

# DRAFT

Tri-County Regional Planning Commission

## NATURAL HAZARD MITIGATION PLAN

*Update to the 2004 Heart of Illinois  
Project Impact Hazard Mitigation Plan*

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## SECTION I — EXECUTIVE SUMMARY

### Background

For the purposes of this Hazard Mitigation Plan, Tri-County Regional Planning Commission area is comprised of the cities of Peoria, Pekin, Chillicothe and Washington, the Villages of Peoria Heights and Roanoke and the unincorporated areas within the counties of Peoria, Tazewell and Woodford. Hereinafter and throughout the document, the area will be referred to as the Tri-County area.

The Tri-County area is vulnerable to many types of natural hazards — including floods, tornadoes, winter storms, earthquakes and severe thunderstorms — and has experienced the effects of each of these at some point in its history.

The last few decades of growth within the Tri-County area have placed more development than ever in harm's way, increasing the potential for severe economic and social consequences if a major disaster or other catastrophic event were to occur today. Such an event could have the potential to cost the local governments, residents, and businesses millions of dollars in damages to public buildings and infrastructure, lost tax revenues, unemployment, homelessness, and emotional and physical suffering for many years to come.

A multi-hazard mitigation plan has been prepared for the Tri-County area in accordance with the requirements of the Disaster Mitigation Act of 2000. Having the mitigation plan in place will help the area to:

- Better understand local hazards and risks;
- Build support for mitigation activities;
- Develop more effective community hazard-reduction policies and integrate mitigation concepts into other community processes;
- Incorporate mitigation into post-disaster recovery activities; and
- Obtain disaster-related grants in the aftermath of a disaster.

### Hazard Identification and Risk Assessment

For the development of this plan, the Tri-County Regional Planning Commission (TCRPC) hired an expert consultant, Dewberry, to update the 2004 regional plan. This plan included goals and capabilities developed from information included in the Hazard Identification and Risk Assessment (HIRA), and the HIRA provided an analysis of and information on natural hazards for the region. The HIRA remains a proprietary document of the Heart of Illinois Project Impact and its partners.



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Prioritizing the potential hazards that may impact the Tri-County area was based on the probability that a potential hazard will affect the area, and the potential impact that hazard would have on the area given a disaster event. Values were assigned to each natural hazard type, to better define each hazard’s risk level. The hazards were then categorized as **High, Medium-High, Medium,** and **Low,** to represent the likelihood of an event, which could significantly affect the Tri-County area.

In order to focus on the most significant hazards, only those assigned a level of **High** or **Medium-High** have been included for analysis in the risk assessment portion of this plan. Table I-1 summarizes these results and the hazard grouping of the vulnerability analysis for 2004 and 2010; and compares the results to the 2007 State of Illinois hazard ranking for the Tri-County area. This ranking and comparison is explained fully in Section IV of this plan.

Table I- 1: Hazard Ranking Comparisons

2010 Hazard Categorization	TRCPC 2010 Update	State of Illinois HMP 2007	2004 Hazard Type	HOI Project Impact 2004
Flood	High	Primary Hazard (Flood)	Flood - Flash	Medium-High
			Flood - Riverine	High
Severe Storms & Tornadoes	High	Primary Hazard (Severe Storms & Tornadoes)	Severe Thunderstorm	Medium-High
			Wind Event - Microburst/Straight-line	High
			Tornado - All Other Categories	Medium-High
			Tornado (F0)	High
			Tornado (F1)	High
			Tornado (F2)	Medium-High
Winter Storms	High	Primary Hazard	Winter Storms	Medium-High
LandMine Subsidence	Medium-High	Low Probability and/or Minor Impact	Land Subsidence/Mine Subsidence	Medium-High
Landslide	Medium	Low Probability and/or Minor Impact	Landslide	Medium
Drought	Medium	Primary Hazard	Drought	Medium
Extreme Heat	Medium	Primary Hazard	Extreme Heat	Medium
Wildfire	Medium	Low Probability and/or Minor Impact	Wildfire	Medium
Earthquake	Medium	Primary Hazard	Earthquake	Medium



## The Mitigation Strategy

After defining the area's vulnerability to natural hazards, the Heart of Illinois Project Impact relied on the experience of a Mitigation Advisory Committee (MAC) to develop its mitigation strategy to address the hazards. The MAC included the directors of the Emergency Services and Disaster Agencies (ESDA) from the respective jurisdictions and a member from Peoria County Planning and Zoning. The committee worked closely with the constituents, staff, and professionals in their respective jurisdictions for the specific information needed for the plan.

The MAC attended a workshop on February 4, 2004, to discuss the results of the hazard identification and risk assessments, review and update mitigation goals and objectives based on the priority areas and hazard types, discuss community strengths and weaknesses, and to begin developing the mitigation strategy.

The development of a **Mitigation Strategy** involves a process of:

1. **Setting mitigation goals,**
2. **Considering mitigation alternatives,**
3. **Developing objectives and implementation approaches, and**
4. **Deriving a mitigation action plan.**

The following overarching goal and four specific goals were developed by the MAC to guide the area's future hazard mitigation activities.

Overarching Goal:	<i>"To develop and maintain a disaster resistant community that is less vulnerable to the economic and physical devastation associated with natural hazard events."</i>
Goal 1	Enhance the safety of residents and businesses by protecting new and existing development from the effects of <u>natural</u> hazards. Protect new and existing public and private infrastructure and critical facilities from the effects of these <u>natural</u> hazards.
Goal 2	Increase the local floodplain management activities and participation in the NFIP.
Goal 3	Ensure hazard awareness and risk reduction principles are institutionalized into the Tri-County communities' daily activities, processes, and functions by policy documents and initiatives incorporating it into policy documents and initiatives.
Goal 4	Enhance community-wide understanding and awareness of community hazards by publicizing mitigation activities to reduce vulnerability.

The **Mitigation Strategy** contained within the Plan also serves a second purpose for Peoria County, which is a participant in the National Flood Insurance Program's (NFIP)



Community Rating System (CRS). Section V and Section VII contain information for the Repetitive Loss Plan is presented in order to fulfill CRS planning requirements.

### **Conclusion**

Since the Tri-County area for this plan includes the unincorporated areas of the counties of Peoria, Tazewell and Woodford, as well as the cities of Peoria, Pekin, Chillicothe and Washington and Villages of Peoria Heights and Roanoke, this document and plan is limited to these jurisdictions. While the information may apply to incorporated areas in the counties of Peoria, Tazewell, and Woodford, the plan does not cover the federal mandates of DMA 2000 for these incorporated areas.

This plan symbolizes the Tri-County's continued commitment and dedication to enhance the safety of its residents and businesses by taking actions before a disaster strikes. While each jurisdiction cannot necessarily prevent natural hazard events from occurring, it can minimize the disruption and devastation that so often accompanies these disasters.



## **SECTION II — INTRODUCTION**

### **Mitigation**

Mitigation is commonly defined as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. Hazard mitigation focuses attention and resources on community policies and actions that will produce successive benefits over time. A mitigation plan states the aspirations, goals and specific courses of action that a community intends to follow to reduce vulnerability and exposure to future hazard events. These plans are formulated through a systematic process centered on the participation of citizens, businesses, public officials, and other community stakeholders.

A local mitigation plan is the physical representation of a jurisdiction's commitment to reduce risks from natural hazards. Local officials can refer to the plan in their day-to-day activities and decisions regarding regulations and ordinances, granting permits, and in funding capital improvements and other community initiatives. Additionally, these local plans will serve as the basis for States to prioritize future grant funding as it becomes available.

The first Hazard Mitigation Plan for the Tri-County area was developed in 2004. This document, known as the Heart of Illinois Project Impact Natural Hazards Mitigation Plan, was developed in accordance with the requirements of the Disaster Mitigation Act of 2000 (DMA2k), and covered the cities of Peoria and Pekin, and the unincorporated areas of Peoria, Tazewell and Woodford Counties.

This document is an update to the 2004 plan, and covers, in addition to the geographic area covered in the original plan, the cities of East Peoria, Washington, and Chillicothe, and the villages of Peoria Heights and Roanoke. During the remainder of the document any reference to Tri-County area shall be considered to relate only to these areas.

It is hoped that this hazard mitigation plan will continue to be a tool for all community stakeholders to use by increasing public awareness about local hazards and risks, while at the same time, providing information about options and resources available to reduce those risks. Educating the public about potential hazards will help each of the area's jurisdictions protect themselves against the effects of the hazards, and will enable informed decision-making on where to live, purchase property, or locate businesses.

### **The Local Mitigation Planning Impetus**

On October 30, 2000, the U.S President signed into law the DMA2k, which established a national disaster hazard mitigation grant program that would help to reduce loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters.



DMA2k amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act and has added a new section, §322 Mitigation Planning. Section 322 requires local governments to prepare and adopt jurisdiction-wide hazard mitigation plans for disasters declared after November 1, 2003, (subsequently revised to November 1, 2004) as a condition of receiving Hazard Mitigation Grant Program (HMGP) project grants and other forms of non-emergency disaster assistance. Local governments must review and, if necessary, update the mitigation plan every five years from the original date of the plan to continue program eligibility.

### **Interim Final Rule Planning Criteria**

As part of the process of implementing DMA2K, FEMA prepared an Interim Final Rule to define the mitigation planning criteria for States and communities. Published in the Federal Register on February 26, 2002, at 44 CFR Part 201, the Rule serves as the governing document for DMA2K planning implementation.

### **Organization of the Plan**

The remaining sections of this document follow the process enumerated in DMA2K.

**Section III** – Planning Process describes the Tri-County area’s stakeholder involvement and defines the processes followed throughout the creation of this plan.

**Section IX** – 2010 Plan Update includes information on changes since the adoption of the 2004 Hazard Mitigation Plan.

**Section IV** – The Community Profile provides a physical and demographic profile of the jurisdictions, looking at things such as geography, hydrography, development, people, and land uses.

**Section V** – The Hazard Identification and Risk Assessment identifies the natural hazards that impact the Tri-County planning area and assesses vulnerability to critical facilities, infrastructure and population.

**Section VI** – The Capability Assessment analyzes each of the jurisdictions’ policies, programs, plans, resources, and capability to reduce exposure to hazards in the community.

**Section VII** – The Mitigation Strategy addresses the Tri-County area’s issues and concerns for hazards by establishing a framework for loss-reduction activities and policies. The strategy includes a future vision statement, goals, objectives, and a range of actions to achieve the goals.





**Section VIII** – Plan Maintenance Procedures specifies how the plan will be monitored, evaluated, and updated, including a process for continuing stakeholder involvement once the plan is completed.

**Section X** – Appendices are included in the last section of the plan, and contain supplemental reference materials and more detailed calculations and methodologies used in the planning process. The Appendices also provide a list of commonly used mitigation terms and acronyms.



## SECTION III — PLANNING PROCESS

### 2004 Hazard Mitigation Plan

This document is an update to the Natural Hazards Mitigation Plan adopted in 2004. The 2004 plan was developed by an organization known as Heart of Illinois Project Impact and covered the cities of Peoria and Pekin, and the unincorporated areas of Peoria, Tazewell and Woodford Counties.

Heart of Illinois Project Impact (HOIPI) was a not-for-profit corporation that recognized the economic effect that disasters have on the region. The corporation was a public-private partnership involving government entities and private businesses that cooperated to incorporate disaster resistance into their communities. Heart of Illinois Project Impact dissolved in 2007.

From 2000 to 2002, the Project Impact Steering Committee held regular monthly meetings and continually worked on the area's HIRA. The public-private partners, including the Advisory Committee, coordinated and consulted with other entities and stakeholders to identify and delineate natural and manmade hazards within the five local jurisdictions and to assess the risks and vulnerability of public and private buildings, facilities, utilities, communications, transportation systems, and other vulnerable infrastructure.

In February 2003, HOIPI contracted with a consultant (Dewberry and Davis) to build upon their completed HIRA and Project Impact efforts and work with the community to develop a hazard mitigation plan. HOIPI worked with the consultants throughout the planning process to ensure that potential stakeholders participated in the process and were given opportunities for input in the draft and final phases of the plan. The Natural Hazards Mitigation Plan developed as a result of this process was adopted by the local jurisdictions and accepted by FEMA/IEMA in mid-2004.

### 2010 Hazard Mitigation Plan Update

Planning for the update to the 2004 plan began in 2008 when Peoria County and the City of Peoria approached the Tri-County Regional Planning Commission (TCRPC) to coordinate a plan for the region. The mission of TCRPC is to promote intergovernmental cooperation, regional planning, and a vision for the future, making the coordination of a natural hazards mitigation plan a good fit for the agency.

TCRPC applied for, and received, a grant from the Federal Emergency Management Agency (FEMA) to update the plan. A decision was made to expand the scope of the plan beyond the five jurisdictions that were involved in the 2004 plan. During the winter of 2007/2008 Peoria County mailed out letters to all of the communities in the Tri-



## Tri-County Regional Planning Commission Natural Hazards Mitigation Plan

County region to determine which ones were interested in the plan update. Letters were mailed out again on July 7, 2009 by the TCRPC to invite communities to participate, provide background on the program and to attend the informational meeting on July 13, 2009. As a result, the 2010 plan includes the original five jurisdictions (Peoria, Tazewell and Woodford Counties, and the cities of Peoria and Pekin), plus the following municipalities: Cities of East Peoria, Chillicothe, and Washington, and the Villages of Peoria Heights and Roanoke (a total of ten communities). Non-participating communities were invited throughout the planning process to participate. A Mitigation Advisory Committee made up of all participating jurisdictions was formed (Table III-2).

Several meetings in the summer of 2009 were held to further determine which communities wanted to participate and to re-establish the Mitigation Advisory Committee (MAC). The formation of the MAC is discussed in the following sub-section. Each of the participating communities provided a match requirement to the TCRPC for their efforts.

A preliminary interest meeting was held on Monday July 13, 2009 at the TCRPC. Staff from municipalities were invited to attend to find out more about the program and to determine if they would want to participate. Later that day, the hazard mitigation planning effort was presented at the Illinois River Valley Council of Governments. The invitation to participate in the plan was extended to all jurisdictions and interested public and private organizations. Peoria County further volunteered to attend council meetings to explain the program.

Once the MAC was established, a plan kick-off meeting was held on August 13, 2009. This meeting reviewed the 2004 plan and provided a schedule for completion of the 2010 update. Committee members were asked to provide feedback on what they liked and disliked about the previous plan. Comments from this meeting are addressed in the update. A follow-up WebEx was conducted on September 28, 2009 for jurisdictions who were not able to make the August meeting.

To increase data and file sharing ability of the committee, a SharePoint site was created for the plan update. The site was used throughout the planning process to share data and plan sections as they were available. Comments were accepted through the site or as separate correspondence (emails and phone calls).

During the winter of 2010 the steering committee met several times to discuss mitigation strategies, goals and actions. On February 3, 2010 the MAC updated the 2004 goals to streamline planning efforts and overall vision of the plan. Through SharePoint steering committee members were encouraged to review, update, and rank mitigation actions for their localities. During the April 6 and 7, 2010 meetings the mitigation goals and strategies and ranking criteria were finalized.

Community profiles and capability assessments were updated and created by closely working with the local MAC members. Several questionnaires were utilized to determine



## Tri-County Regional Planning Commission Natural Hazards Mitigation Plan

local capabilities (Section X). Correspondence through email, SharePoint and phone conversations helped to finalize these sections. The community profiles and capability sections were posted on SharePoint and emailed to committee members for feedback to ensure they best represented the locality.

Data collection and HIRA analysis was completed in the fall and early winter of 2009/2010. TCRPC performed the HAZUS-MH MR4 analysis for flood and earthquake modules. Results of the HIRA analysis was presented to the MAC on April 6, 2010.

Jurisdiction specific meetings were held on April 6 and 7, 2010 to review the HIRA results, evaluate current mitigation actions, develop new mitigation actions based on HIRA findings and ranking the actions. These meetings were extremely helpful in determining local needs and realistic capabilities.

Starting in April 2010 individual sections of the hazard mitigation plan were posted on the SharePoint site for committee members to review and comment on. Separate emails were sent out to the jurisdictions to ask for their feedback on the sections. Several of the jurisdictions provided comments that were incorporated into the plan update.

Once the plan is approved by IEMA and FEMA, TCRPC will work with the localities to present the Hazard Mitigation Plan to each of the jurisdictions and have the plan formally adopted by their governing body.

Table III-1 highlights of the planning process for the 2010 update. Section X includes the agendas, attendance and minutes for all of the meetings during the 2010 plan update.

Table III-2 summarizes the attendance of the localities at each of the meetings held throughout the planning process. Peoria County representatives were available at all of the meetings for the plan update. As discussed in the Plan Update (Section XI) Peoria County will be organizing the next plan revision. Several of the participating jurisdictions did not attend the majority of the meetings. These localities were kept abreast of the plan update through email, phone calls and postings to the SharePoint site. Individual actions for each of the localities have been provided in the mitigation strategy section of the plan.

Table III- 1: 2010 Natural Hazards Mitigation Plan Process

Date	Action
12/2007 - 1/2008	Letters mailed out by Peoria County to determine which communities were interested in participating in the plan update.
6/12/2009	Informational meeting held for plan update. Discussions of participating communities, public and private sectors.
7/7/2009	Contract with consultant (Dewberry) executed



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Natural Hazards Mitigation Plan**

<b>Date</b>	<b>Action</b>
7/13/2009	Preliminary interest meeting and informational held at TCRPC to determine interest by communities.
7/13/2009	Hazard Mitigation Planning effort presented at the Illinois River Valley Council of Governments.
8/13/2009	Kick-off meeting held at offices of TCRPC for 2010 plan update
9/28/2009	Make-up kick-off meeting, via WebEx, for 2010 plan update for communities who were not able to participate at the August meeting
10/2009	Steering Committee Members given access to SharePoint.
10/2009 – 7/2010	Different components of the mitigation plan were posted to SharePoint and email notifications sent to MAC members to review and comment on. This included community profiles, HIRA, capability assessments, mitigation actions and plan maintenance. All comments were incorporated into the plan update.
8/2009 – 2/2010	Data collection from TCRPC and participating jurisdictions.
1/2010	Steering Committee Members given access to SharePoint.
2/3/2010	Held steering committee meeting to discuss status and relevancy of the 2004 Mitigation Strategies. Several goals were updated to reflect MAC comments.
2/8/2010	Capability Matrix and Future Development/Growth questionnaire posted to SharePoint site for committee feedback
2/9/2010	2004 Mitigation Strategies posted to SharePoint site for committee review
2/24/2010	Call for local knowledge on community profiles and land use and development.
4/6/2010	Held steering committee meeting to discuss results of the Hazard Identification and Risk Assessment (HIRA). IEMA was present for discussions.
4/6/2010	Met with Peoria County, City of Peoria, and City of Chillicothe to discuss capabilities and specific mitigation actions for the 2010 plan update.
4/7/2010	Met with City of East Peoria and City of Washington to discuss capabilities and specific mitigation actions for the 2010 plan update.
4/7/2010	Met with Woodford County and the Village of Roanoke to discuss capabilities and specific mitigation actions for the 2010 plan update.
4/21/2010	Community Profiles Posted to SharePoint site for committee feedback
5/18/2010	Draft sections of Introduction, Planning Process, Community Profiles, Mitigation Strategies and 2010 Plan Update posted to SharePoint site for committee feedback.
6/1/2010 – 6/18/2010	Communities were contacted (email and telephone) to provide information on capability assessments.
7/1/2010	Draft plan posted on SharePoint site, available at the TCRPC office and the offices of participating municipalities. TCRPC posted plan to website and emailed neighboring jurisdictions for comment.
7/16/2010 <i>Extended to: 7/23/2010</i>	Comments on draft plans from steering committee, public, and neighboring jurisdictions due.
<b>SEPT/OCT</b>	<b>TCRPC – populate here (and additional rows) for any additional meetings (i.e. public notices...)</b>



**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

Table III- 2: HMP Update Meeting Attendance

Meeting Date	TCRPC	Dewberry	IEMA	Peoria County	City of Chillicothe	Village of Peoria Heights	City of Peoria	Tazewell County	City of Pekin	City of East Peoria	City of Washington	Woodford County	Village of Roanoke
6/12/2009 Informational Meeting	√			√			√	√				√	
7/13/2009 Prelim Interest Meeting	√		√	√						√	√		
7/13/2009 Council Meeting	√			<i>No Attendance Taken</i>									
8/13/2009 Kick-Off Meeting	√	√	√	√			√						
9/28/2009 Makeup Kick-Off Meeting	√	√		√				√					
2/8/2010	√	√		√	√	√	√	√	√		√		
4/6/2010 HIRA Presentation	√	√	√	√	√		√	√			√	√	√
4/6/2010 Peoria County & Jurisdictions Meetings	√	√		√	√		√						
4/7/2010 Tazewell County & Jurisdictions Meetings	√	√								√	√		
4/7/2010 Woodford County & Jurisdictions Meetings	√	√										√	√

**Mitigation Advisory Committee**

A Mitigation Advisory Committee (MAC) was re-established for the 2010 update of the Natural Hazards Mitigation Plan to provide input at key stages of the process. Efforts to involve departments and community organizations that might have a role in the implementation of the mitigation actions or policies included invitations to attend meetings and serve on the MAC, e-mails of minutes and updates, strategy development workshops, teleconferences, and opportunities for input and comment on all draft deliverables. Informational meetings were held in the summer of 2009 to determine



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what localities and local public and private organizations would like to participate. Table III-1 provides a brief summary of the meetings and Section X provides the agenda and minutes from the meetings, when available.

