-3

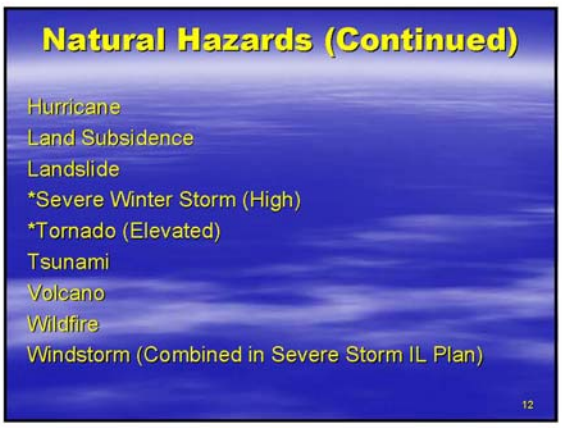

4. Mitigation Strategy
Local Hazard Mitigation Goals
Identify and Analyze Mitigation Actions
Implementation of Mitigation Actions*
7


5. Plan Maintenance Process
Monitoring, Evaluating, and Updating the Plan
– Within 5-year cycle
– Following major disaster
Incorporate into Existing Planning Mechanisms
Continued Public Involvement
Additional info for Flood Mitigation Assistance (FMA) Plan
8


Grant and Local Match
Total project cost: $125,000
75% FEMA Grant: $93,750
25% Local Match Share: $31,250
Local match documented by hours of staff time of all participating jurisdictions
9


Reporting Local Match
-Review reporting form
-Available in Excel
-Primary contact for each jurisdiction
-Any additional staff reporting
-E-mail address and Internet access
10


Identifying Hazards
Natural Hazards (Required Examination)
Avalanche
Coastal Storm
Dam Failure
*Drought (Guarded)
*Earthquake (Guarded)
Expansive Soils
*Extreme Heat (Elevated)
*Flood (Elevated)
Hailstorm (combined in Severe Storm IL Plan)
11


Natural Hazards (Continued)
Hurricane
Land Subsidence
Landslide
*Severe Winter Storm (High)
*Tornado (Elevated)
Tsunami
Volcano
Wildfire
Windstorm (Combined in Severe Storm IL Plan)
12


2004 Illinois Natural Hazard Mitigation Plan
-Prepared by Illinois Emergency Management Agency (IEMA)
-* Indicates hazards in State Plan
-Ranks impacts of hazard by County
- Combined Hailstorm and Windstorm into Severe Storm category (Severe for Rock Island County)
13


Other Hazards
Manmade Hazards
– Terrorism (intentional acts)
– Technological Hazards (accidental events)
Not required for PDM or FMA plans
State of Iowa/Davenport identified 20 Human-caused hazards
14


Schedule
Grant period 3/31/06 – 3/30/08
Hazard Profiling 2-3 months
Meeting Schedule TBA
Individual Community meetings as needed
15


Online Resources
Rock Island County
– www.co.rock-island.il.us
Illinois Emergency Management Agency
http://www.state.il.us/iema/
16


Contacts
Ray Nees, Rock Island County
Rnees@co.rock-island.il.us
309-558-3750
Bi-State Regional Commission
309-793-6302
Marianne Doonan , ext. 122
Mike Boesen, ext. 148
www.bistateonline.org
17

APPENDIX II-4

Rock Island County

Rock Island County...Build the future and improve the quality of life for our community

County Board

July 13, 2007

Chairman
James E. Bohnsack

Vice Chairman
John Brandmeyer

Committee Chairpersons Dear

Human Services
Karen Calvillo

Forest Preserve
Ted E. Davies

Public Works
Catherine J. Wonderlich

Administration
Gary Freeman

Human Resources
John Malvik

Finance
Tom Rockwell

Governmental Affairs
Frank Fuhr

Board Members

William R. Armstrong
Steven Ballard
Phil Banaszek
Virgil Dueysen
Frank R. Fuhr
Kathy Harmon
Donald L. Jacobs
Lauren Loftin
Ken Maranda
Virgil J. Mayberry
Steven E. Meersman
Connie Mohr-Wright
Patrick Moreno
Harry O. Perez
James Sallows
Fred W. Schultz
Wanda M. Sweat

Executive Assistant
Shelly L. Chapman

This letter is to invite you or another representative of your organization to participate in a planning process to develop a multi-jurisdictional Pre-Disaster Mitigation (PDM) plan for Rock Island County and its municipalities. Rock Island County was awarded a grant in April 2006 from the Federal Emergency Management Agency (FEMA) to develop a Pre-Disaster Mitigation (PDM) plan. In addition to the participating municipalities and County staff, the planning process requires a broad range of input and expertise from individuals and organizations with interest in hazard mitigation within Rock Island County. A copy of an information sheet about this planning process is enclosed.

Those participating are asked to review materials as the planning document develops. Participants are invited to attend planning group meetings as scheduled. The first open planning meeting will be held on **Wednesday, July 25, 2007 at 3:00 PM** in the Board Room on the third floor of the Rock Island County Office Building, 1504 Third Avenue, Rock Island. You or your designated representative will be included in a mailing list to receive notice of meetings and materials to review. If you would prefer to receive information electronically, please contact us with the appropriate email address. Because of the volume of information anticipated in this process, Rock Island County will make use of its website at www.rockislandcounty.org to keep the public informed about scheduled meetings, plan document status, and supplemental information about mitigation planning.

Please let us know if you or another representative of your organization will be participating in this planning process, so that we may develop an accurate contact list. Also, if you know of other organizations that should be included in this process, please let us know. Bi-State Regional Commission will be assisting the County in developing the plan document and may be contacted regarding correspondence and questions.

Bi-State staff:
Marianne Doonan, (309-793-6302 ext. 122) email: mdoonan@bistateonline.org
Mike Boesen, (309-793-6302 ext. 148) email: mboesen@bistateonline.org
Rock Island County:
Ray Nees, (309-558-3750) email: rnees@co.rock-island.il.us

Please review enclosed materials and join us at the meeting on July 25th. Thank you for your assistance with this planning process.

Sincerely,

Ray Nees by M. Doonan

Ray Nees, Director
Rock Island County Building and Zoning

RN/MD/sv
Emerg Mgmt\PreDisasterMitPlanRICO\Ltrs\Advisory grp invite.doc

Enclosures: Pre-Disaster Mitigation (PDM) Planning information sheet
Tentative schedule of meetings
Initial Hazard Profile Scoring Matrix

OFFICE OF THE
COUNTY BOARD
Rock Island County, Illinois
1504 Third Avenue, Rock Island, IL 61201
Phone: (309) 558-3605 • Fax: (309) 786-4473

APPENDIX II-5

ADVISORY GROUP CONTACTS

Neighborhood or other non-profit organizations and associations	
United Way of the Quad Cities	Karrie Abbott*
	Lisa DeBates*
American Red Cross	Gary Shivers*
Hospitals and Health Care	
Trinity Medical Center	Kathy Hall, EMS*
	Rich Kearns, Director T.A.S*
	Jesse DeWaard*
State, Regional, and local government representative	
Quad City International Airport	Mike Swanson*
Rock Island Regional Office of Education	John Flaherty*
Rock Island County Health Department	Theresa Foes*
City of Moline Public Works Dept.	Mike Waldron*
Illinois State Geological Survey	Robert Bauer
Business and developmental organizations	
Mid American Energy	Bill Larkins*
	Shane Emmert*
Federal agency representatives	
Rock Island Arsenal	Jerry Shirk*
	Stephan Clark*
U.S. Army Corps of Engineers	Andrew Leichty*
	Jerry A. Skalak*
Academic institutions	
Black Hawk College	Rick Fiems*
Media	
WQAD-TV	Chris Russell*

*Attended at least one planning meeting

APPENDIX II-6

ROCK ISLAND COUNTY PRE-DISASTER MITIGATION (PDM) PLANNING

Rock Island County was awarded a grant in April 2006 from the Federal Emergency Management Agency (FEMA) to develop a Pre-Disaster Mitigation (PDM) plan. The grant is administered through the Illinois Emergency Management Agency (IEMA). The County has contracted with Bi-State Regional Commission for development of a multi-jurisdictional plan document. The County will be inviting all of its municipalities to join the planning effort. The municipalities that actively participate and individually adopt the plan will be included in the grant program eligibility that the plan conveys.

The plan will meet the requirements of the Disaster Mitigation Act of 2000, also known as DMA 2000. The Act, which was signed into law on October 30, 2000, streamlines delivery and utilization of disaster recovery assistance and places increased emphasis on local mitigation planning. It requires local governments to develop and submit mitigation plans as a condition of receiving Pre-Disaster Mitigation (PDM) and Hazard Mitigation Grant Program (HMGP) project grants. Rock Island County has successfully used both of these programs to acquire flood-damaged residential properties. A local government must have a FEMA-approved plan in order to continue to receive project grants.

The plan must document the process of plan development, including public participation. The plan must identify and assess all natural hazards that may impact the area and may also include man-made disasters related to technology, infrastructure, and terrorism. The plan will profile participating communities, identify critical facilities, and estimate potential damage costs. With this information, the planning effort will develop mitigation goals, evaluate a variety of mitigation measures, and prioritize an implementation strategy with continued plan monitoring included.

In addition to the formal public participation requirements for the plan, the County intends to make use of its website at www.co.rock-island.il.us to keep the public informed about the plan scheduled meetings and plan document status. If you would like further information, or if you would like to participate, Bi-State Regional Commission (793-6300) contacts are Marianne Doonan (e-mail: mdoonan@bistateonline.org) or Mike Boesen (e-mail mboesen@bistateonline.org). For Rock Island County, contact Ray Nees (558-3750) (e-mail: rnees@co.rock-island.il.us).