At the beginning of 2010 planning process, the 2004 Heart of Illinois Project Impact planning members and contributors were contacted by TCRPC to determine their interest in participating in the update of the plan. Several MAC members remained from the 2004 plan and were able to provide background on past planning efforts and mitigation actions. New members were added to the MAC to represent the communities that joined the planning effort.

Table III-3 below shows the representatives for each of the participating localities. Efforts were made by TCRPC to include the public for comments on the draft update. This is further discussed in the following section.

Table III- 3: Tri-County HMP MAC Members and Contributors

<b>PEORIA COUNTY</b>		
Matt Wahl	Planning & Zoning	Peoria County
Andrew Braun	Planning & Zoning	
Vicky Turner	ESDA	
John Myers	Fire Chief	City of Chillicothe
Dwain Deppolder	OEM	City of Peoria
Matt Fick	City Administrator	Village of Peoria Heights
<b>TAZEWELL COUNTY</b>		
Dawn Cook	EMA	Tazewell County
Kurt Nelson	Fire Department	City of Pekin
Bill Darin	Fire Department	City of East Peoria
Ty Livingston	Planning & Zoning	City of East Peoria
Jon Oliphant	Planning & Zoning	City of Washington
Mike Vaughn	Fire Chief	
<b>WOODFORD COUNTY</b>		
Bob Hix	ESDA	Woodford County
John Hamann	Zoning	Woodford County
Jon Hodel	Highway	Woodford County
Robert L. Isaia	Fire Department	Village of Roanoke
<b>TRI-COUNTY REGIONAL PLANNING COMMISSION</b>		
Maggie Martino		
Jim Webb		
Matt Junker		



Greg Sachau

*Review of 2010 Plan Update*

Individual sections of the plan were posted to the SharePoint site starting in February 2010 for the MAC to review and comment on. The draft of the complete plan was made available July 1, 2010 via SharePoint, FTP site, and was posted to the TCRPC and local government websites. Comments by the committee, public and private industries were requested through emails and phone calls. Comments were due July 16, 2010 but were then extended to July 23, 2010 to ensure enough time for everyone to review.

As discussed in the 2010 Hazard Mitigation Plan Update, the SharePoint website was utilized to transfer data, update project documents and continue committee communications in between project meetings.

**2004 Public Participation and Citizen Input**

For the 2004 Plan, several opportunities were provided for the public to provide input and participate in the planning process. One open public meeting was held on February 4, 2004, another February 10, 2003, and a third March 24, 2004 to allow the general public an opportunity to meet with the planning consultants and MAC members, ask questions, and provide comments and input on the mitigation plan.

During the development phase, the Advisory Committee and Development Coordinator contacted public offices and private business leaders to access the hazard identification information and mitigation plan. On three occasions the committee leader attended meetings with the Congress of Governments (a consortium of leaders representing the governments and citizens of the Tri-County region). These meetings provided an update on the plan development, as well as, an invitation for specific input into the plan. Additionally, a survey was developed to invite the input of over 25,000 members attending two home shows. One home show held in Tazewell County and the other held in Peoria County. News interviews prior to the public meeting identified an overview of the mitigation plan and encouraged the public to review the plan at a specific web site, as well as, attending the public forums.

The results of the survey indicated that a majority of the homeowners within the Tri-County area agreed that the area had reasons to plan and mitigate against natural disasters. Survey respondents indicated that wind, flood, and winter events posed the greatest economic and personal concerns in the Tri-County area. A statistically notable number of the respondents supported more laws or ordinances to encourage actions that would resist the economic effects of natural disaster. A majority of respondents to the survey did not agree that taxpayers should participate in mitigation efforts if it required greater tax payments. Another concurrence was the need for educating the public on available technologies for mitigation.





## **2010 Public Participation and Citizen Input**

As discussed in the Review of 2010 Plan Update, the draft Natural Hazards Mitigation Plan was placed on the TCRPC website and available at each of the participating jurisdictions' courthouse/city hall. TCRPC sent out emails and letters to neighboring communities encouraging them to provide feedback on the plan. The documents were available to the public and neighboring jurisdictions during the month of July 2010 for comment. No public comment on the draft plan was received.

It would be recommended that at the yearly update meetings the committee should discuss ways to increase public involvement; public notices could be invited to the annual review meetings with the MAC.

A sample resolution for adopting the Natural Hazard Mitigation Plan is included in Section X.



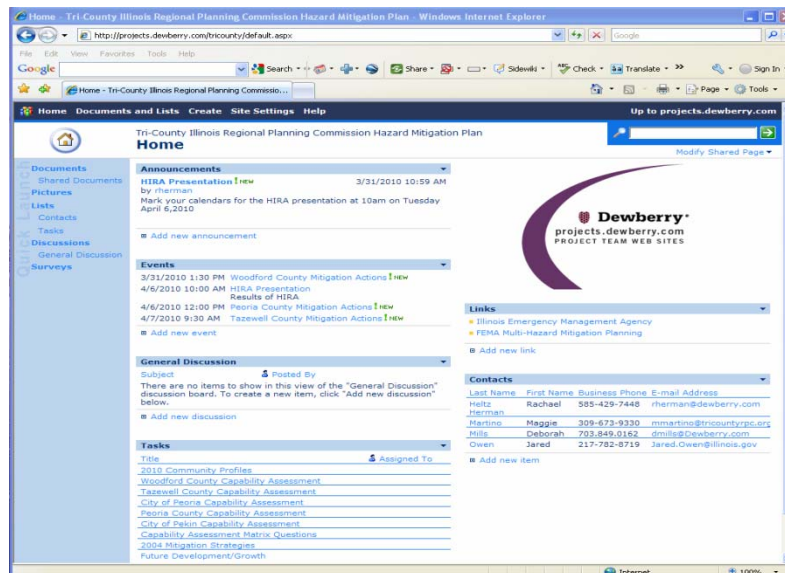
## SECTION IX – PLAN UPDATE

### What has happened since 2004

Since the Plan's adoption by the local communities in 2004, the MAC did not meet on a yearly basis to track implementation of the action items contained in the Plan. During the 2010 update to the plan, the committee discussed realistic options for reviewing and updating the plan over the next five years. Peoria County has volunteered to organize yearly meetings with the MAC to review and update the plan to reflect progress made and changes to items based on new progress or policy changes.

The 2004 plan was coordinated by Heart of Illinois Project Impact. Once the 2004 plan was adopted by the participating jurisdictions, however, Project Impact failed to coordinate the implementation phase of the plan. Heart of Illinois Project Impact did not meet after 2005 and was officially dissolved in 2007. For the 2010 update, Tri-County Regional Planning Commission coordinated the planning process. Involvement by other local communities was encouraged, and a Steering Committee made up of the participating jurisdictions was established.

As previously discussed, Dewberry assisted the region in revising and updating the 2004 hazard mitigation plan. Several meetings with the MAC were organized to provide each locality an opportunity to comment on the plan sections. These meetings are outlined in the Planning Process section of this report. Each committee member was provided with a username and login to access documents on the Tri-County SharePoint site. This site was established to transfer data, update project documents and continue committee communications in between project meetings.



During the Hazard Mitigation Plan kick-off meeting, committee members felt that the hazard rankings for the participating jurisdictions still represented the relative risk in the region but were interested to compare the results of the Illinois State Plan and additional storm events since the 2004 plan. Hazard categories were adjusted from 2004 to better align with the State of Illinois Hazard Mitigation Plan and reporting of national storm datasets, as shown in the HIRA section of this plan. The hazard histories were updated



to account for any events or declared disasters that occurred since the 2004 plan. The Risk Assessment was reviewed and updated, as necessary, for all natural hazards.

The committee reviewed the goals, objectives and implementation/actions during the February 8, 2010 and April 6, 2010 meetings and found them to still be valid with minor changes outlined in the mitigation strategy section of this plan. Additional actions were added and ranked by the jurisdictions during the county specific meetings held on April 6 and 7, 2010 to reflect the HIRA results.

Table VIII-1 provides a general outline of the major changes that have been made to the 2004 version of this plan.

### **Guidelines for the next plan update – 2015**

Peoria County has volunteered to head the MAC which will include facilitating committee meetings, compiling the annual reports, and helping to secure funds for updating the plan. Peoria County will draw on other departments and municipalities for assistance in monitoring the plans implementation and for updating the plan.

The committee will meet twice per year with their jurisdictions and once per year with the MAC to monitor the plans implementation, and update the plan as needed. **Peoria County** will provide staff to record meeting minutes and will maintain a copy of the minutes.

#### *Schedule for the 2010 Plan Update*

For the 2010 plan update, the Illinois Emergency Management Agency requested the final draft of the updated plan be submitted three months prior to the plans expiration date. IEMA would then send the plan to FEMA for review and approval. Due to these time restrictions, it is recommended that the committee start the update process 12 months before the plan is to be submitted to IEMA.

### **MAC Involvement**

During the yearly meetings, each committee member representing a municipality will be required to provide updated information on the mitigation actions for their jurisdiction. Pertinent information includes: 1) was the action completed during the last update cycle, and 2) if the action was not completed on time, information should be provided describing why, and what actions are necessary to achieve completion.

### **Public Involvement**

Since the public did not participate in the 2010 plan update process, all future mitigation committee meetings shall be open to the public. It would be recommended that at the yearly meetings the committee should discuss ways to increase public involvement.



## Tri-County Regional Planning Commission Natural Hazards Mitigation Plan

An example action that can be implemented, with no cost, would be to place information about the update meetings on the TCRPC and jurisdiction's websites. If a newsletter is published and disseminated by a jurisdiction, mention of the meetings should be included.

### **Changes to the 2004 Hazard Mitigation Plan**

Table IX-1 documents the changes that have been made to the 2004 version of the TCRPC's Hazard Mitigation Plan. This plan update consolidates, updates, and streamlines content from the 2004 hazard mitigation plan.



**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

Table IX- 1: Changes to the 2004 Hazard Mitigation Plan

<b>Section</b>	<b>Section Title</b>	<b>Changes to the 2004 Plan</b>
Section I	Executive Summary	<ul style="list-style-type: none"> <li>Updated to reflect changes in plan</li> </ul>
Section II	Introduction	<ul style="list-style-type: none"> <li>Updated to reflect transition of Project Impact to TCRPC</li> </ul>
Section III	Planning Process	<ul style="list-style-type: none"> <li>Updated planning committee information and plan update meetings</li> </ul>
Section IV	Community Profile	<ul style="list-style-type: none"> <li>Updated communities to reflect population changes and projections</li> <li>Added communities that did not participate in the 2004 plan</li> </ul>
Section V	Risk Assessment	<ul style="list-style-type: none"> <li>Risk Assessment updated with information from the 2007 Illinois Hazard Mitigation Plan. Rankings from state plan added to beginning of each hazard section, per MAC request.</li> <li>Hazard categories restructured to better align with Illinois State Plan and national storm event datasets</li> <li>Overall Summary section added</li> <li>Updated Federally Declared Disasters and creation of applicable table</li> <li>Updated historical occurrences for all hazards that have occurred since the 2004 plan</li> <li>Included additional information about NCDL database and losses adjusted for inflation</li> <li>Updated Repetitive Loss Property information</li> <li>HAZUS-MH 100-yr &amp; Annualized Loss Runs</li> <li>NCDL Statistics (Events, Annualized Loss)</li> <li>USGS Mapping</li> <li>HAZUS-MH Annualized Loss Runs</li> <li>NCDL Statistics (Events, Annualized Loss)</li> </ul>
Section VI	Capability Assessment	<ul style="list-style-type: none"> <li>Updated per jurisdictional feedback</li> <li>Added communities that did not participate in the 2004 plan</li> </ul>
Section VII	Mitigation Strategy	<ul style="list-style-type: none"> <li>Updated per jurisdiction feedback on goals and actions.</li> <li>Reviewed and provided feedback on 2004 actions</li> <li>Added new actions based on HIRA results and MAC brainstorming</li> <li>Added actions for Jurisdictions who did not participate in the 2004 plan</li> </ul>
Section VIII	Plan Maintenance	<ul style="list-style-type: none"> <li>Peoria County to head MAC for plan update</li> <li>Plan Update Meetings discussed</li> </ul>
Section IX	2010 Plan Update	<ul style="list-style-type: none"> <li>Section created to document updates to the plan and guidelines for the next update</li> </ul>



**Tri-County Regional Planning Commission  
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<b>Section</b>	<b>Section Title</b>	<b>Changes to the 2004 Plan</b>
Section X	Appendices	<ul style="list-style-type: none"><li>• Historical Tables Updated</li><li>• Base maps from 2004 kept as an Appendix for archival plan purposes</li><li>• Capability and Land Use/Development questionnaires added</li><li>• Meeting Agendas, Attendance and Supplemental hand-outs added</li><li>• Project Impact Survey kept as an Appendix for archival plan purposes</li></ul>



## SECTION IV – COMMUNITY PROFILES

### Introduction

The Tri-County Region is located in the Northeastern Central portion of the Midwestern continental United States, midway between Chicago and St. Louis in Central Illinois. The Tri-County area includes Peoria, Tazewell, and Woodford Counties, as well as several of the cities and villages located within these counties. The communities participating in the 2010 HMP update plan are shown in Figure IV-1 and include:

- Peoria County
  - City of Chillicothe
  - Village of Peoria Heights
  - City of Peoria
- Tazewell County
  - City of Pekin
  - City of East Peoria
  - City of Washington
- Woodford County
  - Village of Roanoke



## TCRPC Hazard Mitigation Plan Participating Jurisdictions

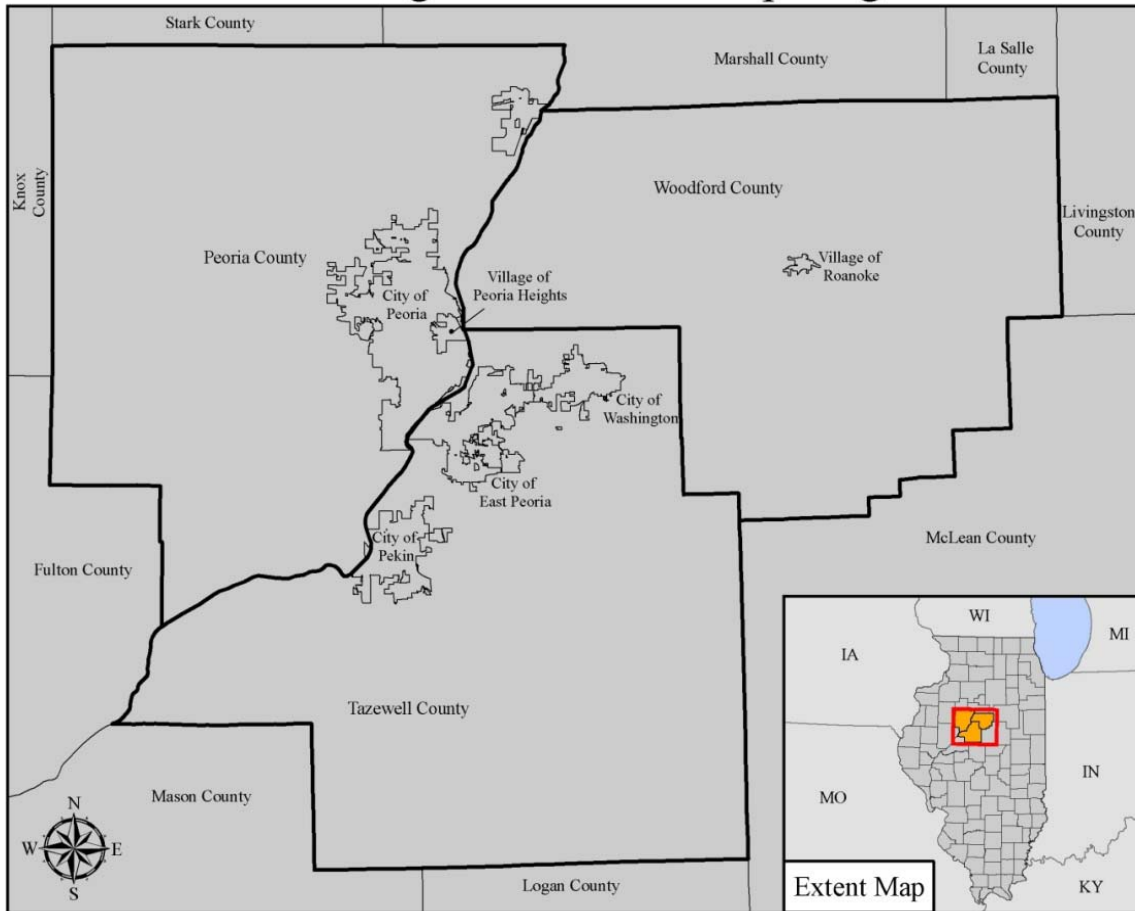


Figure IV- 1: Participating jurisdictions in the 2010 hazard mitigation plan update.





*Tri-County Regional Planning Commission*

The Tri-County Regional Planning Commission (TCRPC) was established in 1958 to promote intergovernmental cooperation, regional planning, and a vision for the future. The Commission exists to serve the residents of Peoria, Tazewell and Woodford Counties by offering a forum for leaders of local government, and to develop a vision for the future by defining regional issues, setting goals, and cooperatively implementing plans. The TCRPC is the “Steward of the Regional Vision.”



The Tri TCRPC provides regional planning services to the Tri-County Region which includes Peoria, Tazewell, and Woodford Counties in Central Illinois. These services include regional projects such as metropolitan transportation planning services provided in cooperation with the Peoria/Pekin Urbanized Area Transportation Study (PPUATS), and projects which promote responsible land use management and protection of the environmental assets.

*Tri-County Area and Participating Jurisdictions*

The Tri-County area exists in what is known to be the US “Heartland”. Rural farmlands drape much of the US Heartland with its relatively flat geography. The Tri-County Region encompasses approximately **1,797** square miles and is a unique subset of the Midwest consisting of typical Midwest geography including rolling plains to the west and ridged plains to the east. Peoria and Tazewell counties are essentially bisected by both physical geographies.

Each respective county is partially bordered by the Illinois River as it flows southwest to the Mississippi River. The Illinois River basin boasts a rich heritage of the Illinois Native American tribes and has been a principal waterway connecting the Lake Michigan and the Mississippi River, which offers unique economic opportunities and also presents certain emergency management challenges.

The sub-sections below provide information on the TCRPC, each of the communities participating in the plan and details on regional information (climate, population, land use and development trends, housing, schools, transportation, parks, infrastructure, and critical facilities). This information has been updated to incorporate the communities who joined the planning efforts since the 2004 plan. U.S. Census Bureau estimates have not been updated since no new estimates were available for the 2010 update.



## Peoria County

Peoria County was founded in 1825 out of Fulton County, Illinois. Known as the Heart of Illinois, Peoria County is at the center of a multiple county region along the Illinois River midway between Chicago and St. Louis. The region's central location and moderate population encourage local economic growth and support a variety of recreational and cultural opportunities. Peoria County encompasses 629 square miles running 32 miles north/south and 28 miles east/west.



The County has four cities (Peoria, West Peoria, Chillicothe and Elmwood), eleven villages (Bartonville, Bellevue, Brimfield, Dunlap, Glasford, Hanna City, Kingston Mines, Mapleton, Norwood, Princeville and Peoria Heights) and twenty townships (Akron, Brimfield, Chillicothe, Elmwood, Hallock, Hollis, Jubilee, Kickapoo, Limestone, Logan, Medina, Millbrook, Princeville, Radnor, Richwoods, Rosefield, Timber, Trivoli, West Peoria and Peoria).

Naturally, residents and visitors alike equate Peoria with Caterpillar Inc., however, the region also boasts the USDA's National Center for Agricultural Utilization Research Lab, a renowned medical community with the only Level 1 trauma center in Central Illinois, and many innovative high-tech firms. The region spends more than \$100 million annually on research and development, and is experiencing over \$1 billion in new construction. The region's transition from a manufacturing economy to an innovation economy is rooted in the Peoria Next Innovation Center, a technology business incubator.





## City of Peoria



The City of Peoria is known to be the oldest community in the State of Illinois and its citizens take pride in having “an enviable standard of living” among many other cultural and positive aspects of their community. The City is well-known for its bustling riverfront, expanding industry and reputation as an

All-American City. The City is the largest city on the Illinois River, the county seat of Peoria County and the fifth-largest city in Illinois.

Archaeologists can trace early man in Peoria as far back as 10,000 B.C.E. Artifacts and burial mounds yield evidence of a Native American civilization that was highly organized, ritualistic, and in harmony with nature. By 1650, the Illini Indians, a part of the Algonquin Nation, populated the area. The major tribes of the Illinois Confederacy were the Peoria, Kaskaskia, Michigamea, Cahokia, and Tamaroa. In 1825 the county was organized and the village name was officially changed from Fort Clark to Peoria. Until 1831, when Cook County was formed, Chicago was part of Peoria County. In 1835 Peoria was incorporated as a town and in 1845 Peoria was incorporated as a city.

## City of Chillicothe

The first settlers located in Chillicothe in the 1830's, about the same period the Native Americans moved out of the area. The Illinois River provided the impetus for the community's growth. Flour milling was the initial industry, but inns and eventually shops were the nucleus





around which the community was formally established. Chillicothe was formally incorporated in 1873, which instigated a period of prosperous growth. The last turn of the century was a very vibrant period in the Chillicothe River Valley.

Railroads have been a major factor in the growth of Chillicothe. The Rock Island Railroad began operations in the 1840's with service to Chicago by the 1850's. By the late 1880s, Santa Fe service from Chicago to the West Coast was operating on a regular basis. The Railroad Bridge crossing the Illinois River at Chillicothe, built in 1931, has a span of 440, fixed trusses, which is the longest in the entire Santa Fe System.

### **Village of Peoria Heights**

Several years before there was a Village of Peoria Heights, the Prospect Heights Land Company was formed. Several men promoted a new subdivision of land overlooking the Illinois River. The view from the bluff was one of the most breathtaking scenes along the River. The area was developed in 1898 and was incorporated and called Prospect Heights. It



It wasn't until three years later when it was discovered there was a conflict in this name, as another community in the Chicago area had already chartered it; therefore, the name was then changed to Peoria Heights.

Peoria Heights lies in the center of a metropolitan population base, with a Village of around 6,500 residents.



## Tazewell County



Tazewell County was formed out of Peoria County in 1827. It is located on the Illinois River adjacent to Peoria. Tazewell County encompasses 658 square miles of which 649 square miles is land area and nine square miles is water.

The largest community in Tazewell County is the City of Peoria, the County seat. Tazewell County also contains five cities (Delavan, East Peoria, Marquette Heights, Peoria, Washington) , thirteen villages (Armington, Creve Coeur, Deer

Creek, Goodfield, Green Valley, Hopedale, Mackinaw, Minier, Morton, North Peoria, Peoria Heights, South Peoria, Tremont), nineteen townships (Bounton, Cincinnati, Deer Creek, Delavan, Dillon, Elm Grove, Fondulac, Groveland, Hittle, Hopedale, Little Mackinaw, Mackinaw, Malone, Morton, Peoria, Sand Prairie, Spring Lake, Tremont, Washington) and one unincorporated area (Groveland).

Agriculture is an important component of Tazewell County's history and economy and it is ingrained with the County's identity and way of life. **Error! Hyperlink reference not valid.** Seventy-eight percent (78%) of the County's land area consists of farmland, and agriculture is poised to remain as one of the County's defining industries. The flat fertile fields, wooded slopes, ravines and forested riparian areas contribute to a diverse landscape that provides many benefits to residents of the county.

### City of East Peoria

Many of the earlier settlers of East Peoria were from Alsace Lorraine. Many of the homes were built in the swamplands where Caterpillar Inc. now stands. In 1864, Joseph Schertz platted an area known as Bluetown, possibly named from one of three theories: first, it was the custom for the Alsace Lorraine men to wear blue smocks; second, the homes, built on stilts, were





painted blue to combat the corrosive action of the swamps; and third, a large number of the homes belonged to a mining company and a large quantity of blue paint had been purchased to paint the houses. Bluetown became known as Hilton, Illinois, in 1869. In July 1884, the residents of Bluetown and Coleville incorporated under the name of Hilton. In October 1889, the name was changed to the Village of East Peoria. It was changed to the City of East Peoria in April 1919 and the commission form of government was adopted.

One reason for the growth of industry was the early development of railroads. By 1905, East Peoria had connections with 12 different railroads, through the facilities of the Peoria and Pekin Union Railroads. The Toledo, Peoria and Warsaw (later Western) and the Illinois Terminal Railway also located their headquarters in East Peoria.

East Peoria's terrain proved itself to be a mixed blessing. During heavy rains, the river bluffs shed their water into the valleys and creeks and directly into the downtown area. Although the city had diked its creeks, the flood of 1927 caused severe damage. Other floods occurred until the U.S. Corps of Engineers and the East Peoria Sanitary District began a flood control program in 1948. The Fondulac and Farmdale dams were built to control runoff from the hills and creek beds were deepened, widened and straightened.

### City of Pekin

In 1829, a County Surveyor named William Hodge laid out what was to become Pekin. He called it "Town Site", indicating the land was suitable



for settlement. The town was named Pekin, after China's City of the Sun - Pekin(g).

Commercial development had begun as early as 1827. Pekin built its first school in 1831 and the Pekin post office opened in 1832. By 1837, the community had a school and post office, three stores, two taverns, a church, a ferry service and a railroad, the Pekin and Terminate. Steamboat trade was also a growing factor in the local economy. By 1849, the population of Pekin had swelled to 1,500 and residents unanimously agreed to organize under a City charter. In the 1850s, industry took root in the community with a wagon maker, a manufacturer of reapers, a packing plant and a distillery.



Pekin is a community of over 33,000 centrally located in the west central portion of the state, midway between Chicago and St. Louis (being about 165 miles / 264 km. from each); and is the County seat for Tazewell County.

Pekin enjoys a solid economic base, is home to many industrial and manufacturing jobs and the corporate office for one the largest Ethanol Facilities in the Nation. Pekin is ideally situated, as it has ready access to all forms of transportation – highway, rail, air, motor freight and water.

### **City of Washington**

Washington, IL was founded in 1825. Washington is located 12 miles east of Peoria, the "River City" of central Illinois. Washington is the marketplace for the surrounding area, and prides itself on having all the conveniences of a self-supporting community.



The first settlement in the town of Washington, or its vicinity, of which we have any account, was made in the spring of 1825, by William Holland, Sr., who came from Peoria, then Fort Clark. He was formerly from North Carolina, and was employed by the United States government as a blacksmith for the Indians, who then inhabited this part of Illinois, and for several years after settling here he continued to work for the Indians.

By 1830 there were thirteen families in Washington, besides small settlements in Deer Creek and Morton Townships. In 1831 Washington's first politician appeared on the scene, Col. Benjamin Mitchell of Virginia. He was elected to the legislature in 1834 and the State senate in 1836. The town was incorporated under a special act of the Legislature of the State of Illinois, passed February 10, 1857.



## Woodford County



Woodford County was formed in 1841 out of Tazewell and McLean Counties. The County was organized by a committee of pioneers, headed by Thomas Bullock who came to Walnut Grove (now Eureka) in 1835 from Versailles, Woodford County, Kentucky. The County and its first County Seat, Versailles, were both named by Mr. Bullock in honor of his boyhood home.

Woodford County is situated in rural central Illinois, with the Illinois River and the City of Peoria to the west, and the cities of Bloomington/Normal to the southeast. Woodford County also contains eleven villages (Bayview Gardens, Benson, Congerville, Germantown Hills, Goodfield, Metamora, Panola, Roanoke, Secor, Spring Bay, and Washburn), and three cities (El Paso, Eureka, and Minonk).

### Village of Roanoke

Roanoke was settled in the mid-1800s by settlers from Virginia; in 1874 the Village was incorporated and named after Roanoke, Virginia. From the 1900s until the 1930s the main industry in Roanoke was centered on coal mining. Eventually it became too expensive to mine deeper veins of coal and the mining industry in the village came to a close. Agriculture was and still remains an important industry in Roanoke.



The Village of Roanoke is located in central Illinois in Woodford County.





## Climate

A significant contributor to the Tri-County regional climate includes polar jet stream patterns. Generally, the polar jet stream defines the boundary between cold air to the north and warm air to the south. In summer, the average location of the polar jet stream is at 50° N latitude over central Canada. In winter, it arcs northward over British Columbia, forms a ridge and then turns sharply southward over the US Great Plains – west of Illinois. It then plunges as far south as northern Texas before curving northeastward over the Mississippi River valley (which includes the study area). Finally, it winds its way eastward and leaves North America over New England or Atlantic Canada. The jet stream exerts considerable influence on weather in the study region. It moves masses of air in and out of Canada, strengthens storms and steers low and high pressure centers. As a general rule, when the jet stream is to the south, cold air pushes southwards, and when the jet stream is to the north, dominant weather in the US Pacific or Gulf south dictates weather in the study area.

Average annual precipitation is approximately thirty-six inches (36 in.). May is generally the wettest month with an average of 4.17 inches of precipitation. Average monthly precipitation is at its lowest in January with 1.50 inches. The maximum monthly average as well as maximum event in any 24-hour period is 5.52 inches (May 1927). Watersheds of the Tri-County Region drain to the Illinois River. The Illinois River is the primary conveyance of surface waters and in the vicinity of the Tri-County Region is characterized by a series of interconnected surface water impoundments (i.e., lakes). The City of Peoria is known to be the oldest primary settlement on the River and is considered a key economic hub for the mobility of goods along the River. The River includes a series of locks and dams that supports the movement of goods.

The climate of Tri-County is moderate with four well-defined seasons. Twenty-four hour average temperature is approximately 50° F annually with a low of near 22° F in January and a high of 75° F in July. The average maximum temperature over thirty-years of data (1961-1990) ranges from 30.0° F in January and a high of 86° F in July. Average minimum temperatures range from 13° F in January and a high of 65° F in July. Historic temperature extremes include a record high of 113° F in July 1936, and -27° F in January 1884.

Table IV-1 summarizes climate data for the Tri-County area<sup>1</sup>.

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<sup>1</sup> Economic Development Council for Central Illinois, 2003



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Table IV- 1: Tri-County Area Climate Data.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Avg. High</b>	29°F	34°F	48°F	62°F	72°F	82°F	85°F	83°F	76°F	64°F	49°F	34°F
<b>Avg. Low</b>	13°F	17°F	29°F	40°F	50°F	60°F	65°F	63°F	55°F	43°F	32°F	19°F
<b>Mean</b>	22°F	26°F	39°F	51°F	62°F	72°F	76°F	73°F	66°F	54°F	41°F	27°F
<b>Record High</b>	70°F 1989	72°F 1976	86°F 1986	92°F 1986	93°F 1987	105°F 1988	102°F 1988	103°F 1988	100°F 1953	90°F 1963	81°F 1950	71°F 1982
<b>Record Low</b>	-25°F 1977	-19°F 1996	-10°F 1960	14°F 1982	25°F 1966	39°F 1993	47°F 1972	41°F 1986	29°F 1995	19°F 1972	-2°F 1977	-23°F 1989
<b>Avg. Precip.</b>	1.50 in	1.40 in	2.90 in	3.80 in	3.70 in	4.00 in	4.20 in	3.10 in	3.90 in	2.70 in	2.70 in	2.40 in
<b>Avg. Snow</b>	7.8	5.8	4.2	1.3	0	0	0	0	0	Trace	2.5	7.1



## Population

The U.S. Census Annual Estimates of the Population for the Counties in Illinois, estimates the Tri-County area's total population in 2008 to be 353,682 persons, 1.4% of the total population for Illinois. The 2008 population estimates a growth of 6,295 persons from the 2000 Census estimate of 347,387. In the 2000 census, over half of the population was female (178,679) at 51.4%, and 48.6% was male (168,708). The median age was 37 years old, with 60.5% of the population between 18 and 65 years of age. Children under the age of 18 represent 25% of the population, while persons 65 and older comprise 14.5% of the total population.

Population estimates predict that the Tri-County area will grow by approximately 11% to 392,495 by the year 2020, as compared to the 2008 estimates. Peoria and Tazewell County experienced population declines between 1980 and 2000, with a slight growth from 2000 to 2008. Woodford County has been steadily growing in population since the 1980s and is projected to continue growing. The City of Washington, located in Woodford County, is estimated to have experienced the largest population growth for the Tri-County area with 28.6% since 2000. Tables IV-2 and IV-3 summarize, by county, the populations of past Census years and projected estimates for 2008, 2010, 2020, and 2030. Population projections are from the Illinois Department of Commerce and Economic Opportunity (DCEO) and are only available for counties. Of note, Woodford and Tazewell Counties are expected to grow by over 10% during the next ten years.

The tables, below, illustrate population and population projections for the three counties participating in this plan update. Populations living within the cities and villages are included in the totals for these tables. Information for the cities and villages participating in the update are included below. The U.S. Census Annual Estimates of the Population for Incorporated Places in Illinois (April 1, 2000 to July 1, 2008) estimates the following:

- City of Chillicothe is estimated to decrease in population by 95 persons in 2008 as compared to the 2000 census
- Village of Peoria Heights is estimated to decrease in population by 405 persons in 2008 as compared to the 2000 census
- City of Peoria is estimated to increase in population by 1,178 persons in 2008 as compared to the 2000 census
- City of Pekin is estimated to decrease in population by 427 persons in 2008 as compared to the 2000 census
- City of East Peoria is estimated to increase in population by 122 persons in 2008 as compared to the 2000 census
- City of Washington is estimated to increase in population by 3,101 persons in 2008 as compared to the 2000 census
- Village of Roanoke is estimated to increase in population by 23 persons in 2008 as compared to the 2000 census



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The majority of the Tri-County area’s population claims to be a single race, at 98.8% (343,222). Of the total population claiming one race, 88.0% (305,672) are White, and 8.9% (30,752) are African American.

Most of the area’s population speaks English as their only language, averaging 95.5% (331,905) of the total population. Approximately 4.5% (15,482) of the population speak a language other than English. These populations tend to be more difficult to target when performing community outreach, and should be given special consideration when developing hazard reduction strategies for the community.

The median household income for the Tri-County area is: Peoria County (\$39,978), Tazewell County (\$45,250) and Woodford County (\$51,394). The average per capita personal income for the area is \$27,908. Approximately 13.7%, 6.3%, and 4.3% of the individuals live below the poverty level in Peoria, Tazewell and Woodford Counties, respectively.

Table IV- 2: US Census Bureau Population and Population Estimates

County	1980	2000	%Pop Change (1980 - 2000)	2008 Estimate	% Pop Change (2000 - 2008)
<b>Peoria County</b>	<b>200,466</b>	<b>183,433</b>	<b>-8.50%</b>	<b>183,655</b>	<b>0.12%</b>
<i>City of Chillicothe</i>	-	5,996	-	5,901	-1.58%
<i>Village of Peoria Heights</i>	-	6635	-	6,230	-6.10%
<i>City of Peoria</i>	-	112,936	-	114,114	1.04%
<b>Tazewell County</b>	<b>132,078</b>	<b>128,485</b>	<b>-2.72%</b>	<b>131,524</b>	<b>2.37%</b>
<i>City of Pekin</i>	-	33,857	-	33,430	-1.26%
<i>City of East Peoria</i>	-	22,638	-	22,760	0.54%
<i>City of Washington</i>	-	10,841	-	13,942	28.60%
<b>Woodford County</b>	<b>33,320</b>	<b>35,469</b>	<b>6.45%</b>	<b>38,503</b>	<b>8.55%</b>
<i>Village of Roanoke</i>	-	1,994	-	2,017	1.15%

*From U.S. Census Bureau*

Table IV- 3: Illinois Department of Commerce and Economic Opportunity (DCEO) Population Projections.

County	2010	2020	% Pop Change (2010 – 2020)	2030	% Pop Change (2010 – 2030)	% Pop Change (1980 – 2030)
Peoria County	187,876	194,083	3.30%	193,314	2.89%	-3.57%
Tazewell County	139,616	154,567	10.71%	165,373	18.45%	25.21%
Woodford County	39,362	43,845	11.39%	46,857	19.04%	40.63%

*From Illinois Department of Commerce and Economic Opportunity (DCEO) Population Projections*



## Land Use and Development Trends

FEMA requires that local plans evaluate land use and development trends so that mitigation options can be considered in future land use decisions.

The primary land use in the Tri-County area is agriculture. A majority of the non-agricultural areas are located within the incorporated areas, including the City of Peoria and the City of Pekin, the Village of Peoria Heights and Roanoke, City of Chillicothe, City of Washington and are focused around the Illinois River. Within the aforementioned combined incorporated areas, approximately 60% of the land is developed (although this includes urban open space at 14%), 5% of land is agricultural, 11% is water and the remaining 24% is undeveloped (including wetlands). Noting that urban lands comprise less than 10% of the land cover in each County, it is relevant to see that much of the urban/suburban centers are concentrated in the incorporated cities.

Table IV-4 below summarizes land cover data in the Tri-County area<sup>2</sup>. It should be noted that the information for cities and villages located within the counties are included in the totals.

Table IV- 4: Tri-County Area Land Cover from Illinois Dept of Agriculture

COUNTY	CATEGORY				
	Agricultural	Forest	Urban	Wetland	Other
Peoria County	65%	19.5%	8.9%	3.8%	2.8%
Tazewell County	80.1%	6.4%	9.2%	2.5%	1.8%
Woodford County	84.4%	6.9%	3.6%	2.2%	2.9%

### *National Land Cover Dataset (NLCD)*

Changes in urban and agricultural land cover may help to highlight areas within the state that should be considered in long term comprehensive plans. To identify these areas, land cover change was assessed using the National Land Cover Dataset. This dataset is produced by the Multi-Resolution Land Characteristics Consortium (MRLC), a collection of federal agencies that pool resources to map land cover across the nation. Using satellite imagery, the MRLC produced datasets for 1992 and 2001 that include 16 land cover classes for various types of urban, agricultural, forested, and other natural areas. Analyzing land cover with these two datasets allowed for consistent comparison across the Tri-County area.

The majority of change in the Tri-County area has occurred in urban and agricultural lands. From 1992 through 2001, urban land cover has increased 81,850 acres in the planning area, while agricultural land cover has decreased 98,013 acres. Table IV-5

<sup>2</sup> Illinois Department of Agriculture, 2000



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shows the acreage change for urban and agricultural classifications in the Tri-County area.

*Table IV- 5: NLCD urban and agricultural land cover change (1992 and 2001).*

Jurisdiction	1992 Urban (acres)	2001 Urban (acres)	Urban Change (acres)	% Change	1992 Agri (acres)	2001 Agri (acres)	Ag Change (acres)	% Change
Peoria County	15,433.76	35,381.69	19,947.93	129	261,673.11	225,964.28	(35,708.83)	-14
Tazewell County	9,873.22	39,003.83	29,130.61	295	336,376.65	306,202.12	(30,174.53)	-9
Woodford County	4,447.90	29,261.38	24,813.48	558	293,627.02	268,874.03	(24,752.99)	-8
Village of Roanoke	336.04	495.27	159.23	47	238.18	83.18	(155.01)	-65
City of Pekin	5,050.36	5,948.17	897.81	18	1,742.46	709.88	(1,032.58)	-59
City of East Peoria	5,768.48	7,671.29	1,902.81	33	2,155.90	507.95	(1,647.95)	-76
City of Washington	1,605.91	3,191.14	1,585.23	99	2,836.20	1,303.01	(1,533.19)	-54
Village of Peoria Heights	1,015.90	1,000.33	(15.57)	-2	6.89	-	(6.89)	-100
City of Peoria	18,056.46	20,715.86	2,659.40	15	4,855.10	2,527.52	(2,327.58)	-48
City of Chillicothe	1,015.68	1,784.72	769.04	76	1,655.73	981.87	(673.86)	-41

### Local Zoning

Tazewell and Woodford County zoning data was provided by the TCRPC during the 2010 plan update. There are seven land use categories represented in Tazewell County. Agricultural land use accounts for over 80% of the county, followed by residential (5%), and conservation (2%), the remaining uses are split between commercial, industrial, public land and open space. Approximately 9% of the parcels in Tazewell County are not attributed with a land use type. The majority of the City of Washington is residential development; growth is dominate in the southern portion of the city. There are five future land use categories represented in the Woodford County; agricultural land use accounts for over 65% of county, followed by conservation (33%), residential, commercial and industrial, together, account for less than 2% of the area.

In Peoria County, development within the City of Peoria and the County is urban and suburban in nature and is, for the most part, densely populated. Development in the City of Pekin is also urban and suburban in nature but less densely populated than the City of Peoria. The Village of Peoria Heights is suburban in nature and has a population density two-times less than the City of Peoria. Tazewell and Woodford Counties development tends to be rural in nature although residential development is an important component in each county’s long-range comprehensive plans. The Village of



Roanoke has a traditional mixture of residential, commercial, and industrial uses. Agriculture dominates the areas of Woodford County surrounding the Village of Roanoke.