APPENDIX II-7 - A

NOTICE

Public Notice

Rock Island County is in the process of preparing a multi-jurisdictional Pre-Disaster Mitigation Plan. FEMA approval of this plan will make the County and participating jurisdictions eligible to apply for future hazard mitigation grant funding. Information about the planning process is at the County's website at: http://www.co.rockisland.il.us/PDM.aspx?id=5928.

Planning meetings are open to the public. The schedule of meetings is posted on the website. The next meeting will be held at 3:00 pm Wednesday, March 26, 2008 at the Rock Island County Office Building, 1504 Third Avenue, Rock Island in the third floor conference room #320. Initial drafts of the plan document are available for review as one of the meeting documents for the March 26 meeting at: http://www.rockislandcounty.org/Index.aspx?id=8948#PDM08.

Public participation and comments are invited as the plan document is developed. A final draft will be forwarded to FEMA by June 30, 2008 for review before adoption is considered.

CERTIFICATE OF PUBLICATION

The undersigned, the MOLINE DISPATCH PUBLISHING COMPANY L.L.C., hereby certifies that it is a Limited Liability Company, existing and doing business under the laws of the State of Delaware, licensed to do business in the State of Illinois, and states that it is publisher of THE DISPATCH and THE ROCK ISLAND ARGUS daily, public, secular newspapers of general circulation printed and published daily in the City of Moline, County of Rock Island, State of Illinois, and further certifies that a notice whereof the annexed printed notice, a true copy, was printed and published in said newspapers, 1 time(s): that said notice was so printed and published in said newspaper 1 time(s) in each week for 1 successive week(s), the date of the first said newspaper containing said notice being the 20th day of MAR A.D. 2008 and the last said newspaper containing said notice being the 20th day of MAR A.D. 2008

Publication Fees $36.66

MOLINE DISPATCH PUBLISHING COMPANY L.L.C.

By _____

Moline, Illinois 03/26/2008

STATE OF ILLINOIS } SS.
ROCK ISLAND COUNTY }

J. Scott Aswege being first duly sworn on his oath, says that he is the Business Manager of the MOLINE DISPATCH PUBLISHING COMPANY L.L.C. and the facts set forth in the foregoing certificate of publication are true and that the annexed notice was published as therein specified, and that said THE DISPATCH and THE ROCK ISLAND ARGUS have been regularly published in the City of Moline, County of Rock Island, and State of Illinois, for more than one year prior to the date of the first publication of said notice.

Subscribed and sworn to before me this 26 day of MAR 2008

Account/Ad# 200666 536400

Account Name ROCK ISLAND COUNTY ZONING

_____
Notary Public

APPENDIX II-7 – B

CERTIFICATE OF PUBLICATION

The undersigned, the MOLINE DISPATCH PUBLISHING COMPANY L.L.C., hereby certifies that it is a Limited Liability Company, existing and doing business under the laws of the State of Delaware, licensed to do business in the State of Illinois, and states that it is publisher of THE DISPATCH and RGUS daily, public, secular newspapers of general circulation printed and published daily in the City of Moline, County of Rock and further certifies that a notice whereof the annexed printed notice, a true copy, was printed and published in said newspapers, tice was so printed and published in said newspaper 1 time(s) in each week for 1 successive week(s), the date of the first said aid notice being the 5th day of JAN A.D. 2009 and the last said newspaper containing said notice being the 5th day of

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MOLINE DISPATCH PUBLISHING COMPANY L.L.C.

NOIS } SS. By

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Moline, Illinois 01/07/2009

first duly sworn on his oath, says that he is the Business Manager of the MOLINE DISPATCH PUBLISHING COMPANY L.L.C. and foregoing certificate of publication are true and that the annexed notice was published as therein specified, and that said THE JCK ISLAND ARGUS have been regularly published in the City of Moline, County of Rock Island, and State of Illinois, for more e date of the first publication of said notice.

o before me this 7 day of JAN 2009

0666

OCK ISLAND COUNTY ZONING

Notary Public

NOTICE

Notice is hereby given that the Rock Island County Pre-Disaster Planning Committee will hold a public meeting seeking comments on the All Hazard Pre-Disaster Mitigation Plan as approved by the Federal Emergency Management Agency. The Pre-Disaster Mitigation Plan is scheduled to be adopted by all 16 jurisdictions within and including Rock Island County. Said public meeting shall be held Wednesday, January 7th, 2009 at 5:30 P.M. in the County Board Room, Rock Island County Office Building, 1504 3rd Ave., Rock Island, IL 3rd floor. Please use the rear employee entrance. Questions may be referred to the Zoning and Building Office, 309-558-3771 and the document may be viewed at: http://www.co.rock-island.il.us/uploadedFiles/ZB/ReviewedFinalDraftPlan6-08.pdf

MEETING ATTENDANCE RECORD
MEMBERS, GUESTS & STAFF
(Please Print Legibly)

Meeting of: Public Hearing for Adoption of Rock Island County Multi-Jurisdiction Local Hazard Mitigation Plan

Date: Wednesday, January 7, 2009 Time: 5:30 pm To ______________ Minutes: Yes _____ No _______

Place of Meeting: Board Room, Rock Island County Office Building, 1504 Third Avenue, Rock Island, IL

Name:	Title/Representing:	Contact # or Email:
1. Rick Kessler	Village of Port Byron	pbpw@mchsi.com 309-314-0475
2. Jane Lundquist	Hillsdale	hillsdaleclerk@mchsi.com
3. Richard VanRaes	East Moline	752-1590
4. Doug Riel	Rock River Valley Association	Fireplug72@AOL.Com
5. Joe Duncan	Village of Andalusia	joeduncan@sbcglobal.com
6. Alan Carmen	City of Rock Island	carmen.alan@rigov.org
7. Dennis Healy	Port Byron	
8. [illegible]	Village of Carbon Cliff	796-6045
9. Marianne Doonan	Bi-State Regional Commission	7936302 X 122
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11.		
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DD\sg
forms\Meeting Sign-In Form
11/7/06

Comments received following the Public Hearing held January 20, 2009.

Mr. Doug Riel, Chairman, Engineering Committee, Rock River Valley Association attended the public hearing and provided staff with an expanded written version of the comments he made at that meeting. A copy of the cover letter is reproduced in the following pages. A full copy of the comments document with attached references is on file.

Rock River Valley Association

7 January 2009

Rock Island County
Attn: Ray Nees
1504 Third Avenue
Rock Island, Illinois 61201

Bi-State Regional Commission
Attn: Marianne Doonan
1504 Third Avenue
Rock Island, Illinois 612

Subject: Multi-Jurisdictional Local Hazard Mitigation Plan

Dear :Mrs. Doonan/Mr. Nees:

The Rock River Valley Association Representatives have attended all meetings held relative to the development of the subject plan since the public was formally notified in March 2008 that the plan was in the process of being developed. We have provided verbal comments relating to sections and various draft versions of the plan, primarily as they relate to mitigation goals and objectives associated with Flooding/Flash Floods and related events.

It is our position that the plan suffers from a major deficiency as it relates to development in the floodplain. Specifically, the major point that we have emphasized is that the plan and current policies that are in place in Rock Island County and the participating municipalities, provide no protection from increased flooding from developments in the floodplain.

Despite the fact that the plan is intended to identify existing mitigation practices against hazards it must also identify shortfalls and processes to be developed or put in place to provide for future mitigation. Relative to the loss of floodplain storage, due to new development, it does neither. Without a floodplain compensation or mitigation policy in place the effects of flooding in Rock Island County are and will be exasperated.

At the present time the plan and current municipal and county policies only incorporate elevation and buyouts as the primary mitigation strategies to be used to counter flooding and individual property flood losses.

Current policies allow development in the floodplain with no mitigation other than the elevation to one foot above the Base Level Elevation. This protects the new development but provides no consideration to the displacement of water or to the impact on other properties, be they adjoining, up or down river. There is no limit to the amount of fill that can be used to accomplish this elevation or to the land area to be elevated. As such the requirement to achieve the one foot elevation could be for 1, 100 or 1000 acres and 1 or 10 feet, or more of fill, it is without limit.

Current standards in the State of Illinois utilize the FE:MA FIRM Maps to make the decision to determine if elevation is required. Areas that are not within the 100 yr. floodplain require no elevation. They also require no flood insurance. As it has been shown recently in Iowa and currently in the State of Washington, relying on the FEMA Maps presents a risk. In addition, the question as to whether the data used to generate the maps is the most recent, if the computer models used to generate the data are accurate, if cumulative effects have been considered or if consideration has been given to future conditions.

The National Flood Insurance Program (NFIP) guidelines limit development in the floodway, but allow unconstrained development across the rest of the floodplain so long as the developed areas are either raised above the level of the 100 yr. flood or protected by levees with at least a 100 yr. or higher protection level. Although the guidelines provide for protection of new development it does nothing to consider the impacts of the new developments on existing structures and areas.

There is no cumulative effect analysis associated with the filling of a floodplain or the building of a levee. As a result each project is analyzed individually and the changes to the floodplain becomes incremental and cumulative resulting in increased flooding. Its equivalent to death by a thousand cuts. In Rock Island County development is in the process of overwhelming the floodplains.