All of the jurisdictions in the planning area have some form of land use planning in place. Details regarding specific plans that the communities have in place are further discussed in Section VI: Capability Assessment of this plan. Each of the localities has plans that influence, to some degree, future development trends. Some of the highlights of these plans include:

- Revitalization of the downtown areas
- Encouragement of in-fill in existing subdivisions and neighborhoods
- Expansion of existing business districts
- Implementation of strict variance, special use and zoning criteria
- Amendments to the commercial portion of the county's zoning ordinance to include a new zoning district with "intensity" uses and the concept of a general business district.
- Development and implementation a three-tiered zoning district
- Creation of an agricultural preservation district
- Coordination with environmental agencies to preserve prime agricultural land
- Working with municipalities in the county to develop guidelines for residential development at "municipal fringes"
- Encouraging the location of new commercial areas near established municipalities
- Discouraging strip development

## Housing

The U.S. Census Bureau estimates Woodford County has an average of 2.69 persons per household, followed by the City of Washington with 2.56 persons per household average and Village of Roanoke with 2.52 persons per household. Peoria County accounts for over one-third of the housing units in the Tri-County area. Below is a summary, by participating jurisdiction, of the U.S. Census housing estimates.

### *Peoria County*

According to the U.S. Census 2006-2008 American Community Survey 3-Year Estimates, Peoria County has 82,241 housing units within its jurisdictional boundaries. Of those units, 90.66% (74,526) are occupied and 9.44% (7,715) are vacant. Peoria County has almost twice the number of owner-occupied units (51,475) versus renter-occupied units (23,051). However, almost 31% of Peoria's occupied housing units are rented; which suggests that efforts should be made to target both homeowner and renter demographics in future educational and outreach efforts about hazards and disasters. The average persons per household in Peoria County is 2.36 persons.



#### *City of Chillicothe*

According to the U.S. Census 2006-2008 American Community Survey 3-Year Estimates, the City of Chillicothe has 2,544 housing units within its jurisdictional boundaries. Of those units, 95.5% (2,429) are occupied and 4.5% (115) are vacant. The City has 1,815 owner-occupied units and 614 renter-occupied units. Therefore, 25.3% of the City is rental occupied housing units; which suggests that targeted outreach efforts to the renter demographic should be focused in the densely populated city. The average persons per household in the City of Chillicothe is 2.42 persons.

#### *Village of Peoria Heights*

According to the U.S. Census 2006-2008 American Community Survey 3-Year Estimates, the Village of Peoria Heights has 3,331 housing units within its jurisdictional boundaries. Of those units, 93.7% (3,122) are occupied and 6.3% (209) are vacant. The City of Peoria has 1,893 owner-occupied units and 1,229 renter-occupied units. Therefore, 39.4% of the Village is rental occupied housing units; which suggests that targeted outreach efforts to the renter demographic should be focused in the densely populated city. The average persons per household in the Village of Peoria Heights is 2.10 persons.

#### *City of Peoria*

According to the U.S. Census 2006-2008 American Community Survey 3-Year Estimates, the City of Peoria has 51,719 housing units within its jurisdictional boundaries. Of those units, 89.4% (46,240) are occupied and 10.6% (5,479) are vacant. The City of Peoria has 28,080 owner-occupied units and 18,160 renter-occupied units. Therefore, 39.3% of Peoria's occupied housing units are rented; which suggests that targeted outreach efforts to the renter demographic should be focused in the densely populated city. The average persons per household in the City of Peoria is 2.31 persons.

#### *Tazewell County*

According to the U.S. Census 2006-2008 American Community Survey 3-Year Estimates, Tazewell County has 56,419 housing units within its jurisdictional boundaries. Of those units, 93.88% (52,923) are occupied and 6.22% (3,496) are vacant. Tazewell County has nearly four times the number of owner-occupied units (40,993) versus renter-occupied units (11,930). As approximately 23% of Tazewell's occupied housing units are rented, efforts should be made to target both homeowner and renter demographics in future educational and outreach efforts about hazards and disasters. The average persons per household in Tazewell County is 2.42 persons.

#### *City of Pekin*

According to the U.S. Census 2006-2008 American Community Survey 3-Year Estimates, the City of Pekin has 14,643 housing units within its jurisdictional boundaries. Of those units, 91.6% (13,414) are occupied and 8.4% (1,229) are vacant. The City of Pekin has doubled the number of owner-occupied units (9,343) versus renter-occupied units (4,071). Yet, 30.3% of the City of Pekin occupied housing units





are rented, again, efforts should be made to target both homeowner and renter demographics particularly in the populous cities for future educational and outreach efforts about hazards and disasters. The average persons per household in City of Pekin is 2.20 persons.

#### *City of East Peoria*

According to the U.S. Census 2006-2008 American Community Survey 3-Year Estimates, the City of East Peoria has 10,665 housing units within its jurisdictional boundaries. Of those units, 96.1% (10,245) are occupied and 3.9% (420) are vacant. The City of East Peoria has 7,977 owner-occupied units and 2,268 renter-occupied units. However, almost 22.1% of East Peoria's occupied housing units are rented; which suggests that efforts should be made to target both homeowner and renter demographics in future educational and outreach efforts about hazards and disasters. The average persons per household in the City of East Peoria is 2.35 persons.

#### *City of Washington*

According to the U.S. Census 2006-2008 American Community Survey 3-Year Estimates, the City of Washington has 4,403 housing units within its jurisdictional boundaries. Of those units, 95.1% (4,189) are occupied and 4.9% (214) are vacant. The City of Washington has 3,290 owner-occupied units and 899 renter-occupied units. However, almost 21.5% of Washington's occupied housing units are rented; which suggests that efforts should be made to target both homeowner and renter demographics in future educational and outreach efforts about hazards and disasters. The average persons per household in City of Washington is 2.56 persons.

#### *Woodford County*

According to the U.S. Census 2006-2008 American Community Survey 3-Year Estimates, Woodford County has 13,487 housing units within its jurisdictional boundaries. Of those units, 94.9% (12,797) are occupied and 5.1% (690) are vacant. Woodford County has over four times the number of owner-occupied units (10,591) versus renter-occupied units (2,206). Even though only 17.2% of Woodford's occupied housing units are rented, efforts should still be made to target both homeowner and renter demographics in future educational and outreach efforts about hazards and disasters. The average persons per household in Woodford County is 2.69 persons.

#### *Village of Roanoke*

According to the U.S. Census 2006-2008 American Community Survey 3-Year Estimates, the Village of Roanoke has 809 housing units within its jurisdictional boundaries. Of those units, 94.6% (765) are occupied and 5.4% (44) are vacant. The Village of Roanoke has 632 owner-occupied units and 133 renter-occupied units. However, almost 17.4% of Roanoke's occupied housing units are rented; which suggests that efforts should be made to target both homeowner and renter demographics in future educational and outreach efforts about hazards and disasters. The average persons per household in the Village of Roanoke is 2.52 persons.



## Schools

The Tri-County area has 26 school districts for primary and secondary education, as well as 4 colleges and 1 university. The region is home to Bradley University, Illinois Central College, Robert Morris College, Midstate College and the University of Illinois College Of Medicine. These educational facilities should be considered when developing public education and outreach activities and evacuation issues. These facilities may need to be evaluated in terms of their overall resistance to natural hazards as well.

## Parks

The Peoria Park District's boundaries encompass approximately 57 square miles in Peoria County. Park and open space holdings in the City of Peoria, Peoria Heights and outlying townships approach nearly 9,000 acres. Based on its ratio of open-space holdings to population, the Peoria Park District ranks first in Illinois and is one of the top public park systems in the country (Peoria Park District, 2003).

## Transportation

There are four interstates, I-39, I-74, I-474, and I-155, and four interstate linkages to I-55, I-57, I-80, and I-88 serving the Tri-County area. There are an additional twelve state highways in the Tri-County area.

## Infrastructure

### *Working Waterfronts*

The Illinois River creates a portion of the boundary for all three counties. The Peoria Barge Terminal, located in Peoria, is a major multi-modal terminal for the State of Illinois. It handles products such as stone, coal, steel, dry or liquid bulk, provides warehouse service, has a railroad spur on site, and is easily accessed from I-474. Barge activity through the Peoria Lock and Dam was approximately 31 million tons in 1998. The main barge lines are American Commercial Barge Lines and ARTCO Fleeting Services.

### *Aviation Facilities*

The Greater Peoria Regional Airport serves the Tri-County area and is located approximately 10 minutes from downtown Peoria. The airport is served by 5 airlines and its longest runway is 10,000 feet. In addition, five air cargo companies operate out of the Greater Peoria Regional Airport. In 1998, they combined to handle nearly 50 million pounds of freight.

### *Rail*

The Tri-County area has a strong railroad network. Amtrak provides passenger rail service from its station near the airport. Freight service in the Tri-County area is



provided by four of the six Class I railroads in the country, as well as two regional carriers, two local railroads and one terminal carrier (Table IV-6).

Table IV- 6: Freight Railroads Serving the Tri-County Area

<b>Railroad Type</b>	<b>Areas Serving</b>
Class I Railroads	Burlington Northern Santa Fe; Canadian National – Illinois Central; Norfolk Southern; Union Pacific
Regional Railroads	Iowa Interstate Railroad; Toledo, Peoria & Western
Local Railroads	Illinois Midland; Shortline
Switching/Terminal Carrier	Peoria & Pekin Union Railroad

### **Critical Infrastructure**

The Tri-County area is served by three electricity providers: CILCO, Commonwealth Edison and Illinois Power. Natural gas is provided by CILCO, NICOR, and Panhandle Eastern Pipeline Company. Local telecommunications service is provided by SBC Americtech, AT&T, Gallatin River Communications, MTCO, McLeod USA, MCI, Sprint and Verizon. The area’s water is treated by Dunlap Water Works, Illinois-American Water Company, North Tazewell Public Water Dist., Pleasant Valley Public Water District, and T-L Rural Water District (Economic Development Council, 2003).

Additional information on local critical infrastructure and facilities is provided in the Hazard Identification and Risk Assessment (HIRA) Section V.



## SECTION V — RISK ASSESSMENT

*Requirement §201.6(c)(2): The plan shall include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.*

### Introduction

The 2004 planning area for this study included the unincorporated areas of Peoria, Tazewell, and Woodford Counties, Village of Bartonville as well as the Cities of Peoria and Pekin. The 2010 update to the plan expanded to include several additional jurisdictions. This update includes:

- Peoria County
  - City of Chillicothe
  - City of Pekin
  - Village of Peoria Heights
  - City of Peoria
- Tazewell County
  - City of East Peoria
  - City of Washington
- Woodford County
  - Village of Roanoke

Although some anecdotal information may be included regarding the villages and towns located within these three counties, these areas will not be fully included in this study due to the lack of data. For simplicity purposes, the study area will be referred to as the Tri-County Area throughout the remainder of this study.

The MAC provided input at key stages of the hazard identification and vulnerability analysis process. Efforts to involve city and county departments and community organizations that might have a role in the implementation of the mitigation actions or policies included invitations to attend meetings and serve on the MAC, e-mails of minutes and updates, and opportunities for input and comment on all draft deliverables. Additional information is available in Section III on the planning process.



The purpose of this section of the plan is to:

- 1) Identify all the natural hazards that could affect the Tri-County Area;
- 2) Assess the extent to which the area is vulnerable to the effects of these hazards;  
and
- 3) Prioritize the potential risks to the community.

The first step, identifying hazards, will assess and rank all the potential natural hazards, in terms of probability of occurrence and potential impacts. It will also identify those hazards with the highest likelihood of significantly impacting the community. This section will be completed based on a detailed review of the Tri-County Area's hazard history. The 2010 update evaluated and reviewed the 2004 ranking and determined it to still represent risk throughout the Tri-County area.

The hazards determined to be of the highest risk are analyzed further to determine the magnitude of potential events, and to characterize the location, type, and extent of potential impacts. This includes an assessment of what types of development are at risk, including critical facilities and community infrastructure. Finally a prioritization of the risk to the Tri-County Area was compiled, to serve as an overall guide for the communities when planning development, implementing policy, and identifying potential mitigation measures.

The 2010 update to this plan included the review, slight revision and reformatting of the Hazard Identification and Risk Assessment (HIRA). The foundation of the 2004 hazard identification remained valid with the additional communities added to the analysis.

### **Data Availability and Limitations**

This study includes data collected from a variety of resources including local, state, and national datasets. Whenever possible, data has been incorporated into Geographic Information System (GIS) to aid in analysis and to develop area-wide maps for the depicting of historical hazard events, hazard areas, and vulnerable infrastructure. Critical facility data has been collected from the FEMA loss estimating module, Hazards U.S. (HAZUS-MH), and has been supplemented, to the extent possible, by local data. The local data provided is summarized below in the Building Inventory & Local Critical Facility Data section.

In accordance with FEMA mitigation planning guidance, the results of this study are based on best available data. In most cases, detailed data regarding the location of structures, characteristics of facilities, and other community related data does not exist in a usable format. The majority of the jurisdictions do not, for the most part, have



detailed building inventories for their communities. Building types, elevation data and values of structures either **don't exist** or **are not available** in a usable format.

None of the jurisdictions in the Tri-county area currently have any digital or GIS based data which catalogues information regarding the building assets described above. In addition, the majority of tax assessor's records in this area have not been converted to a digital format which would aid in compiling a jurisdiction wide vulnerability assessment, based on specific asset locations, characteristics, and values. This fact illustrates the difficult nature of quantitatively assessing vulnerability and risk in any of the communities. Therefore, this assessment has been compiled using the **best available data**.

Recognizing this deficiency in detailed local data, the strategy developed as part of the full mitigation plan will address these needs by recommending specific measures to increase the quality and detail of data to prepare usable and effective hazard assessments. The primary mitigation goal for the 2004 plan was to develop a detailed building inventory for all structures located in each of the communities including critical facilities and infrastructure; this is still a primary goal for the 2010 update of the plan. When detailed building inventory information becomes available, a greater level of vulnerability analysis, and consequently risk assessment, will be possible. This goal will be included as both a short-term and long-term goal and will allow the TCRPC and MAC to revise the risk assessment portion of the multi-jurisdictional plan during the next scheduled update in five (5) years. The TCRPC and individual jurisdictions should actively pursue funding for this goal.

#### *Building Inventory & Local Critical Facility Data*

The definition of a critical facility, as defined in the 2007 Illinois Natural Hazard Mitigation plan includes:

*Emergency Operations Center (EOC), Courthouses, Police and Fire Stations, Rescue/Ambulance Service, Medical Facilities (hospital, nursing home and medical clinic), Utilities (water, sewer, electric and gas) and Transportation Facilities (critical roads, bridges, airport, and port).*

One of the primary mitigation goals in 2004 was to develop a detailed building inventory for all structures including critical facilities and infrastructure. The TCRPC GIS department and some of the localities were able to provide information for building and critical facilities. Table V-1 summarizes the data provided. Although some of this information was spatially available, the attributes for the data are very limited. Figure V-1 shows the distribution of mapped critical facilities maintained by the TCRPC. The majority of the data only has the name of the facility and address; without detailed; building specific information analysis - options were very limited. Analysis for the 2010 update focused on inclusion of HAZUS-HM MR4 results for flooding and earthquake. As a result, the HAZUS essential facilities were used for the critical facility data sets. When



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applicable, the data provided was used and the results are included in the hazard specific analysis sections. Mitigation actions address these GIS needs.

The TCRPC GIS department is currently contracting work for the update/creation of building footprints. The update to the 2010 plan should be able to utilize the data that is currently being created in conjunction with the HAZUS-MH MR4 runs created by the planning commission.

Table V- 1: Local GIS data provided from TCRPC and communities.

Facility Type	Geometry Type	Regional*	Peoria County	Woodford County	Tazewell County
Nursing Homes	point	X			
Medical Facilities	point	X			
Educational Institutions	point	X			
Courts	point	X			
Fire Departments	point		X		
Street Centerlines	polyline		X	X	X
Ambulance Districts	polygon		X		
Fire & Rescue Districts	polygon		X		
Emergency Service Districts	polygon		X		
Bridges	polygon/point		X	X	
Airports	polygon		X		

\*includes cities and villages participating in 2010 plan update.



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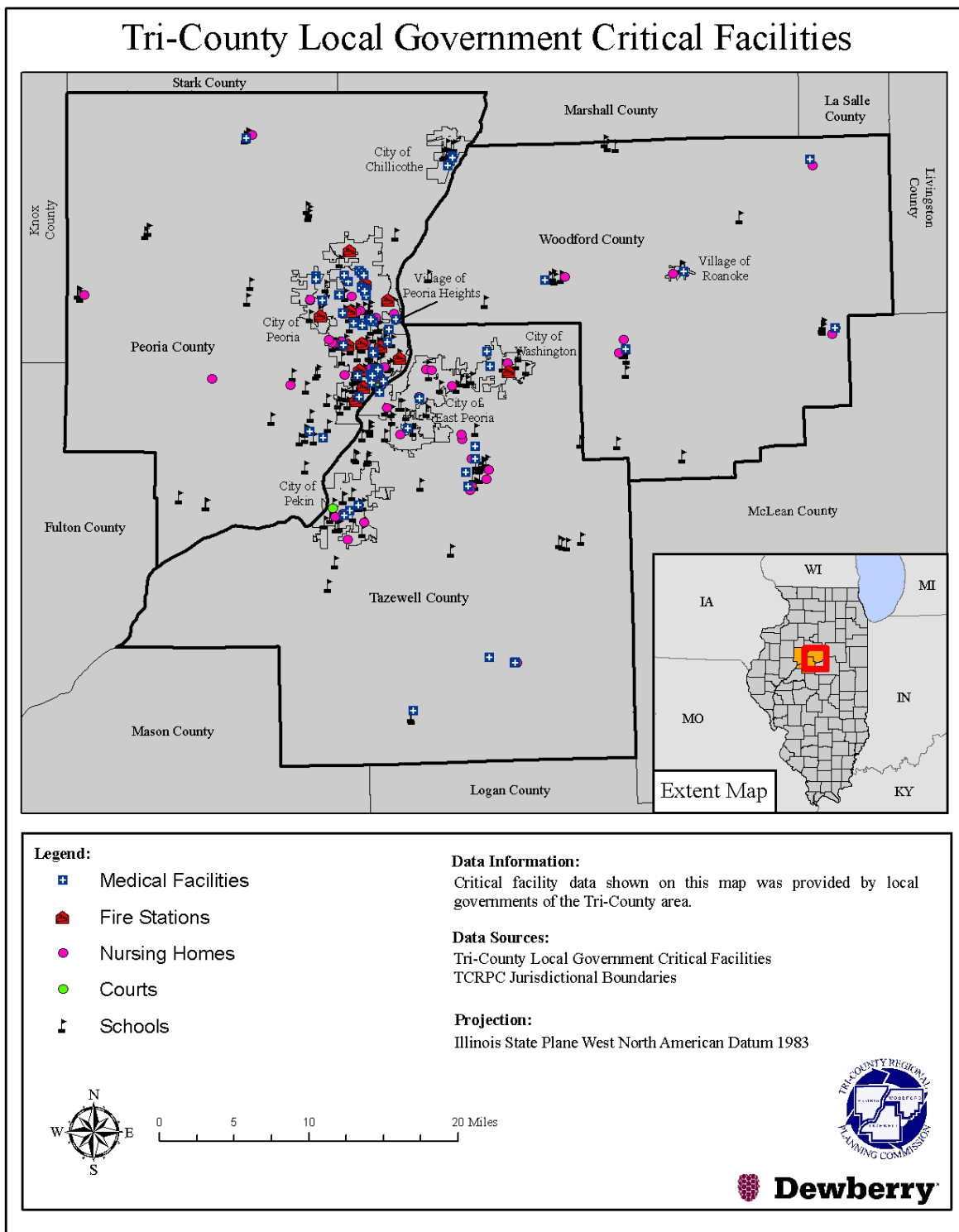


Figure V- 1: TCRPC critical facility data provided. HAZUS-MH MR4





## Essential Facilities

HAZUS-MH essential facilities data was used to supplement the flood and earthquake analysis. General building stock information is also discussed for winter storm. This data provides a uniform look at essential facilities in the region. There are 281 facilities, including medical care facilities, police stations, Emergency Operations Centers (EOCs), fire stations and schools.

HAZUS-MH essential facilities are facilities vital to emergency response and recovery following a disaster, including medical care facilities, emergency response facilities and schools. School buildings are included in this category because of the key role they often play in housing people displaced from damaged homes.

Peoria County has the largest number of essential facilities with 144 critical facilities. Seven of the facilities are located within the City of Chillicothe, five in the Village of Peoria Heights and 76 in the City of Peoria.

Tazewell County has 98 critical facilities in the HAZUS-MH database. Thirteen facilities are located within the City of East Peoria, twenty-three facilities are located within the City of Pekin and seven are located within the City of Washington.

Woodford County has 39 critical facilities, four of which are located in the Village of Roanoke.

Table V-2 below shows the number of facilities in each of the HAZUS essential facility classes. Figure V-3 shows the distribution of the HAZUS essential facilities as well as the locally provided critical facility data within the metro area. With many national datasets, accuracy and completeness leave much to be desired. Mitigation actions address the need for better regional spatial data for analysis.



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Table V- 2: HAZUS Essential Facilities in Tri-County Regional Planning Commission.

County	Jurisdiction	Medical Facilities	Police	EOCs	Fire	Schools
PEORIA COUNTY	City of Chillicothe	0	1	0	1	5
	Peoria County	0	4	0	13	39
	Village of Peoria Heights	0	1	0	1	3
	City of Peoria	4	6	1	1	64
TAZEWELL COUNTY	City of Pekin	1	3	0	1	18
	City of East Peoria	0	1	0	3	9
	Tazewell County	0	6	0	15	34
	City of Washington	0	1	1	0*	5
WOODFORD COUNTY	Village of Roanoke	0	0	1	1	2
	Woodford County	0	5	3	8	19
<b>TOTAL</b>		<b>5</b>	<b>28</b>	<b>6</b>	<b>44</b>	<b>198</b>

*\*City of Washington has noted that there is a fire station within city limits that is not represented with the HAZUS data. This is shown in Figures V-1 and V-3.*



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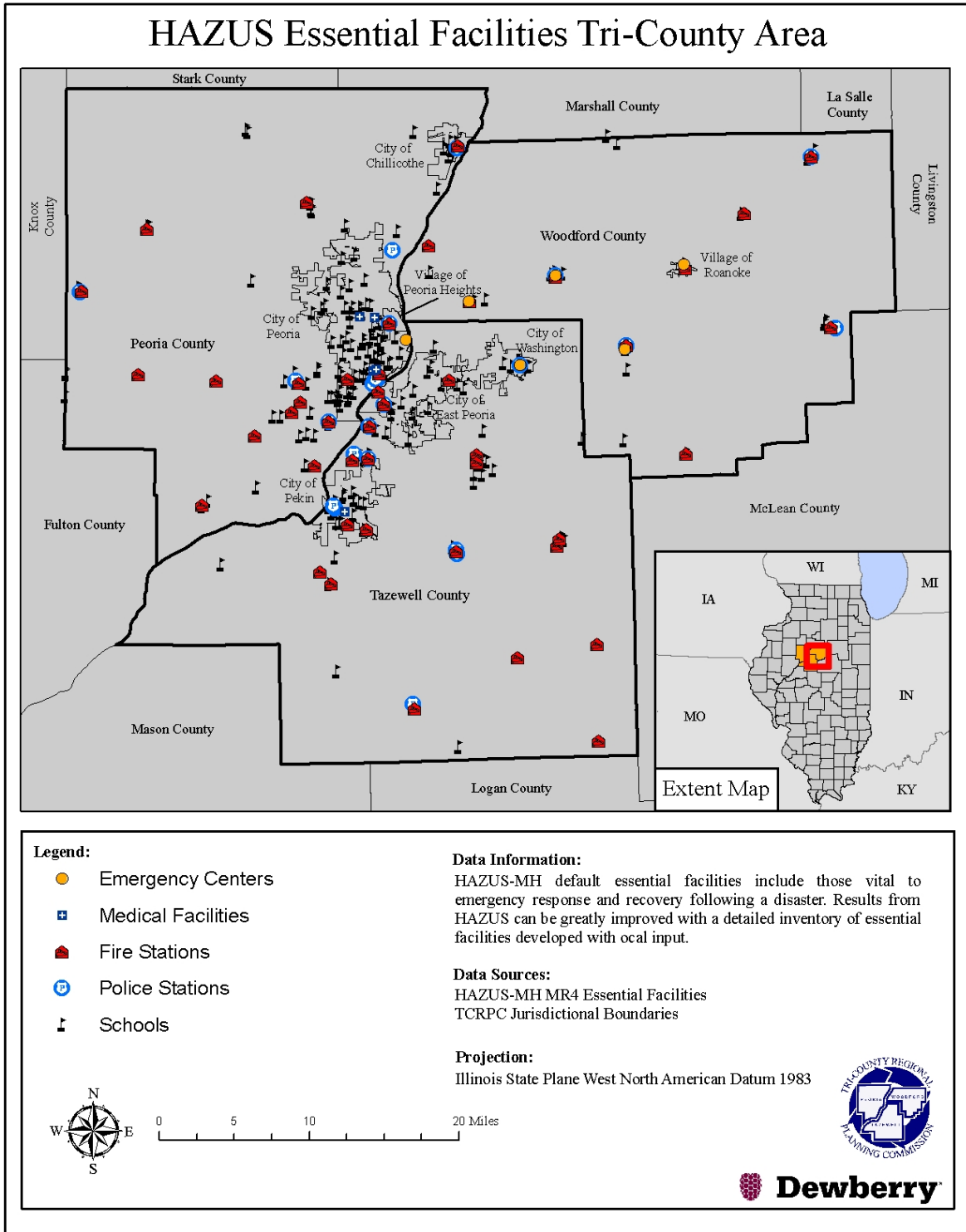
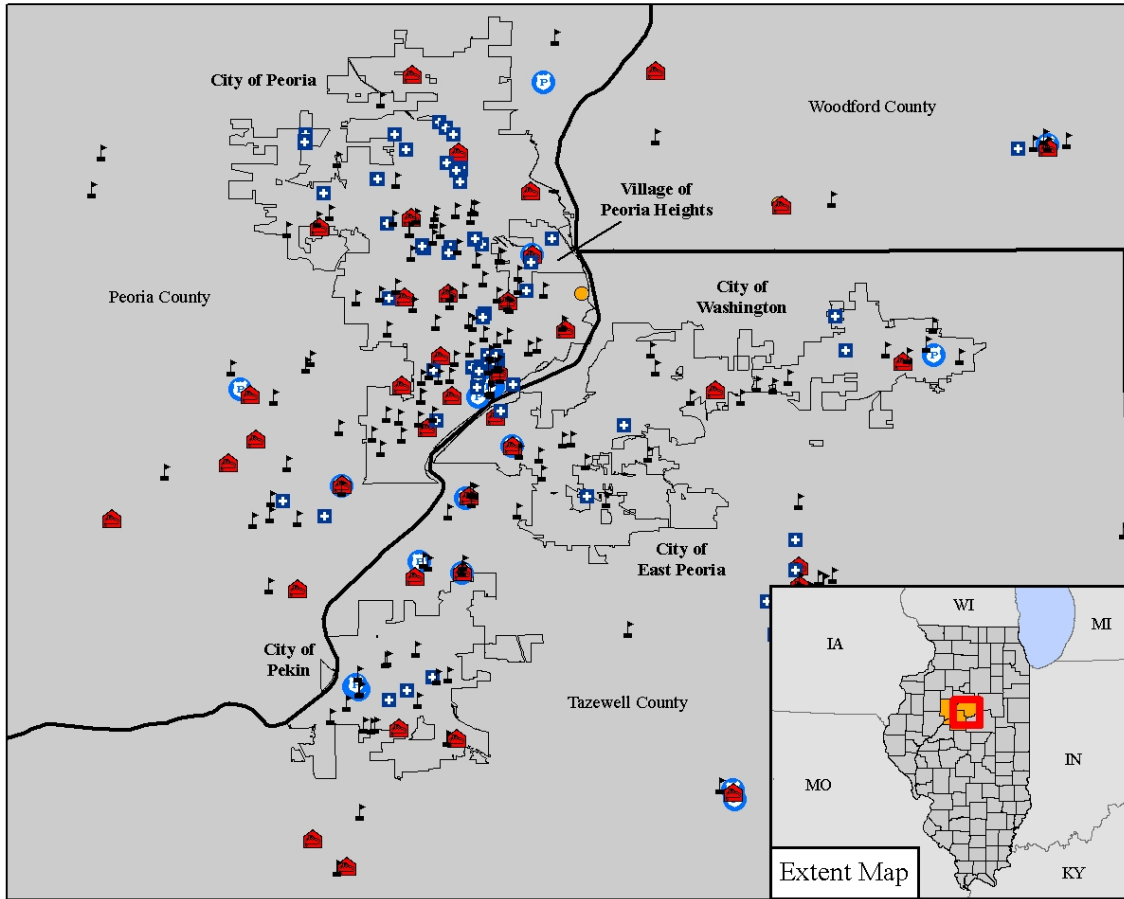







Figure V- 2: HAZUS-MH MR4 essential facility data

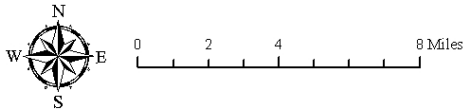


### HAZUS & Local Government Critical Facilities Tri-County Metro Area



**Legend:**

-  Fire Stations
-  Medical Facilities
-  Police Stations
-  Schools
-  Emergency Centers



**Data Information:**

HAZUS-MH default essential facilities include those vital to emergency response and recovery following a disaster. Results from HAZUS can be greatly improved with a detailed inventory of essential facilities developed with local input.

**Data Sources:**

Tri-County Local Government Critical Facilities  
HAZUS-MH MR4 Essential Facilities  
TCRPC Jurisdictional Boundaries

**Projection:**

Illinois State Plane West North American Datum 1983





Figure V- 3: HAZUS essential facility and local critical facility data, zoom-in of metro-area.



## **Building Stock**

Tri-County currently has approximately 153,000 structures with an estimated exposure value of approximately \$26.8 million. HAZUS estimates 93% of the Tri-County area's general occupancy is categorized as residential, which represents 75% of the building value. Table V-3 below provides inventory information for each of the three counties that were included in the analysis. Peoria County occupies a large percentage (55%) of the building stock exposure for the region, followed by Tazewell County (35%).

HAZUS-MH only provided the building stock for the counties in the Tri-County area. Information for the cities and towns was derived from intersecting the census data with the jurisdictional boundaries (Table V-3).



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Table V- 3: Building stock exposure for general occupancies by county.

<b>Jurisdiction</b>	<b>Residential</b>	<b>Commercial</b>	<b>Industrial</b>	<b>Agriculture</b>	<b>Religion</b>	<b>Government</b>	<b>Education</b>	<b>Total</b>
City of Chillicothe	\$367,291	\$74,405	\$26,177	\$1,325	\$10,058	\$3,874	\$6,827	\$489,957
City of Peoria	\$6,754,967	\$2,333,651	\$396,137	\$15,507	\$199,479	\$92,567	\$120,967	\$9,913,275
Village of Peoria Heights	\$388,854	\$79,342	\$6,591	\$987	\$7,753	\$82	\$6,292	\$489,901
Peoria County	\$3,136,933	\$376,235	\$184,011	\$46,944	\$62,764	\$26,062	\$46,836	\$3,879,785
<b>Peoria Co. Total</b>	<b>\$10,648,045</b>	<b>\$2,863,633</b>	<b>\$612,916</b>	<b>\$64,763</b>	<b>\$280,054</b>	<b>\$122,585</b>	<b>\$180,922</b>	<b>\$14,772,918</b>
City of Pekin	\$1,926,444	\$443,864	\$104,703	\$8,718	\$38,223	\$15,562	\$28,159	\$2,565,673
City of East Peoria	\$1,439,413	\$322,430	\$63,870	\$3,279	\$32,434	\$14,719	\$63,857	\$1,940,002
City of Washington	\$767,881	\$123,321	\$30,573	\$3,681	\$22,314	\$3,811	\$7,178	\$958,759
Tazewell County	\$3,199,179	\$432,683	\$149,920	\$48,708	\$83,525	\$15,122	\$43,061	\$3,972,198
<b>Tazewell Co. Total</b>	<b>\$7,332,917</b>	<b>\$1,322,298</b>	<b>\$349,066</b>	<b>\$64,386</b>	<b>\$176,496</b>	<b>\$49,214</b>	<b>\$142,255</b>	<b>\$9,436,632</b>
Village of Roanoke	\$126,564	\$22,152	\$25,897	\$3,387	\$2,553	\$615	\$5,009	\$186,177
Woodford County	\$1,912,370	\$239,918	\$130,322	\$40,270	\$50,298	\$11,658	\$56,087	\$2,440,923
<b>Woodford Co. Total</b>	<b>\$2,038,934</b>	<b>\$262,070</b>	<b>\$156,219</b>	<b>\$43,657</b>	<b>\$52,851</b>	<b>\$12,273</b>	<b>\$61,096</b>	<b>\$2,627,100</b>
<i>All values are in thousands of dollars</i>								



Building stock exposure is also classified by building type. General Building Types (GBTs) have been developed as a means to classify the different buildings types. This provides an ability to differentiate between buildings with substantially different damage and loss characteristics. Model building types represent the average characteristics of buildings in a class. The damage and loss prediction models are developed for model building types and the estimated performance is based upon the "average characteristics" of the total population of buildings within each class. Five general classifications have been established, including wood, masonry, concrete, steel and manufactured homes (MH). A brief description of the building types is available in Table V-4. The HAZUS inventory serves as the default when a user does not have better data available.

Table V- 4: HAZUS General Building Type classes.

General Building Type	Description
Wood	Wood frame construction
Masonry	Reinforced or unreinforced masonry construction
Steel	Steel frame construction
Concrete	Cast-in-place or pre-cast reinforced concrete construction
MH	Factory-built residential construction

Wood construction represents the majority (71%) of building types in the Tri-County area. The remaining percentage is distributed among other building types. Table V-5 below provides building stock exposure for the five main building types. The differences in the building stock tables are a result of aggregation by HAZUS and rounding.

HAZUS-MH only provided the building stock for the counties in the Tri-County area. The county totals include stock in the cities and villages. Loss estimates include information for the cities and towns.

Table V- 5: Building stock exposure for general building type by county.

County	Wood	Steel	Concrete	Masonry	Manu. Housing	Total
Peoria	\$8,713,957	\$1,024,356	\$1,241,365	\$3,720,168	\$68,315	<b>\$14,768,161</b>
Tazewell	\$1,086,436	\$116,270	\$168,349	\$468,455	\$13,552	<b>\$1,853,062</b>
Woodford	\$242,480	\$19,425	\$29,625	\$87,593	\$4,361	<b>\$383,484</b>
<b>Total</b>	<b>\$10,042,873</b>	<b>\$1,160,051</b>	<b>\$1,439,339</b>	<b>\$4,276,216</b>	<b>\$86,228</b>	<b>\$17,004,707</b>





## Hazard Identification and Available Data

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

While there are many different natural hazards that could potentially affect the Tri-County area, some hazards are more likely to cause significant impacts and damages than others. This analysis will attempt to quantify these potential impacts and identify the hazards which pose the greatest possible risk.

The potential hazards that could affect the Tri-County area include: flooding, high winds, tornadoes, land subsidence, winter storms, severe thunderstorms, earthquakes, wildfires, landslides, droughts, heat waves, and erosion. Depending on the severity, location, and timing of the specific events, each of these hazards could have devastating effects on homes, business, agricultural lands, infrastructure and ultimately citizens. In order to gain a full understanding of the history of these hazards in the Tri-County area, detailed data related to the hazard history was compiled and available in each of the hazard sections and Section X.

For the 2004 plan, information was collected from meeting with local community officials, existing reports and studies, state and national data sets, and local newspaper clippings among others sources. The 2010 plan updated this information based on the National Weather Service's NCDC storm events.

The historical data collected includes accounts of all the hazard types listed above. However, some have occurred much more frequently than others with a wide range of impacts. By analyzing the historical frequency of each hazard, along with the associated impacts, the hazards that pose the most significant risks to the Tri-County area can be identified. This analysis will allow the jurisdictions included in this study to focus their hazard mitigation plans on those hazards that are most likely to cause significant impacts to their community.



*Federally Declared Disasters*

There has been a total of 55 declared disasters in Illinois, 13 of those disasters have been declared in the Tri-County region. Tazewell County has been declared in 9 of these events, Peoria and Woodford Counties have both been declared in 8 events since 1965. Table V-6 summarizes the disasters and which localities that were included in the declaration.

Wind related events (severe storms, thunderstorms, and severe wind) dominate the Tri-County declared hazards, followed by flood (flooding and flash floods) and rain (torrential and excessive rain) events. Approximately half of the Tri-County Declared Disasters were pre-Robert T Stafford Act.

Table V- 6: Major disaster declarations for Tri-County region (1965- January 2010)

<b>Disaster Number</b>	<b>Date</b>	<b>Hazard Type/Name</b>	<b>Tri-County Declarations</b>
373	4/26/1973	Severe Storms/Flooding	Peoria Tazewell
438	6/10/1974	Severe Storms/Flooding	Peoria Woodford Tazewell
583	4/30/1979	Severe Storms/Flooding	Peoria Woodford Tazewell
674	12/13/1982	Tornado/Severe Storms/Torrential Rain/Flooding/Severe Winds	Peoria Woodford Tazewell
735	3/29/1985	Severe Storms/Excessive Rain/Ice Jam/Flooding	Peoria Woodford Tazewell
776	10/7/1986	Torrential Rain/Flash Flood	Tazewell
871	6/22/1990	Thunderstorms/Severe Winds/Tornado/Torrential Rain/Flooding	Woodford Tazewell
997	7/9/1993	Great Midwest Flood	Peoria
1053	5/30/1995	Tornado/Thunderstorms/Severe Storms/Severe Winds/Torrential Rain/Flash Floods	Peoria Tazewell
1416	5/21/2002	Severe Storms/Tornado/Flooding/Excessive Rainfall	Woodford
1469	5/3/2003	Severe Storms/Tornado/Flooding/Excessive Rainfall	Tazewell
1681	2/9/2007	Severe Winter Storm	Woodford
1800	10/3/2008	Severe Storms/Flooding	Peoria Woodford



### *NCDC Storm Events Database*

National Climatic Data Center (NCDC) *Storm Data* is published by the National Oceanic and Atmospheric Administration (NOAA), part of the U.S. Department of Commerce. The storm events database contains information on storms and weather phenomena that have caused loss of life, injuries, significant property damage, and/or disruption to commerce. Efforts are made to collect the best available information, but because of time and resource constraints, information may be unverified by the National Weather Service (NWS). The NWS does not guarantee the accuracy or validity of the information. Although the historical records in the database often vary widely in their level of detail, the NWS does have a set of guidelines used in the preparation of event descriptions.<sup>3</sup>

It should be noted that NCDC is well known for having limited records of geological hazards (i.e. earthquake, landslide, and karst). In the absence of better data it was decided to proceed with the records available in NCDC for these events, in all cases NCDC records for these events are severe under-representations of what has happened in TCRPC's past. To date, no comprehensive digital databases exist for these hazards.

### **NCDC Annualizing Data**

To be able to compare events that happened in the past, inflation needed to be accounted for in the NCDC records. After inflation was accounted for, the data was annualized in order to be able to compare the results to each jurisdiction and to the other hazards. In general, this was completed by taking the parameter of interest (i.e. number of events) and dividing by the length of record for each hazard. The annualized value should only be utilized as an estimate of what can be expected in a given year. Events and property damages were annualized in this fashion, on a per-county basis.

### **NCDC Data Compilation and Events**

The NCDC Storm Events database uses very detailed event categories. The reported storm events were grouped into the major hazard types considered in this plan. Table V-7 shows the NCDC categories as reported in the database and the hazard categories used for the HIRA.

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<sup>3</sup> National Water Service Instruction 10-1605. Operations and Services Performance: Storm Data Preparation Guide. August 17, 2007. Available at: <http://www.nws.noaa.gov/directives/sym/pd01016005curr.pdf>



Table V- 7: NCDC Storm Event Grouping

<b>HIRA Category</b>	<b>NCDC Categories Included</b>
Drought	<i>No events in Tri-County recorded in NCDC</i>
Earthquake	<i>No events in Tri-County recorded in NCDC</i>
Extreme Heat (12 years of record)	Excessive Heat Heat
Flood (16 years of record)	Flash Flood Flood
Severe Storms (54 years of record)	High Wind Strong Wind Thunderstorm Wind Thunderstorm Winds Tstm Wind Hail Lightning
Tornado (55 years of record)	Tornado
Winter Storm (14 years of record)	Blizzard Extreme Cold Extreme Cold/Wind Chill Frost/Freeze Heavy Snow Ice Storm Winter Storm Winter Weather

There have been 1,077 events recorded in the NCDC storm events database for the TCRPC area spanning from 1950 through 2009. High Wind events make up over 72% of the records and almost 29% of the recorded property damages, followed by Winter Storm events (11.6% of the events and 0.7% of the property damages). Tornado events account for only 9.3% of the events but over 75% of the recorded property damages. Flooding accounts for 4.6% of the events and 0.4% of the property damages, extreme heat 1.9% of the events and no property damages. Three events have been recorded for dense fog but have not been included as part this HIRA. Table V-8 shows the number of NCDC events for each county by hazard type.

NCDC data only provided events for the counties in the Tri-County area. Cities and towns are included in the county totals.