Historically the filling of the floodplain and the destruction of wetlands has been an on-going process. In lllinois over 95% of our wetlands have been destroyed and the associated benefits, to include reduction of flood events, lost. The Clean Water Act helped to mitigate wetland losses with 1-5 acre replacements. However, recent Supreme Court decisions such as SWANC and Rapano have reduced the Corps of Engineers jurisdiction. Now wetlands are being classified as 'regulated' or 'unregulated', with only the regulated falling under the purview of the Corps for possible mitigation, while most unregulated wetlands are being destroyed.

Although wetlands have diminishing protection the floodplain has none. As noted above, one can fill the floodplain as much as one wishes in any of the communities identified in this Multi-Jurisdictional Local Hazard Mitigation Plan with no compensation.

Previously we have recommended that a floodplain mitigation regulation be put in place for Rock Island County as well as all other municipalities within the County that would mitigate for lost floodplain storage and unregulated wetlands. Will this stop flooding? No. But it could reduce the height of future floods, prevent property not currently affected by floods from becoming so, and help restore some of the floodplains that have previously been destroyed. What it will not do is stop development! Developers will be

able to proceed with their projects provided they allow for compensation/mitigation of the storage area they plan to displace in the floodplain.

For development of one to three acres a "no net loss" of storage would probably be most appropriate. For larger developments a requirement for compensation/mitigation of 1 to 2 cubic foot for every cubic foot of storage loss would be appropriate. For critical floodplain areas there should be no development and the storage areas maintained or even expanded.

Formal reviews of U.S. flood-control policy, both before and after the 1993 floods, concluded that the optimum strategy for reducing flood losses is to limit or even reduce infrastructure on floodplains. Today even the buyouts put in place after the floods are being significantly counterbalanced by new construction in the floodplains.

The City of Davenport, after experiencing both floods and flash floods, resulting from severe storms, has developed an ordinance that requires "no net loss" of floodplain storage as mitigation against flooding due to development in the floodplain (Encl. 1).

Kane County, Illinois, as part of their Stormwater Ordinance, has required mitigation for development in the floodplain as a result of a history of flooding. Today development in the floodplain requires an engineering evaluation and compensation (Encl. 2).

Major cities such as Denver and Boulder, CO; Austin, TX; Phoenix, AZ and Charlotte, NC have limited encroachment of the floodplain and guided development to more compatible land use.

In Europe, after heavy flooding in the 1990s, many countries have re-evaluated their flood control approaches and are now making room for the rivers by expanding floodplain storage. Germany has reduced peak flood stages to 1950 levels by adding millions of cubic feet of flood storage to their floodplains (1, 2).

All this goes on around the State, Country and Europe, while we here in Rock Island County continue to look at the floodplain as something to be consumed.

To all this, add the recent government report indicating that heavy downpours and flooding are likely to become more common in the future as a result of climate change.

In a position paper, prepared by the Association of State Floodplain Managers (ASFPM) (3) and adopted by the ASFPM Board in September 2008, titled: Natural and Beneficial Floodplain Functions, they called for a renewed direction for floodplain management "In order to regain the sustainability of our water-based ecosystems and resources, we must adopt a new approach to floodplain management.". Specifically the ASFPM sees this as a five-pronged strategy:

(1) Set a policy that the natural functions and resources of flood prone areas are worthy of protection and should not be sacrificed for human development.

(2) Prevent new development from encroaching on floodprone and environmentally sensitive areas.

(3) Remove existing development from floodprone and environmentally sensitive areas whenever possible.

(4) Rehabilitate and restore degraded riparian and coastal resources.

(5) Incorporate into all public and private activities at all levels a respect for and understanding of the functions and resources of floodprone areas along our coasts and waterways.

The ASFPM advocates the setting out of goals and criteria that could be tailored to the specific needs of different watersheds to maintain environmental sustainability and reduce flood risk by:

Avoidance of Floodprone Areas in the Future

Starting now, future development should avoid high-hazard and ecologically sensitive areas. State and local governments should guide development away from these areas by applying land use planning and management techniques. This is the most effective way to minimize cumulative losses and degradation of water resources.

Voluntary Retreat from Floodprone Areas

Staring now, we need to begin a collective pattern of gradual relocation of existing residences and businesses away from high hazard and ecologically sensitive areas. We need to begin a strategic retreat along our coasts and rivers.

Restoration of Floodplain and Coastal Resources

Is should become a national priority to reclaim those riparian and coastal resources that we have lost. Rehabilitation work should commence to restore the natural buffers that those resources once provided. We should work to recognize and reat and understanding of the short-term and log-term environmental impacts of existing flood and coastal protection measures and how those impacts can be mitigated.

Awareness of and Accounting for Natural Functions and Resources

The natural and beneficial functions of our coastal and river corridors must be incorporated into programs and implemented throughout all federal, state, and local flood mitigation programs. All programs should be required to promote the environmental preservation and protection of riparian and coastal functions, whether the activity involves navigable waters, new infrastructures or buildings, flood management structures, coastal protection structures, or any other activity that could have an impact on any watershed or coastline (4).

The Local Hazard Mitigation Plan is devoid of the majority of these tenants as they relate to the utilization and filling of the floodplain. Rock Island County as a floodprone community should be looking forward as to how to mitigate future flooding, that is not the case with this Multi-Jurisdictional Local Hazard Mitigation Plan

References

1. **H.T.C. van Stokkom, A.J.M. Smits, in Flood Defense: Second Symposium on Flood, Beijing China, September 2002 (Science Press New York, Elmhurst, :NY, 2002), vol. 1, pp 34-47.**

2. **E. Plate, Water Int. 26, 51 (2001)**

3. **ASFPM**

   The Association of State Floodplain Managers is an organization of professionals involved in floodplain management, flood hazard mitigation, the National Flood Insurance Program, and flood preparedness, warning and recovery. ASFPM has become a respected voice in floodplain management practice and policy in the United States because it represents the flood hazard specialists of local, state and federal government, the research community, the insurance industry, and the fields of engineering, hydrologic forecasting, emergency response, water resources, and others.

4. **Floodplain Management-More than Flood Loss Reduction, ASFPM, (2008)**

APPENDIX II-8

Existing Planning Mechanisms Matrix

	Rock Island County	Andalusia	Carbon Cliff	Coal Valley	Cordova	East Moline	Hampton	Hillsdale	Milan	Moline	Oak Grove	Port Byron	Rapids City	Reynolds	Rock Island	Silvis
Existing Community Plans																
Comprehensive/Land Use Plan	X		X	X	X	X	X		X	X		X	X	X	X	X
Capital Improvement Plan			X	X											X	X
Growth Management Plan			X	X						X						
Redevelopment Plan				X						X					X	
Regional Comprehensive Economic Strategy (CEDS)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Special Area Management Plan (SAMP)	X		X			X				X					X	X
Open Space Plan	X		X			X				X					X	
Economic Development Plan	X			X		X				X					X	X
Parks & Recreation Plan				X	X	X	X		X	X		X	X		X	X
State Hazard Mitigation Plan	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Emergency Response Plan	X				X	X		X		X					X	X
Emergency Management Plan	X				X	X	X	X		X						X
College Campus Development Plan										X					X	
Other Existing Plans																
Evacuation Plan	X				X	X						X				
Illinois Public Water Supply Emergency Procedures													X			
Brick Street Plan															X	
Existing Codes & Regulations																
Zoning Ordinance	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Subdivision Regulations	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Building Codes:																
Current Building Code	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Current Residential Code	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Current Electrical Code	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Current Plumbing Code	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Current Mechanical Code	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Current Rental Property Code	X		X					X			X					
Current Fire Code			X			X				X			X		X	X
Growth Management Ordinace															X	
Landscape Code				X	X					X				X	X	
Site Plan Review Requirements			X	X		X				X					X	X
Architectural Review Guidelines										X					X	X
Tree Ordinance					X									X	X	
Real Estate Disclosure Requirements	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Property Deed Restrictions	X					X									X	X
Special Purpose Ordinances:																
Flood Plain Management	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Flood Damage Prevention Ordinance	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Post-disaster Recovery Ordinance													X		X	
Stormwater Management	X		X	X		X				X			X	X	X	

	Rock Island County	Andalusia	Carbon Cliff	Coal Valley	Cordova	East Moline	Hampton	Hillsdale	Milan	Moline	Oak Grove	Port Byron	Rapids City	Reynolds	Rock Island	Silvis
Drainage Ordinance			X	X		X		X					X	X	X	
Hillside or Steep Slope			X							X						X
Burning or Wildfire Ordinance			X	X		X		X						X		X
Hazard Setback Requirements														X		
Soil Erosion Ordinance	X		X	X						X				X		
Solid Waste and Recycling			X			X				X			X	X	X	X
Existing Programs																
Historic District Preservation										X					X	
Downtown Redevelopment						X				X					X	
Urban Transportation Improvement Program	X	X	X	X		X	X		X	X	X	X	X		X	X
Long-Range Recreational Facilities				X		X				X			X		X	
Stormwater Management Program			X	X		X				X			X	X	X	
Fire Rescue Program			X			X		X						X	X	X
School Siting Program or Plan															X	
Flood Insurance Studies	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Engineering Studies						X							X	X	X	
Technical Documents																
Critical Facilities Map	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Existing Land Use Map	X		X	X	X	X	X			X			X	X	X	X
Elevation Certificates	X			X			X		X	X		X		X	X	

APPENDIX III-1

Hazard Scoring Guides

Methodology

The assessment of the risk to people and Property from a variety of hazards requires a tremendous amount of data from all levels of government and the private sector. To accomplish this task and do it as objectively as possible, a number of factors are taken into account:

1. the history of occurrence;
2. the probability of the hazard occurring again in the future;
3. the vulnerability of people in the hazard area;
4. the maximum geographic extent the hazard could cover;
5. the severity of impacts in terms of human lives, property, infrastructure, etc., and
6. the amount of warning time available before the hazard occurs.