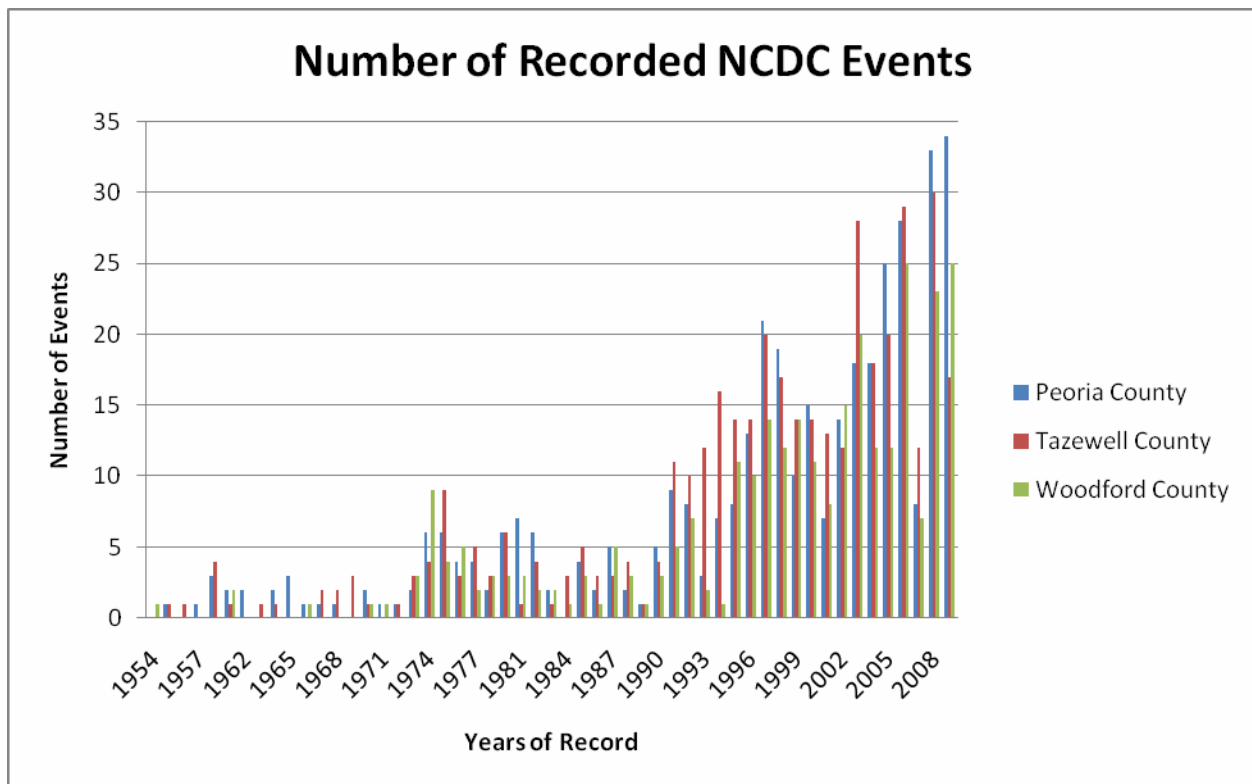
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Table V- 8: Number of Events in the NCDL database.

County	Extreme Heat	Flood	Severe Storms	Tornado	Winter Storm
Peoria County	7	17	296	15	47
Tazewell County	7	14	287	50	42
Woodford County	7	18	191	35	41

Graph V-1 summarizes the number of reported events in the NCDL storm events database by year. As shown, reporting of events has significantly improved in the past 20 years. More than 80% of the recorded events are from 1990 to 2009. Each of the three counties has approximately the same number of events.

Graph V- 1: Number of reported NCDL events (1950 – 2009).





## Annualized Events

While each hazard may not have a comprehensive database of past historical occurrences, the record of historical events is still an important factor in determining where hazards are likely to occur in the future. Annualizing the NCDC storm events data yields a rough estimate of the number of times a jurisdiction might experience a similar hazard event in any given year. To do this, the total number of events in the NCDC database, for each specific hazard in each county, was divided by the total years of record for that hazard based on the first recorded event in the NCDC database to calculate an “annualized events” value.

For comparison, the 2007 Illinois State Plan looks at the historical/probability or frequency of an event as the number of times that a disaster has occurred within the past 50 years, using NCDC data (Table V-9). As described above, the NCDC database does not have 50 years of record for most of the hazards in the Tri-County region; only severe storms and tornado have over 50 years of record. As a result, the thresholds in the state plan have been annualized in order to compare the hazards on a similar scoring system (Table V-10). For example, a score of 1 or low would be assigned if the hazard has occurred 1 to 10 times in the past 50 years, which is equivalent to 0.20 events in a given year. Based on the evaluation with the state plan, all three of the counties are estimated to experience over 3 severe and winter storms in a given year and one flood event.

Table V- 9: Comparison with 2007 Illinois State Plan Frequency Parameter

<b>Historical/Probability (frequency): Annualized Events</b>	
<i>The estimated number of times that a disaster would likely happen in a given year</i>	
Rank	Definition
Low	<= 0.20 events per year
	[IL State Plan: 0 to 10 occurrences in the past 50 years]
Medium	0.21 - 0.99 events per year
	[IL State Plan: 11 - 49 occurrences in the past 50 years]
High	>= 1 events per year
	[IL State Plan: More than 50 occurrences in the past 50 years]

Table V- 10: NCDC Annualized Events (1950 – 2009).

County	Extreme Heat	Flood	Severe Storms	Tornado	Winter Storm
Peoria	0.58	1.06	5.48	0.27	3.36
Tazewell	0.58	0.88	5.31	0.91	3.00
Woodford	0.58	1.13	3.54	0.64	2.93



### NCDC Property Damages

Tornado related events account for over 88% of the property damages reported in the Tri-County region. Tazewell County has experienced the largest amount of property damage, accounting for over 45% of the total damages for all hazards. These values have been adjusted based on the 2009 CPI values. Since several of the tornado events happened years ago, the inflated dollars have more than doubled the reported property damages.

Severe storms also make up a large percentage of the property damages in the region. Property damages in Tazewell County account for over half of the severe storms damages.

Surprisingly, flooding accounts for only a small fraction of property damages. Woodford County is the only county to have reported damages in the NCDC storm events database for flood. Two events both on September 13, 2008, were recorded and make up all of the reported damages (\$145,000 before CPI adjustment).

Table V- 11: NCDC Total Property Damage inflated to using 2009 Consumer Price Indexes (CPI).

County	Extreme Heat	Flood	Severe Storms	Tornado	Winter Storm
Peoria County	N/A	N/A	\$ 3,162,950	\$36,550,101	\$ 209,253
Tazewell County	N/A	N/A	\$4,806,781	\$41,486,025	\$199,288
Woodford County	N/A	\$144,484	\$1,405,500	\$3,267,242	\$343,773
<b>Total</b>	<b>N/A</b>	<b>\$144,484</b>	<b>\$9,375,231</b>	<b>\$81,303,368</b>	<b>\$752,314</b>

Based on the Illinois state ranking severity of impact for property damages, extreme heat would be low or Not Applicable due to no recorded losses, flooding would be low, severe storms would be medium, tornado would be low for Woodford, medium for Peoria and high for Tazewell, and winter storm would be medium.



### Annualized Property Damages

Annualized property damages have been calculated as described in the sub-sections above. Tornado related damages make up over 86% of the annualized damages, followed by severe storms (10%). TCRPC can expect approximately **\$1.7 million** in annualized loss due to flooding, severe storms, tornados and winter storm events. Table V-12 shows the annualized events based on the NCDC data. Cities and villages are not included in the NCDC reporting for Illinois and as a result are not shown in the table. These values and limitations are further discussed in the Overall Hazards Results sub-section.

Table V- 12: NCDC Annualized Property Damages (1950 – 2009).

County	Extreme Heat	Flood	Severe Storms	Tornado	Winter Storm
Years of Record	12	16	54	55	14
Peoria County	<i>No Loss Recorded</i>	<i>No Loss Recorded</i>	\$58,573	\$664,547	\$14,947
Tazewell County	<i>No Loss Recorded</i>	<i>No Loss Recorded</i>	\$89,014	\$754,291	\$14,235
Woodford County	<i>No Loss Recorded</i>	\$9,030	\$26,028	\$59,404	\$24,555
<b>Total</b>	<b><i>No Loss Recorded</i></b>	<b>\$9,030</b>	<b>\$173,615</b>	<b>\$1,478,243</b>	<b>\$53,737</b>

### Deaths & Injuries

There have been 67 deaths due to storm related events recorded in the NCDC database. Two-thirds of the deaths are from extreme heat and winter storms. Three are from flooding events and four are from severe storms.

There have been 275 injuries due to storm related events recorded in the NCDC database. Over 49% of the injuries are attributed to winter storm events and 37% due to tornado events. The rest of the injuries are from severe storms (13%) and flooding (1%).





## Hazard Ranking

The 2007 State of Illinois Natural Hazard Mitigation Plan rating process was reviewed and the general format was considered as part of the Tri-County update. Initially it was thought that the distribution of risk within the planning region could be shown at the census tract level; as analysis was completed and it was realized that this level of detail was not possible for the 2010 revision. Several main factors led to this inability to show risk at the census tract level. The coarseness of the NCDL data, probability and geographic extent of specific hazards were some of the limiting factors for the analysis. NCDL events were evaluated to determine if additional data would yield different hazard ranking results; with the coarseness of the data the ranking resulted in the same schema from the 2004 plans. Additional time investments determined not to yield better results. Ultimately, at this time, if risk was shown at the census tract level it would be driven solely by the population parameters. Similarly, historical/probability events were only aggregated to the county level so each county was assigned one uniform score. As better hazard data is available, this level of detail and analysis may be more feasible.

As described in the 2004 plan, prioritizing the potential hazards that can threaten the Tri-County area was based on two separate factors:

1. The probability that a potential hazard will affect the community, and
2. The potential impacts on the community should a hazard event occur.

The probability for each hazard was based on the history of events in the Tri-County area, as well as any other relevant available data related to the probability for the Central Illinois area. The hazard's total impact is made up of three separate factors: the extent of the potentially affected geographic area, the primary impacts of the hazard event, and any related secondary impacts. While primary impacts are a direct result of the hazard, secondary impacts can only arise subsequent to a primary impact. For example, a primary impact of a flood event may be road closures due to submerged pavement. A possible secondary impact in these circumstances would be restricted access of emergency vehicles to citizens in a portion of the community due to the road closure.

In order to quantify these hazard factors, a formula was developed to assign a value for probability and impact for each of the hazards considered, as shown below.

### **Total Score = Probability x Impact**

Probability = (Probability Score x Importance)

Impact = (Affected Area + Primary Impact + Secondary Impacts), where:



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Affected Area = Affected Area Score x Importance

Primary Impact = Primary Impact Score x Importance

Secondary Impacts = Secondary Impacts Score x Importance

A Hazard Identification worksheet is included as Section X of this document and contains all the calculations and formulas utilized. As a result of this analysis, the hazards were broken down into four distinct categories which represent the likelihood of a hazard event of that type significantly impacting the Tri-County area. These categories are High, Medium-High, Medium, and Low. This aligns with the types and frequencies of declared disasters and NCDC events mentioned above.

In order to focus on the most significant hazards, only those assigned a level of high or medium-high will be included in this study; with the exception of earthquake as HAZUS-MH MR3 was utilized by the TCRPC as part of this update. The 2010 update to the plan addressed any additional hazard events that occurred during the five year update and has re-organized some of the hazard categories to better align with the state plan.

Table V-13 summarizes the results of the hazard level analysis as well as the comparison to the 2004 ranking categories and the 2007 Illinois State Hazard Mitigation Plan Rankings. Based on the Illinois state ranking, extreme heat would be low, flooding would be medium, severe storms would be high, tornado would be medium for Peoria and Woodford and high for Tazewell, and winter storm would be medium. The differences in the state and local rankings can be attributed to multiple factors. The local plans have ranked the hazards relative to the other participating jurisdictions in the Tri-County area while the state plan has ranked the all the counties in Illinois relative to each other.

Since the previous version of the plan, soil erosion has been removed from the hazard ranking. The preliminary risk assessment documented in 2004 found the TCRPC area not to be at significant risk for soil erosion; therefore, they have been removed from the plan update.



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Table V- 13: Comparison of ranking results from 2010, 2004 plan, 2007 State of Illinois HMP.

2010 Hazard Categorization	TRCPC 2010 Update	State of Illinois HMP 2007	2004 Hazard Type	HOI Project Impact 2004
Flood	High	Primary Hazard (Flood)	Flood - Flash	Medium-High
			Flood - Riverine	High
Severe Storms & Tornadoes	High	Primary Hazard (Severe Storms & Tornadoes)	Severe Thunderstorm	Medium-High
			Wind Event - Microburst/Straight-line	High
		Primary Hazard (Severe Storms & Tornadoes)	Tornado - All Other Categories	Medium-High
			Tornado (F0)	High
			Tornado (F1)	High
			Tornado (F2)	Medium-High
Winter Storms	High	Primary Hazard	Winter Storms	Medium-High
Land/Mine Subsidence	Medium-High	Low Probability and/or Minor Impact	Land/Mine Subsidence	Medium-High
Landslide	Medium	Low Probability and/or Minor Impact	Landslide	Medium
Drought	Medium	Primary Hazard	Drought	Medium
Extreme Heat	Medium	Primary Hazard	Extreme Heat	Medium
Wildfire	Medium	Low Probability and/or Minor Impact	Wildfire	Medium
Earthquake	Medium	Primary Hazard	Earthquake	Medium



## Hazard Assessment

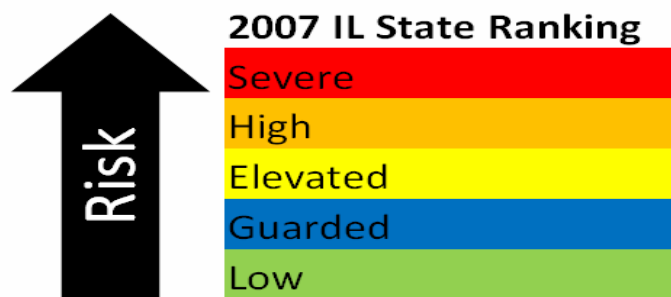
### *Hazard Section Outline*

The hazard analysis completed in the previous sections of this report identified the types of hazards to which the Tri-County area is most vulnerable and ranked them based on specific parameters. The next step in the process is to conduct a risk assessment specific to the Tri-County area for these hazards. A risk assessment is the process of measuring the potential loss of life, personal injury, economic injury, and property damage resulting from hazards. Each of the natural hazards are presented as sub-sections of this report; the primary components of the risk assessment include:

- 2007 Illinois State Ranking Results for each County
- Description of the Hazard
- Hazard History
- Risk Assessment \*
  - Probability
  - Impact & Vulnerability
  - Risk
    - Critical Facility Risk
    - Jurisdictional Risk and Changes in Development

*\*The level of analysis for the risk assessment portion varies based on the designated hazard ranking. Hazards that have been ranked as high include information for the risk assessment components.*

Key for the 2007 Illinois State Ranking Results for each County:



The hazard assessment also examines the impact of hazards on the Tri-County area's existing and future land uses and development trends, within the identified hazard areas. Current conditions were evaluated in terms of what is already developed, and in terms of people and property types. The jurisdictions within the Tri-County area have comprehensive plans, zoning ordinances, capital improvement plans, and other plans



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which were used as indicators of potential future risks to undeveloped properties, services, and infrastructure. New development and areas targeted for re-development often present the best opportunities for incorporating new methods of development or retrofitting development so that it will be able to withstand the effects of hazards.



## Flood – High Hazard Ranking

### *2007 Illinois State Hazard Mitigation Plan Ranking*

Peoria County – Guarded  
Tazewell County – Guarded  
Woodford County – Elevated

### *Description*

One of the most frequent and significant hazards facing the Tri-County area is flooding, particularly along the Illinois River. Because the Illinois River forms a partial boundary of Peoria County, Tazewell County, and Woodford County, as well as the Cities of Peoria and Pekin, significant floods along the Illinois River affect all jurisdictions included in this study. In addition to the Illinois River, there are numerous small creeks and streams throughout the Tri-County area. Significant flooding can also occur along some of these smaller streams and creeks, most notably the Mackinaw River in Woodford and Tazewell Counties and Kickapoo Creek in Peoria County.

The majority of the flooding in the Tri-County area is riverine flooding that occurs along the Illinois River and associated tributaries. These floods are most common in the late winter and spring when heavy rains coupled with melting snow from the upper reaches of the watershed combine to exceed the capacity of the basin. The extensive stream gage network along the Illinois River aids in forecasting flood heights in advance; however, due to the large tributary area of the Illinois River, these riverine floodwaters can rise for days and the river can remain above flood stage for weeks at a time. Flash floods can also occur following periods of intense rain, generally associated with a severe thunderstorm, and generally occur along the smaller streams and brooks throughout the Tri-County area. Flash floods quickly exceed the capacity of a small stream or brook, and can damage adjacent structures, or wash out a roadway or bridge.

The Illinois River is classified as an aggrading river, meaning the river bed is being filled by the deposition of sediment, reducing the depths and decreasing the ability for storage. The average depth of the river is only approximately 18 inches. The United States Army Corps of Engineers (USACE), in conjunction with the Illinois Department of Natural Resources (IDNR), have been investigating the affects of this process. The exact impacts of this sedimentation of flood levels in the Tri-County area cannot be calculated. However, a comparison of similar flood events was completed in the Peoria County Hazard Mitigation Plan, completed in 1995 and updated in 2001. The plan compared the Illinois River flood of 1844 to that of 1979. According to this plan the peak flow of the flood of 1844 was 126,000 cubic feet per second with an associated crest at Beardstown, Illinois at 22.3 feet above flood stage. The 1979 flood had a significantly lower flow, of only 95,000 cubic feet per second yet the crest at Beardstown of 28.3 feet, 5.8 feet higher than the flood of 1844.



### Hazard History

According to historical records for the Tri-County area, there have been a number of significant flooding disasters since 1933, and the frequency of damaging floods has increased over the last 30 years. Riverine flooding the Tri-County area has resulted in Federal Disaster declarations in the following years: 1973, 1974, 1979, 1982, 1985, 1990, 1993, 2002, 2003, and 2008. A number of flash floods have also caused significant damage in the Tri-County area. A full catalogue of recorded flood events is included in Section X. The impacts of flooding clearly pose a significant risk to the Tri-County area.

Flood producing storms can occur throughout the year; however, the months of March, April and May are historically considered the most flood prone months due to the spring thaw and its effects on the Illinois River and its tributaries. Flood stage for the Illinois River is 18 feet, or 446.4 NGVD. There have been approximately 16 floods on record since 1933 that have crested above 23 feet (451.1 NGVD), which according to a study titled “River Stages in Illinois: Flood and Damage Data, Local Assistance Series 5A,” is the flood level at which damage to structures begins. Table V-14 highlights the major events. The highest flood on record occurred in May 1943 when the Illinois River crested at 28.8 feet (457.2 NGVD) in Peoria. This flood was almost equaled in March 1979 when the Illinois River crested at 28.7 (457.1 NGVD) feet prompting a Federal Disaster Area declaration. Both floods caused extensive damage to residential and commercial buildings, as well as roads and agricultural lands throughout the Tri-County area. These two floods are estimated to have a return frequency of once every 25 years. Therefore, the Tri-County area has still not experienced a 100-year flood in modern times. A 100-year flood is expected to reach 32.6 (470 NGVD) feet, which is roughly 4 feet above the highest flood on record<sup>4</sup>.

Table V- 14: Illinois River major flooding events and the associated crest levels in Peoria County.

Date	Crest Level	Crest Level (NGVD)
May 1943	28.8 feet	457.2
March 1979	28.7 feet	457.1
March 1984	28.4 feet	456.8
December 1982	27.4 feet	455.8
March 1982	27.1 feet	455.5
March 1970	25.9 feet	454.3
April 1973	25.9 feet	454.3
April 1983	25.7 feet	454.1

<sup>4</sup> City of Peoria HVA 83



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Date	Crest Level	Crest Level (NGVD)
May 1933	25.3 feet	453.7
April 1950	25.0 feet	453.4

\*Source: City of Peoria HVA, 1983 and NCDC Storm Event Database

Flash floods are another hazard that can impact the Tri-County area. These floods are generally initiated by severe thunderstorms in which intense rains fall in a short amount of time. Flash floods typically result in road and bridge closings, but they also have the potential to inflict significant damage upon structures and crops. One of the most damaging flash floods on record occurred on June 2, 1980, when a hailstorm initiated a flash flood that inundated 1,500 acres of farmland and caused considerable damage to roads, particularly in Tazewell County. In 2001, flash floods occurred in May, June and July that flooded roads in areas of all three counties.



Source: Village of Roanoke, Woodford County. March 2009 Illinois River





*Risk Assessment*

**Probability**

A 100-year flood is not a flood that occurs every 100 years. In fact, the 100-year flood has a 26 percent chance of occurring during a 30 year period, the typical length of many mortgages. The 100-year flood is a regulatory standard used by Federal agencies, States and NFIP-participating communities to administer and enforce floodplain management programs. The 100-year flood is also used by the NFIP as the basis for insurance requirements nationwide<sup>5</sup>. The main recurrence intervals used on the FIRMS are shown in the table below (Table V-15).

Table V- 15: Annual probability based on flood recurrence intervals.

<b>Flood Recurrence Interval</b>	<b>Annual Chance of Occurrence</b>
10 -yr	10.0%
50-yr	2.0%
100-yr	1.0%
500-yr	0.2%

As noted in the hazard history section, there is no record of a 100-year flood occurring in the Tri-County area. Even though some of the areas identified as a SFHA may not have received flooding in the past, flooding during a 100-year event may still be possible in these areas. In addition, the dates of adoption for the FIRM for each jurisdiction range from 1980 to 1984. Watershed changes that have taken place since that date, including the effects of the sedimentation of the Illinois, will not be included in this analysis.