The economic impact of disasters is a relatively new area of record-keeping and is generally restricted to major disasters involving both state and federal funding. Smaller, less significant events often do not reflect the economic impact of the incident. For these smaller events, there is a greater reliance on local information and records of impact.

Scoring

Members of the mitigation plan steering committee are asked to review and discuss each hazard profile and score the profiles for their community. They are asked to score each of the above criteria for each of the individual hazard profiles with a score of one (1) through nine (9) using the scoring guide that follows below.

The hazard analysis seeks to strike a balance between evaluation criteria. For example, the evaluation of low probability-high impact events versus high probability-low impact events. Each category of a particular hazard is rated on a scale of one(1) through nine (9). Totaling the categorical ratings will provide an overall rating score (total score will be between 6 and 54).

The scoring system is being used because of the large variation in historical occurrences, probabilities, percentages of vulnerabilities, number of deaths or injuries, or damages to property, etc. Many times this data is not extensive or available at this time. Using this scale provide the best option for comparison of vastly different types of hazards.

Historical Occurrence

Very simply; How many times has this hazard occurred in the past? Each hazard may or may not have an official comprehensive and documented historical record. Because each hazard has a different period of occurrences and differing data records, the most recent occurrence in the past Twenty-five year period should be considered.

Historical Occurrence: the number of times that a hazard has occurred in the past 25 years	
Score	**Description**
1-3	Less than 4 occurrences in the past 25 years
3-5	4 to 7 occurrences in the past 25 years
5-7	8-12 occurrences in the past 25 years
7-9	More than 12 occurrences in the past 25 years

Probability

This score reflects the estimated frequency and potential of the hazard occurring in the future. Many times the historical occurrence can be extrapolated into the future, however caution and discretion should be exercised because sometimes this may not be accurate. If a hazard or its impacts have been mitigated recently, the future occurrence will most likely be less than the historical occurrences. The opposite can also be true.

Probability: reflects the likelihood of the hazard's occurring again in the future, sometimes without regard to the hazard's historical occurrence		
Score	**Description**	
1-3	Unlikely	Less than 1% probability in the next 100 years
3-5	Possible	Between 1% and 10% probability in the next year, or at least one chance in the next 100 years
5-7	Likely	Between 10% and 100% probability in the next year, or at least one chance in the next 10 years
7-9	Highly Likely	Nearly 100% chance in the next year

Vulnerability

The vulnerability score represents adverse impacts to citizens, visitors, and emergency responders. It is important to consider only adverse affects as vulnerability. Many hazards occur which do not significantly impact people.

Vulnerability: measure of the percentage of people that will be adversely affected by the occurrence of the hazard		
Score	**Description**	
1-3	Negligible	• Less than 10% of the total population of the jurisdiction • No risk to response personnel, or no response needed
3-5	Limited	• 10% to 25% of the total population of the jurisdiction • Minimal risk to response personnel
5-7	Critical	• 25% to 50% of the total population of the jurisdiction • Moderate risk to response personnel
7-9	Catastrophic	• More than 50% of the total population of the jurisdiction • High risk to response personnel

Maximum Geographic Extent

This criterion evaluates the percentage of the jurisdiction impacted by the specific hazard. An

example would be, a snowstorm will likely impact the entire community where a small hazardous material incident may only cover a few city blocks.

Maximum Geographic Extent: the potential spatial extent of the impacted area		
Score	**Description**	
1-3	Negligible	Less than 10% of the jurisdiction
3-5	Limited	10% to 25% of the jurisdiction
5-7	Critical	25% to 50% of the jurisdiction
7-9	Catastrophic	More than 50% of the jurisdiction

Severity of Impact

The severity of impact is the most complex area to score. Many considerations must be accounted for. At a minimum, the following considerations are paid to severity of impact:

a) Health and safety of persons in the affected area at the time of the incident (Death or Injury);
b) Health and safety of personnel responding to the incident;
c) Continuity of operations;
d) Property, facilities, and infrastructure;
e) Delivery of services;
f) The environment;
g) Economic and financial conditions;
h) Regulatory and contracted obligations; and
i) The reputation and public perception of the jurisdiction entity.

Impacts to certain areas call for a specific score in one category while impacts to another area might call for a different score. Provide an appropriate score, or average score in the overall scale of (1) through (9) for this category.

Severity of Impact: assessment of severity in terms of injuries and fatalities, personal property, and infrastructure		
Score	**Description**	
1-3	Negligible	• Few if any injuries • Minor quality of life lost with little or no property damage • Brief interruption of essential facilities and services for less than 4 hours • No environmental impact • No impact to reputation of the jurisdiction

3-5	Limited	• Minor injuries and illness • Minor or short-term property damage which does not threaten structural stability • Shutdown of essential facilities and services for 4 to 24 hours • Minor short-term environmental impact • Very limited impact to reputation of the jurisdiction
5-7	Critical	• Serious injury and illness • Major or long-term property damage which threatens structural stability • Shutdown of essential facilities and services for 24 to 72 hours • Minor long-term environmental impact • Moderate impact to reputation of the jurisdiction
7-9	Catastrophic	• Multiple deaths • Property destroyed or damaged beyond repair • Complete shutdown of essential facilities and services for 3 days or more • Major long-term environmental impact • Severe impacts to the reputation of the jurisdiction

Speed of Onset

The speed of onset is simply the amount of warning time available before a hazard occurs. This should be taken as an average warning time. Natural atmospheric hazards typical have a considerable amount of warning time as opposed to human caused accidental incidents where they occur instantaneously or without significant warning time.

Speed of Onset: rating of the potential amount of warning time that is available before the hazard occurs	
Score	**Description**
1-3	More than 24 hours warning time
3-5	12 to 24 hours warning time
5-7	6 to 12 hours warning time
7-9	Minimal or no warning

APPENDIX III-2

Hazard Profile Resources

In general, members of the Steering Committee provided local information on the hazards as affecting their own jurisdictions. Local knowledge of historical occurrence and geographic features that define the maximum extent of the hazard risk were used to develop the individual risk assessments for each jurisdiction. To the extent possible, that local knowledge was used to expand and update information from other sources. Steering Committee members reviewed hazard profiles as they were developed. Other specific local sources used are noted here as appropriate.

Sources for Dam Failure Incident	
FEMA	http://www.fema.gov/plan/prevent/damfailure/
Association of State Dam Safety Officials	http://www.damsafety.org/
Illinois Department of Natural Resources	http://dnr.state.il.us/owr/index.htm
State of Illinois	2004 Illinois Natural Hazard Mitigation Plan (updated 2007)
State of Iowa	State of Iowa Hazard Mitigation Plan 2004
Disaster Center.com	http://www.disastercenter.com
Local Sources	U.S. Army Corps of Engineers, Rock Island District

Sources for Drought	
State of Illinois	2004 Illinois Natural Hazard Mitigation Plan (updated 2007)
Illinois State Climatologist	http://www.stateclimate.org/state.php?state_id=IL
National Drought Mitigation Center	http://drought.unl.edu/
National Climatic Data Center	http://www.ncdc.noaa.gov/oa/climate/severeweather/extremes.html
Storm Event Query	http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms
Illinois Department of Natural Resources	http://dnr.state.il.us/owr/index.htm
Historic Graphs of Palmer Drought Index; Percent Area of the Upper Mississippi Basin Experiencing Severe to Extreme Drought 1895 – 1995	http://www.drought.unl.edu/whatis/palmer/upms.gif
Disaster Center.com	http://www.disastercenter.com
State of Iowa	State of Iowa Hazard Mitigation Plan 2004

Sources for Earthquake	
State of Illinois	2004 Illinois Natural Hazard Mitigation Plan (updated 2007)
Illinois State Geological Survey	Reviewed and commented on Earthquake Profile text
United States Geological Survey	http://earthquake.usgs.gov/
Federal Emergency Management Agency	http://www.fema.gov/hazard/earthquake/index.shtm
Disaster Center.com	http://www.disastercenter.com
Other Sources	http://www.isgs.uiuc.edu/research/earthquake-hazards/earthquake-haz.shtml http://www.eas.slu.edu/Earthquake_Center/ http://www.ceri.memphis.edu/

Sources for Expansive Soils	
State of Illinois	2004 Illinois Natural Hazard Mitigation Plan (updated 2007)
Illinois State Geological Survey	http://www.isgs.uiuc.edu/ Reviewed and commented on Expansive Soils Profile text
Natural Resources Conservations Service	http://soils.usda.gov/ Web Soil Survey 2.0, National Cooperative Soil Survey
Natural Hazards Center – Univ. of Colorado	http://www.colorado.edu/hazards/
State of Iowa	State of Iowa Hazard Mitigation Plan 2004
Disaster Center.com	http://www.disastercenter.com
Reference map	"Swelling Clays Map of the Conterminous United States" by W.W. Olive, A.F. Chleborad, C.W. Frahme, Julius Schlocker, R. R. Schneider, and R.L. Shuster; 1989
Local Sources Bi-State Regional Commission	Illinois Route 5 Corridor Study, November 1986

Sources for Extreme Heat	
State of Illinois	2004 Illinois Natural Hazard Mitigation Plan (updated 2007)
National Climatic Data Center	http://www.ncdc.noaa.gov/oa/climate/severeweather/extremes.html
Natural Hazards Center – Univ. of Colorado	http://www.colorado.edu/hazards/
State of Iowa	State of Iowa Hazard Mitigation Plan 2004
Disaster Center.com	http://www.disastercenter.com
NOAA National Weather Service	http://www.crh.noaa.gov/dvn/climate/index.php

Sources for Flash Flood	
National Climatic Data Center	http://www.ncdc.noaa.gov/oa/climate/severeweather/extremes.html
State of Illinois	2004 Illinois Natural Hazard Mitigation Plan
American Red Cross	http://www.redcross.org/services/disaster/0,1082,0_501_,00.html
Illinois Department of Natural Resources	http://dnr.state.il.us/owr/index.htm
State of Iowa	State of Iowa Hazard Mitigation Plan 2004
Disaster Center.com	http://www.disastercenter.com

Sources for Land Subsidence	
Illinois State Geological Survey Survey	http://www.isgs.uiuc.edu/ Reviewed and commented on Land Subsidence Profile text
American Red Cross	http://www.redcross.org/services/disaster/keepsafe/landslide.html
Natural Hazards Center – Univ. of Colorado	http://www.colorado.edu/hazards/
Disaster Center.com	http://www.disastercenter.com

Sources for Landslide	
Illinois State Geological Survey	http://www.isgs.uiuc.edu/ Reviewed and commented on Landslide Profile text
United States Geological Survey	http://landslides.usgs.gov/
Federal Emergency Management Agency	http://www.fema.gov/hazards/landslides/landslif.shtm
American Red Cross	http://www.redcross.org/services/disaster/keepsafe/landslide.html
Natural Hazards Center – Univ. of Colorado	http://www.colorado.edu/hazards/
Disaster Center.com	http://www.disastercenter.com
Local	Illinois Route 5 Corridor Study, Bi-State Regional Commission, November 1986

Sources for River Flood	
American Red Cross	http://www.redcross.org/services/disaster/keepsafe/
National Climatic Data Center	http://www.ncdc.noaa.gov/oa/climate/severeweather/extremes.html
Disaster Center.com	http://www.disastercenter.com
Local Sources	Rock Island County Floodplain Hazard Mitigation Study, January 2002
National Weather Service	*http://www.crh.noaa.gov/ahps2/index.php?wfo=dvn*

Sources for Severe Storms (Wind/Hail/Thunderstorms/Lightning)	
National Climatic Data Center	http://www.ncdc.noaa.gov/oa/climate/severeweather/extremes.html
American Red Cross	http://www.redcross.org/services/disaster/keepsafe/
Disaster Center.com	http://www.disastercenter.com

Sources for Severe Winter Storm	
National Climatic Data Center	http://www.ncdc.noaa.gov/oa/climate/severeweather/extremes.html
American Red Cross	http://www.redcross.org/services/disaster/keepsafe/
Illinois Department of Natural Resources	http://dnr.state.il.us/owr/index.htm
Disaster Center.com	http://www.disastercenter.com

Sources for Tornado	
National Climatic Data Center	http://www.ncdc.noaa.gov/oa/climate/severeweather/extremes.html
American Red Cross	http://www.redcross.org/services/disaster/keepsafe/
Disaster Center.com	http://www.disastercenter.com

Sources for Wildfire Hazard	
National Drought Mitigation Center	http://www.droght.unl.edu/index.htm
National Climatic Data Center	http://www.ncdc.noaa.gov/oa/climate/severeweather/extremes.html
Illinois Department of Natural Resources	http://dnr.state.il.us/owr/index.htm
Disaster Center.com	http://www.disastercenter.com

Sources for Hazardous Materials Incident	
U.S. Environmental Protection Agency	http://www.epa.gov/epahome/commsearch.htm
U.S. Department of Transportation	http://hazmat.dot.gov/
Disaster Center.com	http://www.disastercenter.com
Local Sources Fire Departments	Cities of Moline, Rock Island, East Moline

Sources for Fixed Radiological Incident	
U.S. Nuclear Regulatory Commission	http://www.nrc.gov/
Energy Information Administration	http://www.eia.doe.gov/cneaf/nuclear/page/at_a_glance/reactors/states.html
Disaster Center.com	http://www.disastercenter.com

APPENDIX IV-1

STAPLEE EVALUATION CRITERIA FOR MITIGATION ACTIONS

The STAPLEE evaluation method uses seven criteria for evaluating a mitigation action: **S**ocial, **T**echnical, **A**dministrative, **P**olitical, **L**egal, **E**conomic, and **E**nvironmental. Within each of those criteria are additional considerations that may call upon the Risk Assessment and other sources of information for evaluation. Both the criteria and considerations are presented in a sample worksheet format at the end of this Appendix. An explanation of how each of the STAPLEE criteria may be applied to evaluation of mitigation actions follows:

Social: The public must support the overall implementation strategy and specific mitigation actions and the mitigation actions are evaluated in terms of community acceptance.

Considerations:

Community Acceptance: Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of lower income people? Is the action compatible with present and future community values?

Effect on Segment of Population: Will the proposed action adversely affect one segment of the population?

Technical: It is important to determine if the proposed action is technically feasible, will help to reduce losses in the long term, and has minimal secondary impacts. This category evaluates whether the alternative action is a whole or partial solution, or not a solution at all.

Considerations:

Technical Feasibility: How effective is the action in avoiding or reducing future losses?

Long-Term Solution: Does the action solve the problem or only a symptom?

Secondary Impacts: Will the action create more problems than it solves?

Administrative: This category examines the anticipated staffing, funding, and maintenance requirements for the mitigation actions to determine if the jurisdiction has the personnel and administrative capabilities to implement the actions or whether outside help will be necessary.

Considerations:

Staffing (sufficient number of staff and training): Does the jurisdiction have the capability (staff, technical experts) to implement the action?

Funding allocated: Does the jurisdiction have the funding to implement the action or can it readily be obtained? Can it be accomplished in a timely manner?

Maintenance/Operations: Can the community provide the necessary maintenance?

Political: This considers the level of political support for the mitigation activities and programs.

Considerations:

Political Support: Is there political support to implement and maintain this action? Have political leaders participated in the planning process so far?

Local Champion or Plan Proponent (respected community member) Is there a local champion willing to help see the action to completion?

Public Support (stakeholders): Is there enough public support to ensure the success of the action? Have all the stakeholders been offered an opportunity to participate in the planning process?

Legal: Whether the jurisdiction has the legal authority to implement the actions, or whether the jurisdiction must pass new laws or regulations, is important in determining how the mitigation action can be best carried out.

Considerations:

State Authority: Does the state have authority to implement the action?

Existing Local Authority: Are proper laws, ordinances, and resolutions in place to implement the actions?

Potential Legal Challenge: Is there a technical, scientific, or legal basis for the mitigation action (i.e. does the mitigation actions "fit" the hazard setting)? Are there any potential legal consequences? Is the action likely to be challenged by stakeholders who may be negatively affected?

Economic: Economic considerations must include evaluation of the present economic base and projected growth. Cost-effective mitigation actions that can be funded in current or up-coming budget cycles are more likely to be implemented than actions requiring general obligation bonds or other instruments that would incur long-term debt to a community.

Considerations:

Benefit of Action: What benefits will the action provide?

Cost of Action: Does the cost seem reasonable for the size of the problem and the likely benefits? What burden will be places on the tax base or local economy to implement this action?

Contributes to Economic Goals: Does the action contribute to other community economic goals, such as capital improvements or economic development?

Outside Funding Required: Are there currently sources of funds that can be used to implement the action? What proposed actions should be considered by be "tabled" for implementation until outside sources of funding are available?

Environmental: Impact on the environment is an important consideration because of public desire for sustainable and environmentally healthy communities. Also, statutory considerations, such as the National Environmental Policy Act (NEPA), need to be kept in mind when using federal funds.

Considerations:

Affects Land/Water Bodies: How will this action affect land/water?

Affects Endangered Species: How will this action affect Endangered Species?

Affects Hazardous Materials and Waste Sites: How will this action affect Hazardous Materials and waste sites?

Consistent with Community's Environmental Goals: Is this action consistent with community environmental goals?

Consistent with Federal Laws: Is the action consistent with Federal Laws, such as the National Environmental Policy Act (NEPA)?

APPENDIX IV-2

STAPLEE WORKSHEET

1. Fill in the goal and its corresponding objective. Use a separate worksheet of each objective. The

Scoring uses a plus (+) for favorable evaluation for each consideration, a negative (-) for less favorable evaluation, and N/A for considerations that do not apply.

Goal:_____
Objective:_____

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → **For Alternative Actions** ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws

Comments:

APPENDIX IV-3

STAPLEE EVALUATION OF ALL MITIGATION ACTIONS CONSIDERED

Goal 1: Protect human life and health
Objective 1.1 Evaluate and coordinate warning systems

Action considered: 1.1.1 Test warning systems (Multiple Hazards/ Preventive Measure)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	NA	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Applies to both existing and new community assets. Ongoing action.
Benefit: Potential life-saving action
Cost: No additional cost for ongoing activity.