<sup>5</sup> National Flood Insurance Program ([www.fema.gov](http://www.fema.gov))



## National Flood Insurance Program (NFIP)<sup>6</sup>

The Flood Insurance and Mitigation Administration (FIMA), a component of the FEMA, manages the NFIP. The three components of the NFIP are:

1. Flood Insurance
2. Floodplain Management
3. Flood Hazard Mapping

Nearly 20,000 communities across the United States and its territories participate in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in these communities. Community participation in the NFIP is voluntary.

Flood insurance is designed to provide an alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods. Flood damage is reduced by nearly \$1 billion a year through communities implementing sound floodplain management requirements and property owners purchasing of flood insurance. Additionally, buildings constructed in compliance with NFIP building standards suffer approximately 80 percent less damage annually than those not built in compliance.

In addition to providing flood insurance and reducing flood damages through floodplain management regulations, the NFIP identifies and maps the Nation's floodplains. Mapping flood hazards creates broad-based awareness of the flood hazards and provides the data needed for floodplain management programs and to actuarially rate new construction for flood insurance.

Table V-16 shows the dates each of the jurisdictions were identified with Flood Hazard Boundary Maps (FHBM), when the first Flood Insurance Rate (FIRM) maps became effective, the date of the current FIRMs used for insurance purposes, and the date the community entered into the NFIP.

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<sup>6</sup> The National Flood Insurance Program [www.fema.gov](http://www.fema.gov) 6/20/2010



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Table V- 16: Communities participating in the NFIP

County	Community Name	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Reg-Emer Date
PEORIA COUNTY	<i>BARTONVILLE, VILLAGE OF*</i>	3/15/1974	3/16/1981	11/2/1983	3/16/1981
	<b>CHILLICOTHE, CITY OF</b>	8/9/1974	2/2/1977	2/2/1977	2/2/1977
	<b>PEORIA COUNTY</b>	1/17/1975	2/15/1980	6/1/1983	2/15/1980
	<b>PEORIA HEIGHTS, VILLAGE OF</b>	11/16/1973	11/1/1979	<b>effective: 9/17/2010</b>	11/1/1979
	<b>PEORIA, CITY OF</b>	5/24/1974	2/1/1980	2/1/1980	2/1/1980
TAZEWELL COUNTY	<b>PEKIN, CITY OF</b>	4/12/1974	6/4/1980	6/4/1980	6/4/1980
	<i>CREVE COEUR, VILLAGE OF*</i>	3/1/1974	7/16/1980	7/16/1980	7/23/1981
	<b>EAST PEORIA, CITY OF</b>	6/21/1974	12/4/1979	12/4/1979	12/4/1979
	<i>NORTH PEKIN, VILLAGE OF*</i>	3/8/1974	6/4/1980	6/4/1980	6/4/1980
	<b>TAZEWELL COUNTY</b>	6/2/1978	8/1/1980	8/1/1980	8/1/1980
	<b>WASHINGTON, CITY OF</b>	6/7/1974	2/5/1986	2/5/1986	2/5/1986
WOODFORD COUNTY	<i>SPRING BAY, VILLAGE OF*</i>	3/28/1975	6/4/1980	<b>effective: 9/17/2010</b>	6/4/1980
	<b>ROANOKE, VILLAGE OF</b>	3/1/1974	9/4/1987	<b>effective: 9/17/2010</b>	9/4/1987
	<b>WOODFORD COUNTY</b>	1/20/1978	2/1/1984	<b>effective: 9/17/2010</b>	2/1/1984

\*Jurisdiction not participating in 2010 update  
Source: <http://www.fema.gov/cis/IL.html> 6/26/2010

The Tri-County area has approximately 896 flood insurance policies in-force. Peoria County has the most flood insurance policies at 334, followed by the City of Peoria (136) and City of East Peoria (92). During January 1, 1978 through March 31, 2010, the Tri-County area had a total of 3,085 NFIP losses and \$20,417,932 total payments for those losses; over 50% of those payments were made to Peoria County.<sup>7</sup> TableV-17 summarizes the NFIP Policy and Claim statistics for the Tri-County area with Illinois totals for comparison.

<sup>7</sup> NFIP BureauNet <http://bsa.nfipstat.com/> 6/20/2010



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Table V- 17: NFIP Policy and Claim Information

County	Community Name	Policy Statistics (as of 3/31/2010)		Claim Statistics 1/1/1978 – 3/31/2010	
		Policies In-Force	Insurance In-Force	Total Losses	Total Payment
PEORIA COUNTY	<i>BARTONVILLE, VILLAGE OF*</i>	9	1,490,600	11	\$ 27,359
	<b>CHILLICOTHE, CITY OF</b>	24	2,523,300	153	\$1,152,306
	<b>PEORIA COUNTY</b>	334	40,329,900	1,518	\$10,868,737
	<b>PEORIA HEIGHTS, VILLAGE OF</b>	30	3,603,300	294	\$2,128,983
	<b>PEORIA, CITY OF</b>	136	32,486,100	388	\$ 2,482,432
TAZEWELL COUNTY	<b>PEKIN, CITY OF</b>	12	2,493,600	54	\$142,403
	<i>CREVE COEUR, VILLAGE OF*</i>	2	763,100	2	\$2,604
	<b>EAST PEORIA, CITY OF</b>	92	28,649,000	106	\$569,863
	<i>NORTH PEKIN, VILLAGE OF*</i>	13	2,226,300	23	\$145,996
	<b>TAZEWELL COUNTY</b>	69	10,535,800	173	\$863,235
	<b>WASHINGTON, CITY OF</b>	52	6,078,700	14	\$41,991
WOODFORD COUNTY	<i>SPRING BAY, VILLAGE OF*</i>	29	3,406,700	89	\$502,474
	<b>ROANOKE, VILLAGE OF</b>				
	<b>WOODFORD COUNTY</b>	94	11,222,200	260	\$1,489,550
<b>ILLINOIS TOTAL</b>		<b>47,799</b>	<b>7,774,098,800</b>	<b>39,364</b>	<b>\$347,608,410</b>

\*Jurisdiction not participating in 2010 update  
Source: <http://bsa.nfipstat.com/> 6/20/2010

Floodplain management regulations are the cornerstone of NFIP Participation. Communities which participate in the NFIP are expected to adopt and enforce floodplain management regulations. These regulations apply to all types of floodplain development and ensure that development activities will not cause an increase in future flood damages. Buildings are required to be elevated at or above the base flood elevation. In the Tri-County area, all communities have adopted the State of Illinois Model Ordinance. That ordinance goes above and beyond NFIP minimum standards. In addition, the State of Illinois floodway regulations are much more restrictive than NFIP minimums. By adopting the State of Illinois Model Ordinance, Tri-County complies with all NFIP regulations.



## FEMA Repetitive Flood Claims Program

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

The Repetitive Flood Claims (RFC) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108–264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al). Currently up to \$10 million is available annually for FEMA to provide RFC funds to help States and communities reduce flood damages to insured properties that have had one or more claims to the National Flood Insurance Program (NFIP).<sup>8</sup>

### Repetitive Loss Properties

A Repetitive Loss (RL) Property is a property that is insured under the NFIP and has filed two or more claims in excess of \$1,000 each, within a 10-year period. Nationwide, repetitive loss properties constitute 2% of all NFIP insured properties, but are responsible for 40% of all NFIP claims. Mitigation for repetitive loss properties is a high priority for FEMA, and the areas in which these properties are located typically represent the most flood prone areas of a community.

Over \$14 million has been paid in total repetitive losses for the entire Tri-County planning region, including losses from jurisdictions not included in this planning effort. The majority of the losses have occurred in numbered zones (72%), followed by zone A (16%). Thirteen buildings, approximately 2% of the total losses, are located within communities currently not included in this plan update. Table V-18 below shows the total number of properties, total number of losses experienced and losses paid for all of the communities within the Tri-County planning region, according to the Illinois Department of Natural Resources. These repetitive loss properties have been discussed in further detail in the specific jurisdictional sections below. Including jurisdictions not involved in this plan update, there have been 1,589 losses paid for a total of over \$14 million.

Of the communities included in this plan, Peoria County accounts for the majority of the buildings and losses experienced for repetitive loss properties. Including all of the communities within Peoria County that are part of this planning effort accounts for almost 84% of the losses paid. Woodford County accounts for 10% of the total losses paid and Tazewell County accounts for 5%.

<sup>8</sup> FEMA Severe Repetitive Loss Guidance for Severe Repetitive Loss Properties  
<http://www.fema.gov/pdf/nfip/manual200610/20srl.pdf> 10/2006



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Table V- 18: Repetitive Loss Properties (IEMA 8/27/2009)

County	Community Name	Number of Properties	Total Number of Losses	Total Paid
PEORIA COUNTY	<i>BARTONVILLE, VILLAGE OF*</i>	2	4	\$25,672
	<b>CHILLICOTHE, CITY OF</b>	<b>10</b>	<b>40</b>	<b>\$434,066</b>
	<b>PEORIA COUNTY</b>	<b>234</b>	<b>866</b>	<b>\$8,101,205</b>
	<b>PEORIA HEIGHTS, VILLAGE OF</b>	<b>44</b>	<b>194</b>	<b>\$1,649,154</b>
	<b>PEORIA, CITY OF</b>	<b>37</b>	<b>161</b>	<b>\$1,397,067</b>
	<b>TOTAL Included in HMP: \$11,581,492</b>			
<b>TOTAL: \$11,6607,164</b>				
TAZEWELL COUNTY	<b>PEKIN, CITY OF</b>	<b>7</b>	<b>24</b>	<b>\$73,923</b>
	<i>CREVE COEUR, VILLAGE OF*</i>	2	5	\$16,957
	<b>EAST PEORIA, CITY OF</b>	<b>4</b>	<b>12</b>	<b>\$65,074</b>
	<i>NORTH PEKIN, VILLAGE OF*</i>	2	11	\$104,056
	<b>TAZEWELL COUNTY</b>	<b>29</b>	<b>85</b>	<b>\$604,896</b>
	<b>WASHINGTON, CITY OF</b>	<b>2</b>	<b>4</b>	<b>\$29,934</b>
<b>TOTAL Included in HMP: \$773,827</b>				
<b>TOTAL: \$894,840</b>				
WOODFORD COUNTY	<i>SPRING BAY, VILLAGE OF*</i>	7	18	\$137,108
	<b>ROANOKE, VILLAGE OF</b>	<b>N/A</b>		
	<b>WOODFORD COUNTY</b>	<b>52</b>	<b>165</b>	<b>\$1,395,884</b>
<b>TOTAL Included in HMP: \$1,395,884</b>				
<b>TOTAL: \$1,532,992</b>				

*\*Not included in 2010 Tri-County Hazard Mitigation Plan Update*



## Impact & Vulnerability

Flooding only impacts a community to the degree it affects the lives of its citizens and the community functions overall. Therefore, the most vulnerable areas of a community will be those most affected by floodwaters in terms of potential loss of life, damages to homes and businesses, and disruption of community services and utilities. For example, an area with a highly developed floodplain is significantly more vulnerable to the impacts of flooding than a rural or undeveloped floodplain where potential floodwaters would have little impact on the community.

The impacts of a flood on a community can be magnified to the degree floodwaters affect special needs populations and critical facilities. Special needs populations are those that may require special assistance during a flood event, may not be able to protect themselves prior to an event, or may not be able to understand potential risks. These can include non-English populations, elderly populations, or those in a lower socioeconomic group. Special need populations in the Tri-County area are primarily lower income individuals, living in a flood prone area, without the resources to take actions to protect themselves.

The impacts of floodwaters on critical facilities, such as police and fire stations, hospitals, and water or wastewater treatment facilities, can greatly increase the overall effect of a flood event on a community. In general, relatively few of these facilities are located in areas with a high risk to flooding. Discussions of critical facilities in each individual jurisdiction will be included later in the risk assessment section.

A number of factors contribute to the relative vulnerabilities of certain areas in the floodplain. Development, or the presence of people and property in the hazardous areas, is a critical factor in determining vulnerability to flooding. Additional factors that contribute to flood vulnerability range from specific characteristics of the floodplain to characteristics of the structures located within the floodplain.

The following is a brief discussion of some of these factors and how they may relate to the Tri-County area.

- **Flood depth:** The greater the depth of flooding, the higher the potential for significant damages.
- **Flood duration:** The longer duration of time that floodwaters are in contact with building components such as structural members, interior finishes, and mechanical equipment, the greater the potential for damage.



- **Velocity:** Flowing water exerts forces on the structural members of a building, increasing the likelihood of significant damage.
- **Elevation:** The lowest possible point where floodwaters may enter a structure is the most significant factor contributing to its vulnerability to damage due to flooding.
- **Construction Type:** Certain types of construction are more resistant to the effects of floodwaters than others. Typically masonry buildings, constructed of brick or concrete blocks, are the most resistant to damages simply because masonry materials can be in contact with limited depths of flooding without sustaining significant damage. Wood frame structures are more susceptible to damage because the construction materials used are easily damaged when inundated with water.





## Risk

### Critical Facility Risk

Essential facilities, including medical care facilities, emergency response facilities and schools, are those vital to emergency response and recovery following a disaster. School buildings are included in this category because of the key role they often play in sheltering people displaced from damaged homes. Generally there are very few of each type of essential facility in a census tract, making it easier to obtain site-specific information. Thus, damage and loss-of-function are evaluated on a building-by-building basis for this class of structures, even though the uncertainty in each such estimate is large<sup>9</sup>. Figure V-1 displays the spatial location of the mapped essential facilities as provided with the HAZUS software. Future versions of this plan can be enhanced, as illustrated in the mitigation actions, with Level 2 and 3 analyses.

Probabilistic scenarios for the 100-year flood event were completed to be able to assess the risk to essential facilities in each county. The 100-year recurrence interval results indicate two fire stations, one police station, and two schools can expect moderate damage.

In the 2004 version of this plan, critical facility information is included in the vulnerability section, which has since been reformatted and now included in the Jurisdictional Risk section Original 2004 HOI HMP sub-section. It is important to note that detailed information regarding structure type, value or depth of flooding for critical facilities was not available from any of the Tri-County jurisdictions.

HAZUS-MH Level 1 analysis involves using the provided data with no local data inputs, aside from the depth-grids. HAZUS-MH analysis is further discussed in 2010 HAZUS-MH MR4 methodology for jurisdictional risk.

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<sup>9</sup> Multi-hazard Loss Estimation Methodology HAZUS-MH MR4, Chapter 1: Introduction, 1-6



## Jurisdictional Risk

Several different methods were utilized to determine and compare flood risk for the TCRPC area. These are further discussed in the Jurisdictional Risk sub-section below. Analysis methods include:

1. Original 2004 Heart of Illinois Hazard Mitigation Plan
2. HAZUS-MH MR4 flood module: was completed by GIS staff for the 2010 update.
3. NCDC based annualized loss
4. 2007 State of Illinois Hazard Mitigation Plan

Table V-19 below compares the various loss estimates and methodologies used. The 2007 Illinois State Plan has the highest of the four loss estimates, with \$129.5 million in loss. The 2010 calculations were three times higher than the 2004 estimations. The NCDC storm database provided the lowest loss estimate of \$9,030 annually for the TCRPC.

Table V- 19: Loss estimate comparison for TCRPC area.

Plan	Loss Estimate	Methodology
2004 HOI HMP	\$5,874,748	Based on study are in Peoria County of 190 structures
2010 TCRPC UPDATE	\$ 16,460,000	HAZUS-MH MR4 riverine flood analysis
NCDC Annualized Loss	\$9,030	Total reported property damages divided by total number of years of record
2007 IL HMP	\$129,549,923	Based on number and value of structures in census tract x floodplain % of tract x 20% damaged



## Original 2004 HOI HMP

The following sub-sections describe the vulnerability and risk to flood damages in each jurisdiction that was part of the 2004 plan. The jurisdictions that joined the 2010 planning efforts are not included in this sub-section. Please refer to the 2010 HAZUS-MH MR4 section for those loss estimates.

Typically FIRM maps have only been available in hard copy maps and not in digital format. In recent years however, FEMA has developed Q3 flood maps which are digital versions of the FIRMs and can be incorporated into a GIS. Q3 flood data is available for Peoria County, City of Peoria, and the City of Pekin. Q3 data is not available for Tazewell and Woodford County. In these cases selected portions of the existing FIRMs were digitized to be incorporated into this study. Due to amount of effort required, the entire set of FIRMs for these counties was not digitized.

## METHODOLOGY

One way to analyze an area's potential vulnerability to flooding is to estimate the potential losses should an event occur. However, in order to perform a community-wide estimate, information regarding the number, type, elevation, value and use of the at-risk structures must be known. As stated previously, this data has not been compiled for any of the jurisdictions included in this study. Therefore, it is not possible to determine an accurate estimate of potential flood losses for the entire Tri-County area. However, using the data contained in the Peoria County Mitigation Plan, a representative estimate can be compiled. Since the Peoria area has not experienced a 100 year flood, according to historical records, the losses to this area from a potential 100-year flood were estimated. The description of the methodology and the results are provided below.

According to the Peoria County Mitigation Plan, there are **579** structures contained in the area along the Illinois River, between the northern boundary of the City of Peoria and the southern boundary of Chillicothe. However, not all of these structures have first floor elevations below the BFE. Of these structures, **271** were included after they were determined **to be at or below the BFE**, and associated flood depths. Although the hazard mitigation plan estimated 309 structures below the BFE, 271 were included in this estimate because potential flood depths were available for these structures. From the data included in the 2001 update of the plan, it was estimated that approximately 81 structures in this area of the County had been removed at the time of the 2004 Tri-County HMP, and therefore a total of **190 structures were included in this estimate**.

The average flood depth for these structures was calculated to be **3.8 feet in a 100-year flood event**. Using the potential depth of flooding, an estimate has been completed utilizing the Flood Insurance Administration's (FIA) previously determined



depth-damage functions. This function has been designed to anticipate damage to buildings and contents based on a percentage of the structure's value. Additionally, an estimate of the displacement costs for a typical structure has been calculated using a **45-day displacement time**, which had been estimated for a 100-year flood. The FIA depth damage functions are also based on the type of building being affected. For the purpose of this estimate, and based on community input, the typical structure type has been estimated to be **a one-story structure without a basement**, with an estimated value of **\$60,000**. Some of the residential structures in this area may have basements; however, because the damage levels are higher for these structures, they were not included in an attempt to be conservative. Using these assumptions, **a total damage per structure was estimated to be \$30,920, or 52% of the buildings value**. When applied to the 190 structures included the total damage for this area in a 100-year flood is estimated to be **\$5,874,748**. This estimate only includes potential damages to this selected area.

It should be noted that this estimate only includes approximations of structure and contents damage, as well as displacement costs. Costs associated with recovery operations such as emergency response, evacuations, and sandbagging have not been included. In addition, the potential damages to any commercial or industrial structures in this area would increase the estimate. Also, this estimate was only completed for a particular portion of Peoria County. However, given a similar depth of flooding, the percent damage could be assumed to be similar in other areas of the Tri-County flooding. If the anticipated depth was higher or lower, the percent damage would be adjusted accordingly.

The detailed calculations for this estimate are included in Section X.

As stated previously, the sections of the Tri-County area most susceptible to flooding are those directly adjacent to the Illinois River and its associated tributaries. FEMA, through the NFIP, has developed Flood Insurance Rate Maps (FIRMs) for Peoria, Tazewell, and Woodford Counties as well as the City of Peoria and the City of Pekin. These maps identify Special Flood Hazard Areas (SFHA), or flood zones through detailed hydraulic study. These flood zones represent the areas susceptible to the 1% annual chance flood, or 100-year flood, and the 0.2% annual chance flood, or 500-year flood. When possible, FEMA will also determine a Base Flood Elevation (BFE) for the 100-year floodplain, which is the estimated elevation of flooding during this event. The BFE is commonly used as a standard level for determining flood risk, and managing potential floodplain development. Although each specific flood event is different, these SFHAs provide a more definitive representation of the highest flood risks in the community. The specific flood zones in each of the jurisdictions are described in the following sub-sections.



## Peoria County

Peoria County has an extremely proactive history in regards to floodplain management as well as identifying and prioritizing potential vulnerable areas. In 1985, the County completed a Hazard Mitigation Plan which addressed historic flooding and recommended potential measures to address these vulnerabilities. This plan, which was updated in 2001, focused on the area along the Illinois River beginning at the City of Peoria corporate limits on the south, and stretching to the southern border of Chillicothe on the north, and did not address flooding in other areas of the County. This area included 579 properties, with 309 structures having first floor elevations below the BFE. Virtually all of the structures in this area are residential. Most are wood-framed without a basement, and built prior to the adoption of the floodplain ordinance. During the completion of this plan, actual building surveys were conducted on all of these properties to identify the first floor elevation in regards to the BFE in order to estimate a potential flood depth in the case of a 100-year event. Based on this information, specific mitigation measures were recommended, and subsequently approximately 81 structures in this area have been acquired and destroyed. However, due to the density of the development, and the number of structures below the BFE, a significant risk of flooding still exists in this area. According to Peoria County records, approximately 190 structures still remain in this area with a first floor elevation average of over 3 feet below the 100-year floodplain.