Action considered: 1.1.2 Evaluate siren systems for adequate warning coverage (Multiple Hazards/Emergency Services)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	NA	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Applies to both existing and new community assets
Benefit: Potential life-saving safety action
Cost: Time and use of existing staff to coordinate implementation

Action considered: 1.1.3 Review tornado response plans (Tornado/ Preventive Measure and Emergency Services)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	NA	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Applies to both existing and new community assets. Required in County emergency plan.
Benefit: Potential life-saving action
Cost: Staff time and coordination with ESDA

Action considered: 1.1.4 Coordinate flood warning systems (River Flood/Preventive Measure)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	NA	NA	NA	NA	NA	NA

Comments: Recommended as priority action. Applies to both existing and new community assets.
Benefit: Consistent and up-to-date information on flood potential
Cost: Staff time to coordinate implementation

Action considered: 1.1.5 Consider route changes for transportation of hazardous materials (Hazardous Materials/Preventive Measure)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → **For Alternative Actions** ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Comments: Recommended as a priority action. Applies to both existing and new community assets.
Benefit: Aid to emergency response and protection of residents
Cost: Staff time to coordinate implementation. May entail coordination with state Department of Transportation. May be additional cost for new signs.

Action considered: 1.1.6 Develop routing plan for transportation of hazardous materials.
Comments: Considered duplicative of 1.1.5 above. This was eliminated as a separate action item and was not evaluated further.

Action considered: 1.1.7 Determine whether HazMat teams are available at local Fire Departments
Comments: Considered to be duplicative of fire code training at 5.1.2. This was eliminated as a separate action item and was not evaluated further.

Objective 1.2 Identify shelters and resources for protection

Action considered: 1.2.1 Consider safe room construction in areas where vulnerable populations may not have other sources of shelter (Tornado and Severe Storms/Structural Project)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	-	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Applies to new community assets. Individual jurisdictions may determine appropriate locations.
Benefit: Potential life-saving action.
Cost: Determined by size of structure. Outside funding would be required.

Action considered: 1.2.2 Establish warming and/or cooling centers (Severe Winter Storms and Extreme Heat/Emergency Services)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	?	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. At 2/27/08 meeting committee added cooling centers to cover Extreme Heat Hazard in addition to Severe Winter Storm hazard. Applies to both existing and new community assets.
Benefit: Health and safety of vulnerable populations
Cost: Unknown. Depends on available space. Existing centers coordinated through the Red Cross may need enhancements, such as back-up power generators.

Action considered: 1.2.3 Identify emergency water supply
Comments: Provisions for emergency drinking water in place through USACE. With the

Mississippi River as a water source, there is no priority need to duplicate this as a separate action. It was not evaluated further.

Action considered: 1.2.4 Identify flood shelter facilities and develop use agreements (River Flood/Emergency Services)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	?	+	+	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. The phrase "and develop use agreements" was added during evaluation to clarify the need to formalize arrangements. Applies to both existing and new community assets.
Benefit: Cost and time saving if identified before disaster
Cost: Depends on whether there are available existing facilities.

Goal 2: Minimize the need for rescue and relief efforts associated with all hazards.
Objective 2.1: Identify vulnerable populations and households

Action considered: 2.1.1 Identify locations of vulnerable populations (Elderly) (Extreme Heat and other hazards/Public Education and Awareness and Preventive Measure)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Applies to both existing and new community assets.
Benefit: Shorten response time for emergency services
Cost: Staff time to coordinate implementation

Action considered: 2.1.2 Identify those at risk during weather-related hazards
Comments: This was considered duplicative of 2.1.1 above and was eliminated as a separate action. It was not evaluated further.

Action considered: 2.1.3 Identify transition areas between fixed hazardous materials locations and nearby residential or commercial areas
Comments: It was determined that this duplicated existing fire codes and was eliminated as a separate action. It was not evaluated further.

Action considered: 2.1.4 Limit location of hazardous materials in strategic areas
Comments: The intent of this action was found to merge with 5.1.2 and was eliminated as a separate action. It was not evaluate further.

Objective 2.2 Coordinate information exchange among rescue and response agencies

Action considered: 2.2.1 Designate or coordinate Emergency Routes (Multiple Hazards/Preventive Measure and Emergency Services)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Applies to both existing and new community assets.
Benefit: Saves time in response to a disaster event for alternative transportation routing, evacuation, or emergency services.
Cost: Largely staff time in coordination with ESDA and/or the state Department of Transportation. May some additional cost for new signs.

Action considered: 2.2.2 Develop a coordinate resource list for equipment, such as snowmobiles, 4-wheel drive vehicles, etc. to share among jurisdictions in emergency events (Multiple Hazards/Emergency Services)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	NA	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Applies to both existing ad new community assets.
Cost: Staff time in coordination
Benefit: Time savings in preparedness and disaster response

Action considered: 2.2.3 Formalize intergovernmental cooperation as needed (Multiple Hazards/Preventive Measure and Emergency Services)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Recommended as priority action. Although some formal agreements exist for mutual aid, other coordination efforts that have been recommended as priority actions may need written forma agreements. Action applies to both existing and new community assets.
Benefit: Provides written documentation of agreements and procedures.
Cost: Staff time in coordination

Action considered: 2.2.4 Update levee certification (River Flood/Preventive Measure and Property Protection)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+

Comments: Recommended as priority action. Applies to both existing and new community assets.
Benefit: Maintain reduced flood insurance rates for property in levee protection areas.
Cost: Estimated at $50,000 to as much as $150,000 or $200,000 depending on the complexity of the levee system. Outside funding will likely be needed for smaller jurisdictions.

Action considered: 2.2.5 Seek funding to undertake rehabilitation or reconstruction of levees as needed for certification (River Flood/Structural Project)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+

Comments: Recommended as priority action. Words "seek funding to" were added during evaluation. Action applies to both existing and new community assets.
Benefit: Maintain reduced rates for flood insurance in areas of levee protection and provide long-term solution to river flooding in those areas
Cost: Unknown at this time. Depends on results of certification process. Rehabilitation or reconstruction may be beyond budgets of most jurisdictions.

Action considered: 2.2.6 Coordinate with U.S. Army Corps of Engineers (USACE) for flood warning and response (River Flood/Emergency Services)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	NA	NA	+	+

Comments: Recommended as a priority action. Action applies to both existing and new community assets.
Benefit: Make use of resources of USACE for technical assistance and equipment
Cost: Staff time in coordination with USACE

Action considered: 2.2.7 Identify location of fixed hazardous materials sites (Hazardous Materials/Preventive Measure)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	-	-	-	+	+	+	+	-	+	+	-	NA	-	+	NA	+	+	+

Comments: Determined during evaluation that this action is currently ongoing through the Rock Island County Emergency Management Agency (EMA). Sites with reportable quantities of chemicals are required to submit reports. Therefore, this was not recommended as a priority action for the participating jurisdictions.

Action considered: 2.2.8 Obtain information about maintenance and inspection of railroad bridges (Hazardous Materials/Preventive Measure)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	-	-	+	-	-	-	+	-	+	-	-	-	+	-	+	NA	+	NA	+	+	NA

Comments: Determined during evaluation that railroad maintenance information was beyond the scope of local mitigation authority. Not recommended as a priority action.

Action considered: 2.2.9 Look for more information on hazardous materials for the next plan update and distinguish between fixed sites and transportation related incidents. (Hazardous Materials/Preventive Measure)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	NA	+	NA	+	+	+

Comments: Recommended as a priority action. Applies to both existing and new community assets. Action added to list for consideration at recommendation of staff and approved by the Steering Committee.
Benefit: Clarify the frequency of occurrence, the severity of impacts, and the geographic areas most vulnerable.
Cost: Staff time to coordinate gathering information for plan update

Goal 3: Minimize damage and displacement of private property, including both residential and commercial.

Objective 3.1 Minimize prolonged business interruptions due to all hazards

Action considered: 3.1.1 Enforce commercial building codes (Multiple Hazards/ Preventive Measure and Property Protection
Comments: Was determined to duplicated 3.2.1. It was not evaluated further.

Action considered: 3.1.2 Enforce hazardous materials warning signage (Hazardous Materials/Preventive Measure
Comments: This was merged into action 5.1.2 and was not evaluated further as a separate action.

Objective 3.2 Minimize displacement of residents due to all hazards

Action considered: 3.2.1 Enforce and update building codes to 2009 International Code Series (Multiple hazards/Preventive Measure)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	NA	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Applies to new community assets and reconstruction or updating of existing assets. The words "and update" were added during evaluation. The words "to 2009 International Code Series" were added during review at the 5/28/08 Steering Committee Meeting.
Benefit: Assure that construction meets latest standards of safety
Cost: No additional cost for ongoing enforcement procedures

Action considered: 3.2.2 Assure that mobile homes have adequate ties downs (Multiple Hazards/Preventive Measures)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	NA	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Applies to both new and existing community assets.
Benefit: Preventive measure for vulnerable facilities
Cost: No additional cost for ongoing enforcement

Action considered: 3.2.3 Develop technical rescue team for building collapse (Tornado, other Hazards/Emergency Services)
Comments: Determined during evaluation that is already being done through other emergency response agencies. Since this does not need to be a separate priority action for participating jurisdictions, it was not evaluated further.

Action considered: 3.2.4 Continue NFIP compliance (River Flood/Preventive Measure)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	NA	+	NA	NA	+	+

Comments: Recommended as a priority action. Action applies to new community assets and substantial improvement requirements for existing assets.
Benefit: Reduces or eliminates losses from flood hazards
Cost: No additional cost for ongoing enforcement

Action considered: 3.2.5 Enforce floodplain ordinances that follow the State of Illinois model, which is more stringent than NFIP in regard to language concerning substantial damage, substantial improvement, and cumulative damage. (River Flood/Property Protection)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	NA	+	+

Comments: Recommended as a priority action. Applies to new community assets and substantial improvement of existing assets. Words "that follow the State of Illinois model, which is more stringent than NFIP in regard to language concerning substantial damage, substantial improvement, and cumulative damage" were added during evaluation to stress more stringent enforcement.
Benefit: More stringent than NFIP in reducing or eliminating losses from flood hazards
Cost: No additional cost for ongoing enforcement

Action considered: 3.2.6 Elevate properties (River Flood/Property Protection)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	NA	NA	+	+

Comments: Recommended as priority action. Action applies to existing community assets.
Benefit: Increased Cost of Compliance (ICC) program used successfully in Rock Island County to address issues of substantial damage or substantial improvement.
Cost: Responsibility of individual property owner with up to $30,000 reimbursable from the NFIP under the ICC program.

Action considered: 3.2.7 Consider voluntary flood acquisition programs (River Flood/Property Protection)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	-	+	NA	NA	+	+

Comments: Recommended as a priority action. Action applies to existing community assets. FEMA funding programs for voluntary acquisitions used successfully by Rock Island to acquire and demolish 61 substantially damaged structures in flood plain since 1997.
Benefit: Permanently removes residents from flood hazard areas
Cost: Limited by availability of FEMA funding

Action considered: 3.28. Consider development of more stringent flood plain enforcement policy that would require ratio of 1:1 of flood plain storage to replace flood plain impacted by building or filling (River Flood/Preventive Measure)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	-	+	+	+	+	+	-	+	-	+	-	+	-	-	+	-	-	NA	+	NA	NA	NA	NA

Comment: Not recommended as priority action. Action applies to new community assets. Action added for consideration by public comment. Already established that current flood plain enforcement more stringent than NFIP. Public and political support for additional regulation not apparent at this time.
Benefit: More strict regulation of maintaining flood plain storage capacity
Cost: Unknown additional cost of enforcement

Goal 4: Minimize expenditure of community resources for response and recovery resulting from all hazards.

Objective 4.1: Improve coordination and communications among jurisdictions for mitigation actions

Action considered: 4.1.1 Develop a system regarding downed trees (Multiple Hazards/Preventive Measure)
Comment: Was determined to be a duplicate of 5.2.1 and already done by MidAmerican Energy. Since this was no longer a consideration for local jurisdiction action, it was not evaluated further.

Action considered: 4.1.2 Designate shelter locations (Multiple Hazards/Emergency Services and Public Education and Awareness)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	-	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Action applies to new community assets. Evaluation determined that it would be prudent to identify more shelter location than presently uses, especially those with enhancements, such as back-up power generators.
Benefit: Will provide a broader base of shelter locations than currently available
Cost: Would require new use agreements and possible additional outside funding for enhancements not already budgeted.

Action considered: 4.1.3 Coordinate flood response (River Flood/Emergency Services)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	NA	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Action applies to both new and existing community assets. Recommended to evaluate and improve current flood response procedures
Benefit: More efficient use of local government resources
Cost: Staff time in coordination efforts

Action considered: 4.1.4 Seek funding for staff training in stormwater management (River Flood/Preventive Measure)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA

Comments: Recommended as priority action. Applies to both existing and new community assets. Added for consideration during evaluation of all actions.
Benefit: Improve staff knowledge and capacity to incorporate stormwater management issues into overall flood plain management.
Cost: Cost of additional staff training not currently budgeted and would likely need to come from outside funding resources.

Objective 4.2 Evaluate and continue ongoing mitigation efforts.

Action considered: 4.2.1 Pursue updated certification of flood protection levees (River Flood/Preventive Measure and Property Protection
Comment: Found to duplicate 2.2.4. Not evaluated further

Action considered: 4.2.2 Develop procedures for sand bag clean up after floods (River Flood/Natural Resource Protection)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	NA	NA	+	

Comments: Recommended as priority action. Applies to existing community assets. Disposal of sandbags contaminated by flood waters considered an environmental issue.
Benefit: Protection of natural resource with proper disposal of contaminated sandbag materials
Cost: Not currently budgeted. May need additional outside funding resources based on magnitude of event.

Action considered: 4.2.3 Consider use of prisoners from East Moline Correctional Facility for sandbagging (River Flood/Emergency Services)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Recommended as priority action. Applies to existing community assets. Program has been uses successfully in previous flood events.
Benefit: Source of supplemental labor force for emergency sandbagging needs
Cost: No additional cost to local jurisdictions

Action considered: 4.2.4 Review local ordinances to assure that requirements for roofing snow loads are maintained or increased to at least 30 pounds (Severe Winter Storms/Property Protection)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	NA	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Applies to new community assets and roofing upgrades to existing assets. Action added for consideration during evaluation process.
Benefit: Meets a higher standard for roof loads for snow
Cost: Staff time to review ordinances related to roof load

Action considered: 4.2.5 Refine identification of critical facilities in more detail for the next plan update, especially structures in the 100-year flood plain (Multiple Hazards/Preventive Measure)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	NA	NA	NA	NA	NA	NA

Comment: Recommended as a priority action. Action applies to existing community assets. Action added for consideration at recommendation of staff and approved by the Steering Committee.
Benefit: Clarify determination of critical facilities among community assets to make estimates of potential losses more specific.
Cost: Staff time for research.

Goal 5: Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, bridges and roads.

Objective 5.1: Expand emergency operations procedures already established for Mississippi River flooding and other priority hazards.

Action considered: 5.1.1 Identify critical facilities, such as lift stations, where back-up power generators should be installed (Multiple Hazards/Emergency Services

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → **For Alternative Actions** ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Applies to existing community assets. Note that the need for back-up power generators is also identified as an enhancement to shelter facilities.
Benefit: Assure continuation of essential services
Cost: Generators vary in cost depending on size and use. If not already budgeted, outside funding may be required, especially for smaller jurisdictions.

Action considered: 5.1.2 Seek funding for local training on fire code enforcement (Hazardous Materials/Preventive Measure and Emergency Services)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → **For Alternative Actions** ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Applies to both existing and new community assets

Benefit: Improve local capacity for enforcement and response related to hazardous materials
Cost: Cost of additional training may not be budgeted and outside funding may be required

Action considered: 5.1.3 Identify hazardous materials locations in floodplain areas
Comments: Merged into 5.1.4 below and not evaluated further.

Action considered: 5.1.4 Identify critical waterways and flood plain areas that may be subject to hazardous materials spills (Hazardous Materials/Natural Resource Protection)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Comments: Recommended as a priority action. Applies to both existing and new community assets. Words "and flood plain areas" were added during evaluation to merge with 5.1.3 into one action.
Benefit: Enhances capacity for natural and water resource protection
Cost: Staff time for coordination

Objective 5.2: Identify vulnerabilities of public facilities to all high-priority hazards

Action considered: 5.2.1 Begin a regular campaign to trim trees away from utility lines (Multiple Hazards/Property Protection and Natural Resource Protection)
Comments: Duplicates what MidAmerican Energy already does adequately. Not evaluated further as a separate action.

Action considered: 5.2.2 Protect waterways from hazardous materials spills (Hazardous Materials/ Natural Resource Protection/Preventive Measure)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Comments: Recommended as a priority action. Applies to existing community assets.
Benefit: Preventive measure for natural and water resource protection
Cost: Cost unknown until further research. May require outside funding.

Action considered: 5.2.3 Consider requiring construction of containment dikes for large hazardous materials storage areas (Hazardous Materials/Structural Project)
Comments: Determined during evaluation that this action is already covered by existing codes. Since this is an ongoing enforcement, it was not evaluated further as a separate action.

Action considered: 5.2.4 Research options to protect sewer systems to the 100-year flood level (River Flood/Preventive Measure)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	+	+	NA	NA	+	+

Comments: Recommended as a priority action. Applies to both existing and new community assets. Action discussed and added during review at 5/28/08 Steering Committee meeting.
Benefit: Identify systems that need a higher level of protection to avoid discharges from wastewater systems during flood conditions. Some systems may have been designed for protection only to the 500-year flood level.
Cost: Initial research to identify which systems would need the additional protection would

have a cost in staff time. Once needs are determined, outside funding resources may be needed to upgrade wastewater infrastructure.

Goal 6: Insure that the public is adequately informed of the potential for all hazards to occur and of the means of warning, mitigation, and recovery available within the county-wide planning area.

Objective 6.1: Continue public information and education efforts.

Action considered: 6.1.1 Educate property owners on limitations of insurance coverage
Comments: Found during evaluation that this action somewhat duplicates 6.1.4. The language was adjusted to merge into one action. This was not evaluated further as a separate action.

Action considered: 6.1.2 Encourage purchase of NOAA radios for residents and facilities that house vulnerable populations or are venues for large crowds of people (Multiple Weather-Related Hazards/Preventive Measure and Public Education and Awareness)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Applies to existing community assets.
Benefit: Advance warning of weather-related events for vulnerable populations
Cost: NOAA radios cost about $50 each. If extensive need is determined, outside funding may be required.

Action considered: 6.1.3 Provide heat index information (Extreme Heat/Public Education and Awareness and Preventive Measure)
Comments: Determined during evaluation that this information from National Weather Service is already adequately distributed through local media. This was eliminated as a separate action and not evaluated further.

Action considered: 6.1.4 Make educational materials about flood areas, regulations, and mitigation measures and insurance limitations available to the public (River Flood/Public Education and Awareness and Preventive Measures)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Recommended asa priority action. Applies to both existing and new community assets. Words "and insurance limitations" were added to merge with 6.1.1 and eliminate the duplicate action.
Benefit: Prevents unsuitable development in flood plain areas
Cost: No additional cost at this time. Ongoing program with current materials.

Action considered: 6.1.5 Establish a system of warnings to the public in case of hazardous materials spills (Hazardous Materials/Public Education and Awareness)
Comments: found to duplicated 1.1.1. This was eliminated as a separate action and was not evaluated further.

Objective 6.2 Focus on vulnerable populations, households, and businesses

Action considered: 6.2.1 Establish programs for storm warnings (Multiple Hazards/Public Education and Awareness)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Applies to existing community assets.
Benefit: Coordination of exiting programs from multiple agencies
Cost: Staff time for coordination.

Action considered: 6.2.2 Encourage development of check-on-neighbor programs Multiple Hazards/Public Education and Awareness and Preventive Measure)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Recommended as a priority action. Applies to existing community assets.
Benefit: Coordination of ongoing informal efforts
Cost: Staff time in coordination with Red Cross
Action considered: 6.2.3 Monitor wind chill information (Severe Winter Storms/Public Education and Awareness)
Comments: As with 6.1.3 above, it was determined that information from the National Weather Service is adequately distributed through local media. This was not evaluated further as a separate action.

Action considered: 6.2.4 Distribute fans (Extreme Heat/Preventive Measure)

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	-	-	-	-	-	-	-	+	NA	+	+	+	-	+	-	NA	NA	NA	NA	NA

Comments: Not recommended as a priority action. Applies to existing community assets. Determined that distributing fans to individuals could not be adequately monitored and would be an ineffective use of public funds.

Benefit: Would provide relief to limited number of individuals.
Cost: Unknown. No way to monitor individual use over time.

Action considered: 6.2.5 Consider program to repair fans and air conditioners (Extreme Heat/Preventive Measure)
Comments: This was determined to duplicate 6.2.4 above and was not evaluated further as a separate action.

APPENDIX IV-4

MULTI-JURISDICTION STAPLEE EVALUATION

VILLAGE OF ANDALUSIA

Action considered: Reconstruct levee to meet 100-year flood certification

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+

Comments: Identified as a priority action. Applies to both existing and new community assets.
Benefit: Assure long-term protection of existing and future development within the protection of the levee system.
Cost: Costs only estimated at $1,000,000 at this time. Reconstruction needs and final cost estimates will be dependent on levee certification analysis. Major reconstruction needs will require outside funding resources.

Action considered: Relocated well head out of flood plain and realign distribution system with water tower

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	NA	NA	NA	+

Comments: Identified as a priority action. Applies to existing and new community assets.
Benefit: Removes public water supply from threat of flood hazard.
Cost: Cost only estimated at this time. A major adjustment of the water distribution system could be substantial cost. Outside funding sources will likely be required.

VILLAGE OF CARBON CLIFF

Action considered: Alleviate flooding from stormwater runoff by installing permeable paver streets with bioswales and rain gardens.

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	-	+	NA	NA	+	+

Comments: Identified as a priority action. Applies to both existing and new community assets. Will require outside funding sources.
Benefit: Alleviates ongoing problems with drainage and flood hazard.
Cost: Entire project estimated at $3.7 million. All preliminary design engineering and construction plans have been completed.

VILLAGE OF COAL VALLEY

Action considered: Purchase 6" diesel pump and flood gates

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Identified as a priority action. Applies to both existing and new community assets. Cost would require outside funding source.
Benefit: Locally owned pumps would eliminate reliance on other sources for borrowed pumps and speed ability to respond to flood events.
Cost: Cost estimated at $23,000 for 6" diesel pump and $26,000 for flood gate for total project cost of $49,000.

VILLAGE OF CORDOVA

Action considered: Purchase generators for emergency backup

STAPLEE Criteria	S Social		T Technical			A Administrative			P Political			L Legal			E Economic				E Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Identified as a priority action. Applies to both existing and new community assets.
Benefit: Back-up generators would assure continuation of essential services during a power outage due to hazard events
Cost: $66,000 for lift station and $71,000 for water tower and well pump based on electrical contractor estimate of site-specific needs.

CITY OF EAST MOLINE

Action considered: Purchase pumps and generator (for stand-by power) for flood gates.

STAPLEE Criteria	S Social		T Technical			A Administrative			P Political			L Legal			E Economic				E Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Identified as a priority action. Applies to existing community assets. Project timing dependent on availability of outside funding sources.
Benefit: Provides local access to equipment to support levee system in event of flood hazard event.
Cost: Cost estimates unknown at this time.

VILLAGE OF HAMPTON

Action considered: Purchase two warning sirens @ $16,000 each

STAPLEE Criteria	S Social		T Technical			A Administrative			P Political			L Legal			E Economic				E Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Identified as a priority action. Applies to both existing and newcommunity assets.
Benefit: Improve warning system for natural hazards.
Cost: Cost estimated at $16,000 for each of two warning sirens.

VILLAGE OF HILLSDALE

Action considered: Repair and reconstruct area levee to 100-year flood level

STAPLEE Criteria	S Social		T Technical			A Administrative			P Political			L Legal			E Economic				E Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	+	+	NA	+	+	+

Comments: Identified as a priority action. Applies to both existing and new community assets. The Village has undertaken to expand levee on its own and has already acquired the land.
Benefit: Project will eliminate flood water entry from one end of town.
Cost: Estimated between $45,000 and $50,000. Village has already acquired needed land. The Village has committed funds from its general fund as the project is already in process.

VILLAGE OF MILAN

Action considered: Establish written procedures for severe weather and hazard events.

STAPLEE Criteria	S Social		T Technical			A Administrative			P Political			L Legal			E Economic				E Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Identified as a priority action. Applies to existing and new community assets.
Benefit: Written procedures will coordinate efforts of staff with emergency response duties. Process will help shorten response time. Opportunities for further mitigation actions may be identified in the process.
Cost: Action will make use of current staffing and will not require additional funding at this time.

CITY OF MOLINE

Action considered: Purchase back-up generators for fire stations

STAPLEE Criteria	S Social		T Technical			A Administrative			P Political			L Legal			E Economic				E Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Identified as a priority action. Applies to both existing and new community assets.
Benefit: Provides emergency electricity back-up for power outages due to hazard events. Location of generators at fire stations will assure timely response for emergencies and emergency shelter if needed.
Cost: Estimated by City at $82,000

Action considered: Secure outside funding to update and enhance the City's emergency services preparedness plan

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → **For Alternative Actions** ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Identified as a priority action. Applies to both existing and new community assets. Identified as an opportunity resulting from hazard mitigation planning process.
Benefit: Revise current emergency services preparedness plan to meet latest standards and identified needs.
Cost: Estimated between $5,000 and $10,000. Since this is not currently budgeted, it will require outside funding sources to assure completion in the short term.

VILLAGE OF OAK GROVE

Action considered: Purchase and install siren warning system to replace Coyne Center sirens that have been disconnected.

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → **For Alternative Actions** ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Identified as a priority action. Applies to both existing and new community assets.
Benefit: Restores warning system that includes the Village of Oak Grove within its range.
Cost: Received a quote of a total of $15,953.75 for equipment and installation. Outside funding sources may be required.

Action considered: Work on municipal building as a potential shelter space

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Identified as a priority action. Applies to both existing and new community assets.
Benefit: Will provide a shelter location for residents without shelter facilities. There are two mobile home parks in Oak Grove.
Cost: Unknown at this time. Outside funding sources may be required.

VILLAGE OF PORT BYRON

Action considered: Purchase and update existing building for Emergency Operation Center (EOC) with heating/cooling shelter facilities.

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	NA	+	+	+	+	+	-	NA	NA	NA	NA	NA

Comments: Identified as a priority action. Applies to new community assets.
Benefit: Consolidate Village emergency response functions and technological upgrades in one facility and provide sheltering facilities.
Cost: Estimated at $1.2 million for new construction.

VILLAGE OF RAPIDS CITY

Action considered: Establish warming and/or cooling center

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Identified as a priority action. Applies to both existing and new community assets.
Benefit: Shelter for vulnerable populations during extreme temperature events
Cost: Costs have been described as negligible for use of an existing building.

VILLAGE OF REYNOLDS

Action considered: Purchase and install back-up generators for lift station and water supply pumps

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Identified as a priority action. Applies to both existing and new community assets.
Benefit: Back-up generators will provide energy to maintain essential services during a power outage resulting from hazard events.
Cost: Estimated $50,000. May require outside funding source.

CITY OF ROCK ISLAND

Action considered: Establish coordinated warming and/or cooling centers

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Identified as a priority action. Applies to existing community assets.
Benefit: Provides shelter for vulnerable populations during extreme temperature events.
Cost: Cost described as minimal for use of existing buildings.

ROCK ISLAND COUNTY

Action considered: Pursue funding for voluntary acquisition program for Barstow area trailer park.

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	+	+	+	NA	+	+	+

Comments: Identified as a priority goal. Applies to existing community assets. Rock Island County has experience with successful flood plain acquisition programs.
Benefit: Permanently removes residential structures subject to repetitive flooding.
Cost: Costs, unknown at this time, are dependent on the number of residents interested in voluntary acquisition and the availability of outside funding sources.

CITY OF SILVIS

Action considered: Establish written procedures for severe weather hazard events

STAPLEE Criteria	**S** Social		**T** Technical			**A** Administrative			**P** Political			**L** Legal			**E** Economic				**E** Environment				
Considerations → For Alternative Actions ↓	Community Acceptance	Effect on Population Segment	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT Sites	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	NA	+	+	+	+	+	+	NA	NA	NA	NA	NA

Comments: Identified as a priority action. Applies to existing and new community assets.
Benefit: Written procedures will save time responding to weather hazard events. The process may also identify opportunities for further mitigation actions.
Cost: Cost described as minimal by making use of current staff time.