The Kickapoo Creek watershed is a particularly flood prone area of Peoria County. A Hazard Mitigation Plan was also developed for this area of the county in 1997. This area is primarily a commercial and industrial area with approximately 60 structures in the floodplain. According to the Kickapoo Hazard Mitigation Plan, nearly 44% of these structures are actually located in the regulatory floodway. This area has experienced at least 13 significant flooding events, although a 100-year flood has not been recorded. Potential mitigation measures were also identified for this area as part of the mitigation planning effort. Some properties have been acquired in this area, but structures still remain in the regulatory floodway, as well as the 100-year floodplain.

A third area of Peoria County that is significantly vulnerable to flooding damage is also along the Illinois River, between the southern limit of the City of Peoria, and the southern border of Peoria County. This section is primarily an industrial area, with some commercial and residential uses as well. Flood damages in this area have historically been less than those in other parts of the County, but considering that a 100-year flood event has not occurred, significant damages are possible in the higher flood events. Portions of this area are protected by an uncertified levee, although not to the 100-year flood level.

There are 234 repetitive loss properties in Peoria County. A majority of these properties are located in the northern portion of the County along the Illinois River, and in the Kickapoo Valley. However, other repetitive loss properties are located throughout the County. The specific locations of these properties are available in Section X. It should be noted that although some of these properties may appear to be located outside the



floodplain; this is due to limitations in the accuracy and completeness of the digital floodplain data. In addition, Peoria County does have a GIS based database showing the locations of all structures located within the County, although no detailed information such as type or elevation of these structures is available. However, calculations that 1,323 structures are located in the floodplain in Peoria County; although 291 of those are located within the City of Peoria.

A majority of the critical facilities located in Peoria County are not located in the floodplain. However, there are a number of industrial facilities and manufacturing plants located in the floodplain, particularly in the southern portion of the County along the Illinois River. If these facilities were to be affected by a significant flood event, the impacts to the community could be extensive in terms of secondary and economic impacts.

Peoria County has a significant amount of floodplain both along the Illinois River and along a number of smaller tributaries throughout the County. The floodplain along the Illinois River is separated naturally by the City of Peoria, and BFEs range from 460 (NGVD 29) in the northern portion of the County to 455 (NGVD 29) in the southern portions of the County. The width of the floodplain along the river varies depending on the topography of the riverfront area. Major tributaries in Peoria County include Kickapoo Creek and Dry Run Creek primarily in the central portion of the County and Spoon River in the northwest portion of the County. In addition to these major tributaries, there are numerous smaller tributaries throughout the County. Q3 flood data is available for the City of Peoria and is displayed in Section X.



## Tazewell County

A majority of the floodplain in Tazewell County is located along the Illinois River, with most of the development inside the incorporated areas. The portions along the Illinois River in the unincorporated areas of Tazewell County, are primarily of agricultural or conservation land use, with small areas of industrial use as well. Currently there is no data available regarding the number of these structures, or the first floor elevations in relation to the BFE. Tazewell County has 29 repetitive loss properties. The locations of these properties are displayed in Section X. It should be noted that although some of these properties may appear to be located outside the floodplain; this is due to limitations in the accuracy and completeness of the digital floodplain data. While none of these properties are located along the Illinois River, it does not mean that flood damages have not occurred in this area, or that the properties are not vulnerable to flooding. The fact that there has not been a 100-year flood on the Illinois River, and that a significant portion of the southern part of the County is protected by a levee that has not been tested under a significant flood event, increases the vulnerability in this area to high flood events.

An area of Tazewell County that has received significant flooding is located along Route 29, south of the City of Pekin, along the south bank of the Mackinaw River. This residential area, near the Green Valley community, is where all 28 of the County's repetitive loss properties are located. These developments, as well as other communities along the banks of the Mackinaw River, are highly vulnerable to flood damages.

A majority of the critical facilities in the unincorporated portions Tazewell County are not located in the 100-year floodplain. However, as previously discussed there are two industrial areas, both north and south of the City of Pekin, in the 100-year floodplain along the Illinois River. These areas contain facilities where secondary impacts, such as chemical spills, could be significant if they were to be impacted by floodwaters.

Most of the floodplain contained in Tazewell County is located along the Illinois River both north and south of the City of Pekin, although a majority of the area south of the City of Pekin is protected by a levee. The BFEs along the Illinois River in Tazewell County range from 458 (NGVD 29) in the northern part of the county to 455 (NGVD 29) in the southern part of the County. In addition to the Illinois River, there are numerous smaller tributaries in Tazewell County including the Mackinaw River, Farm Creek, and the Spring Lake Canal. Q3 flood data is not available for Tazewell County. However, the FIRM containing the portion of the floodplain directly adjacent to the Illinois River and along the Mackinaw River was digitized for use in this analysis and is included in Section X.



## Woodford County

Virtually all of Woodford County's developed floodplain is located along the Illinois River; which is either of residential or agricultural land use. The highest concentration of development in this area is located along Spring Beach Road in Spring Bay Township. This residential area is comprised primarily of single family



*Source: Village of Roanoke, Woodford County, IL. March 2009 Flooding on Illinois River*

residences, with some mobile home parks as well.

Historically, these properties experience frequent flooding and virtually all of the county's 52 repetitive loss properties are located in this neighborhood. Although not as densely populated, there are vulnerable residential structures along the Illinois River between the Village of Spring Bay and the northern border of Woodford County. The relative vulnerability of these structures depends on site specific factors such as first floor elevation and construction type.

In addition to this area along the Illinois River, there is a significant amount of floodplain along the Mackinaw River. However, this area is primarily agricultural, and residential development is sparse. There may be isolated structures in this area that are vulnerable to flooding in a significant event. Along the Mackinaw River, as well as other smaller tributaries throughout the County, there is a potential for damages to bridges and roadways due to either significant riverine floods, or flash floods that locally exceed the capacity of the channel.

Virtually all of the critical facilities located in Woodford County are located outside the 100-year floodplain. The floodplain area in Woodford County is almost entirely residential, with only a few commercial structures.

In relation to the size of Woodford County, the amount of floodplain contained in the county is small. The largest portion of the floodplain in the county is along the Illinois River, particularly in Spring Bay Township and Partridge Township. The BFE for the entire area along the Illinois River in Woodford County is 460 (NGVD 29). In Spring Bay





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Township, this area primarily encompasses the section along Spring Beach Road. In Partridge Township, this area is directly adjacent to the Illinois River and along Snag Creek, Dry Creek, Richmond Creek, and Partridge Creek. There is also additional floodplain along other small rivers and creeks in the western portion of the County, including the Mackinaw River and Panther Creek. Q3 flood data is not available for Woodford County. However, the portion of the floodplain directly adjacent to the Illinois River was digitized for use in this analysis and is included in Section X.



## City of Peoria

The City of Peoria has a significantly higher density of development than the three counties mentioned above. As stated previously, there are 291 structures located in the floodplain in the City of Peoria, and a majority of these structures are located along the Illinois River, Dry Run Creek and Kickapoo Creek. The same location pattern holds true for the City's 37 repetitive loss properties. The area along the riverfront in the City of Peoria is a combination of commercial, industrial, and residential use. Many of these structures were built prior to the adoption of the floodplain ordinance, and thus there were no provisions for these structures to be built above the BFE. However, the City is focusing a large portion of its redevelopment on the riverfront area. In accordance with the adopted floodplain ordinance, any new structures, or those which improvements are made totaling more than 50% of the buildings assessed value, must be elevated above the 100-year floodplain. These provisions will decrease the vulnerability of these structures to flooding impacts. However, any development in a hazard prone area increases the area's vulnerability overall.

The areas along Dry Run Creek, and other streams throughout the City, are mainly residential areas, with some commercial development and conservation land as well. The structures in these areas are primarily wood framed, single family dwellings, although some multi-family structures are present as well.

The majority of critical facilities located in the City of Peoria are located outside the 100-year floodplain. However, as in Peoria County, there are a number of industrial facilities and manufacturing plants located in the floodplain. There has also been significant commercial development within the floodplain in recent years. Table V-20 summarizes the facilities located within the 100-year floodplain.

In addition to the critical facilities provided by HAZUS, a list of all the city-owned facilities located in the floodplain has been compiled. It should be noted that these have been located by geocoded address and compared with digital Q3 flood data. These methods are not accurate to definitively determine if a structure is indeed located in the 100-year floodplain, therefore the list provided is for planning purposes only. The following table includes all the city-owned facilities that have been identified as in the floodplain using the methods described above. All of these structures are located along the Illinois River and in the southeastern portion of the City, with a majority located on Water Street. For some structures, the date built, square footage, and responsible City department are included where available. The relative vulnerability of these structures will depend on the factors described above, such as elevation, construction type, and use.

A majority of the floodplain in the City of Peoria is along the Illinois River, with BFEs ranging from 460 (NGVD 29) at the northern edge of the City to 459 (NGVD 29) at the southern edge. In general, the landward edge of the floodplain along the Illinois River lies approximately at the edge of the Chicago Rock Island and Pacific Railroad, with all areas of the City east of the railroad included in the 100-year floodplain. The City's



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FIRMs also identify floodplain locations along Dry Run Creek, the Eastern Branch of Dry Run Creek, Big Hollow Creek, and along the small portion of Kickapoo Creek that passes through the southeastern corner of the City. The floodplain area along these creeks is generally narrow and the BFEs for these areas vary depending on local elevation. Q3 flood data is available for the City of Peoria and is displayed in Section X.

Table V- 20: City of Peoria Owned Facilities in the 100-Year Floodplain\*

Facility	Address	City Dept.	Sq. Feet	Yr. Built
River Station	212 SW Water St		19,793	
Fire Marine Station - RFP	102 SW WATER	Fire Department	1,800	2002
Parking Lot - RF Village	100 SW WATER	Public Works		
Parking Lot - Cat/City of Peoria	HAMILTON @ WATER ST			2002
Parking Lot - River Station	212 SW WATER	Public Works		2002
Liberty Park – RFP	300 SW Water St	Public Works	260,000	
Old Town North	301 SW WATER			
Riverfront Landing	100 NE Water St	Public Works		
Riverfront Marina (South)	112 SW Water St	Public Works		1998
Riverfront Festival Park (phase I)	200 NE Water St (A)	Public Works		
Riverfront (Future Restaurant)	210 NE Water St			
Edgewater Building & Lot	420 SW Water St		87,500	
Michel Bridge Monument Park	432 SW Water St	Public Works		
Parking Lot - Riverfront East Lot	500 SW Water St	Public Works		
Parking Lot - Riverfront West Lot	501 SW Water St	Public Works		
Riverfront Village	100 SW Water St	Public Works	100,000	2000
Riverfront - Future Restaurant	202 SW Water St			
Riverfront Marina (North)	116 NE Water St	Public Works		1999
Riverfront Visitor's Center	100 NE Water St	Public Works		1998
(Powell Press Building)	100 NE Water St			
Riverfront Gateway Bldg (Phase II)	200 NE Water St (B)	Public Works	8,260	1997

\*According to Q3 data. Actual location may be outside floodplain.



## City of Pekin

Since the majority of the City of Pekin is at a higher elevation than the surrounding area, it is generally less vulnerable to riverine flooding than the other jurisdictions included in this study. However, the City does have a mix of industrial and residential uses along the Illinois River that are susceptible to flooding, and have received some damages in the past. The City has 67 repetitive loss properties that are somewhat scattered, but generally north of the downtown area along the Illinois River. It should be noted that although some of these properties may appear to be located outside the floodplain; this is due to limitations in the accuracy and completeness of the digital floodplain data. In addition, the City's Wastewater Treatment Plant is located along the Illinois River, and has sustained flood damages in the past. Flood damages to this facility could cause a disruption of the treatment process, which could cause significant impacts to the water quality of the Illinois River.

Other than riverine flooding, the City of Pekin has experienced damages due to flooding following heavy rain events. In general, this flooding occurs because the runoff generated from an intense rainfall exceeds the capacity of the drainage infrastructure. This problem is exaggerated because the flat topography throughout the City allows for only a minimal slope for outlets and drainpipes, and by the fact that the City of Pekin is served by a combined sewer system.

A majority of the critical facilities in the City of Pekin are located outside the floodplain. Virtually all of the floodplain in the City of Pekin is located along the Illinois River. BFE elevations for this portion of the City range from 459 (NGVD 29) to 458 (NGVD 29). In general, the City of Pekin is located atop a bluff and at a significantly higher elevation than that of the Illinois River, reducing the risk of riverine flooding in the City. There is also a minimum amount of floodplain located along Lick Creek in the northwestern portion of the City. Q3 flood data is available for the City of Pekin and is displayed in Section X.



## 2010 HAZUS-MH MR4

### METHODOLOGY

HAZUS-MH MR4 is a regional multi-hazard loss estimation model that was developed by the Federal Emergency Management Agency and the National Institute of Building Sciences. The primary purpose of HAZUS is to provide methodology and software application to develop multi-hazard losses at a regional scale. The loss estimates are used primarily by local, state and regional officials to plan and stimulate efforts to reduce risk from multi-hazards and prepare for emergency response and recovery<sup>10</sup>.

Potential loss estimates analyzed in HAZUS-MH include:

- Physical damage to residential and commercial buildings, schools, essential facilities, and infrastructure
- Economic loss including lost jobs, business interruptions, repair and reconstruction costs.

The HAZUS Flood Model analyzes both riverine and coastal flood hazards. Flood hazard is defined by a relationship between depth of flooding and the annual chance of inundation to that depth. Probabilistic events were mainly modeled in this revision to be able to determine annualized loss for each of the counties in Tri-County RPC. Probabilistic events are modeled by looking at the damage caused by an event that is likely to occur over a given period of time, known as a return period or recurrence interval. Hazard analysis of the 100-year return interval was performed in order to assess risk to essential facilities.

Depth, duration and velocity of water in the floodplain are the primary factors contributing to flood losses. Other hazards associated with flooding that contribute to flood losses include channel erosion and migration, sediment deposition, bridge scour and the impact of flood-born debris. The HAZUS Flood Model allows users to estimate flood losses due to flood velocity to the general building stock (GBS). The agricultural component will allow the user to estimate a range of losses to account for flood duration. The flood model does not estimate the losses due to high velocity flash floods at this time<sup>1</sup>. Building stock exposure is discussed in detail in the HAZUS-MH MR4 building stock portion of the HIRA.

The flood analysis for the HIRA was completed using the FEMA HAZUS – MH MR4 software for riverine flood hazards. Flood hazard is defined by a relationship between

<sup>10</sup> HAZUS-MH MR4 Flood User Manual



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depth of flooding and the annual chance of inundation to that depth. This assessment has been completed for a Level 1 analysis with user-provided depth grids that were generated from the FEMA Digital Flood Insurance Rate Maps (DFIRM) and Q3 data.

Loss estimation for this HAZUS module is based on specific input data. The first type of data includes square footage of buildings for specified types or population. The second type of data includes information on the local economy that is used in estimating losses. Table V-21 displays the economic loss categories used to calculate annualized losses by HAZUS. Data for this analysis has been provided at the census block level.

Table V- 21: HAZUS direct economic loss categories and descriptions.

<b>Category Name</b>	<b>Description of Data Input into Model</b>	<b>HAZUS Output</b>
Building	Cost per sq ft to repair damage by structural type and occupancy for each level of damage	Cost of building repair or replacement of damaged and destroyed buildings
Contents	Replacement value by occupancy	Cost of damage to building contents
Inventory	Annual gross sales in \$ per sq ft	Loss of building inventory as contents related to business activities
Relocation	Rental costs per month per sq ft by occupancy	Relocation expenses (for businesses and institutions)
Income	Income in \$ per sq ft per month by occupancy	Capital-related incomes losses as a measure of the loss of productivity, services, or sales
Rental	Rental costs per month per sq ft by occupancy	Loss of rental income to building owners
Wage	Wages in \$ per sq ft per month by occupancy	Employee wage loss as described in income loss

Annualized loss is one way to determine the maximum potential annual loss. This is useful for creating a common denominator by which different types of hazards can be compared. Annualized losses are the summation of losses over all return periods multiplied by the probability of occurrence.

The flood model incorporates National Flood Insurance Program (NFIP) entry dates to distinguish Pre-FIRM and Post-FIRM census blocks. The results provided in this report show the combined total losses for the pre- and post-FIRM census blocks.

The probabilistic HAZUS-MH flood analysis predicts that the Tri-County RPC can expect, annually, \$16,460,000 in damages due to flood events, which represents 13.49% of the total replacement value of the total building stock. Property or “capital stock” losses make up about \$16,360,000 of the damages. This includes the values for building, content, and inventory. Business interruption accounts for 1% of the annualized losses and includes income, rental, wage, and relocation costs. Residential losses made up 48.2% of the total loss.



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Table V-22 illustrates the expected annualized losses for residential buildings broken down by county. Tazewell County has the highest annualized loss, \$74,758 accounting for 57 percent of the total annualized residential losses for Tri-County and 1% of the county's residential building stock. Peoria and Woodford counties have comparable losses, accounting for 23% and 21% of the total annualized loss, respectively. The majority of the expected damages can be attributed to building and content value.

Residential Building value loss accounts for approximately 64% of the expected annualized damages and 36 percent is attributed to content value loss. Table V-22 summarizes the property losses and business interruption losses shown for pre- and post-FIRM residential structures broken down by jurisdiction. The town loss estimates are a sub-set of the county totals and have been pulled out for comparison purposes only. Total annualized loss tables are not currently available with the plan update due to limitations of the TCRPC HAZUS-MH MR4 runs; summary results were available to determine total annualized loss for the study area.

Table V- 22: County based Pre- and Post-FIRM HAZUS annualized loss for Residential Buildings.

County	Building	Content	Inventory	Relocation	Income	Rental	Wage	Annualized Loss
Peoria County	\$19,757	\$10,371	\$0	\$14	\$1	\$3	\$2	\$30,153
City of Chillicothe								\$285
Village of Peoria Heights								N/A
City of Peoria								\$4,371
Tazewell County	\$48,321	\$26,301	\$0	\$87	\$3	\$21	\$10	\$74,758
City of Pekin								\$148
City of East Peoria								\$8,084
City of Washington								\$1,482
Woodford County	\$16,579	\$10,538	\$0	\$21	\$4	\$3	\$12	\$27,157
Village of Roanoke								\$634
<b>Total</b>	<b>\$84,657</b>	<b>\$47,210</b>	<b>\$0</b>	<b>\$122</b>	<b>\$8</b>	<b>\$27</b>	<b>\$24</b>	<b>\$132,068</b>

*All values are in thousands of dollars*

HAZUS predicts that 593 buildings will be damaged from flooding. Residential occupancy accounts for the majority of the damages, followed by commercial damages. Tables V-23 and V-24 summarize the number of buildings damaged by occupancy and building type. Wood buildings account for 445 of the damaged buildings, or 75 percent of the total building type estimates. Manufactured homes only account for 7.4 percent of damaged buildings but have the highest percentage of severe damages. Occupancy results indicate that 97 percent of residential homes damaged will be at least moderately damaged. It is important to note that the slight differences in damage



estimates for building type and occupancy can be attributed to the HAZUS classification methodology.

HAZUS-MH MR4 also estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. HAZUS also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 1,227 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 2,468 people (out of a total population of 212,705) will seek temporary shelter in public shelters.

Table V- 23: Expected Building Damage by Occupancy Type

Occupancy Type	Minimal		Moderate		Severe	
	count	%	count	%	count	%
Agriculture	0	0	0	0	0	0
Commercial	2	50	2	50	0	0
Education	0	0	0	0	0	0
Government	0	0	0	0	0	0
Industrial	0	0	0	0	0	0
Religion	0	0	0	0	0	0
Residential	17	2.89	182	30.9	390	66.21
<b>Total</b>	<b>19</b>		<b>184</b>		<b>390</b>	

Table V- 24: Expected Building Damage by Building Type

Building Type	Minimal		Moderate		Severe	
	count	%	count	%	count	%
Concrete	0	0	1	100	0	0
Manuf. Housing	0	0	0	0	44	100
Masonry	3	2.97	31	30.69	67	66.33
Steel	0	0	1	100	0	0
Wood	15	3.37	152	34.16	278	62.47





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Figures V-4 through V-7 show the total annualized loss for the Tri-County area and individual counties. Appendix X includes the DFIRM and Q3 maps that were included in the 2004 plan. As seen on the figures, there are several areas within cities that have limited loss estimates calculated. This may be a result of several conditions; the default ten square miles of drainage area may be too large of a threshold to define streams with HAZUS and results in no stream networks being created for those areas or, limited HAZUS knowledge and experience by the TCRPC to trouble shoot areas that resulted in no loss estimates. Future versions of this plan and mitigation actions may want to investigate using a smaller drainage threshold for analysis; for example, one square mile drainage would be comparable to the FEMA DFIRM maps.

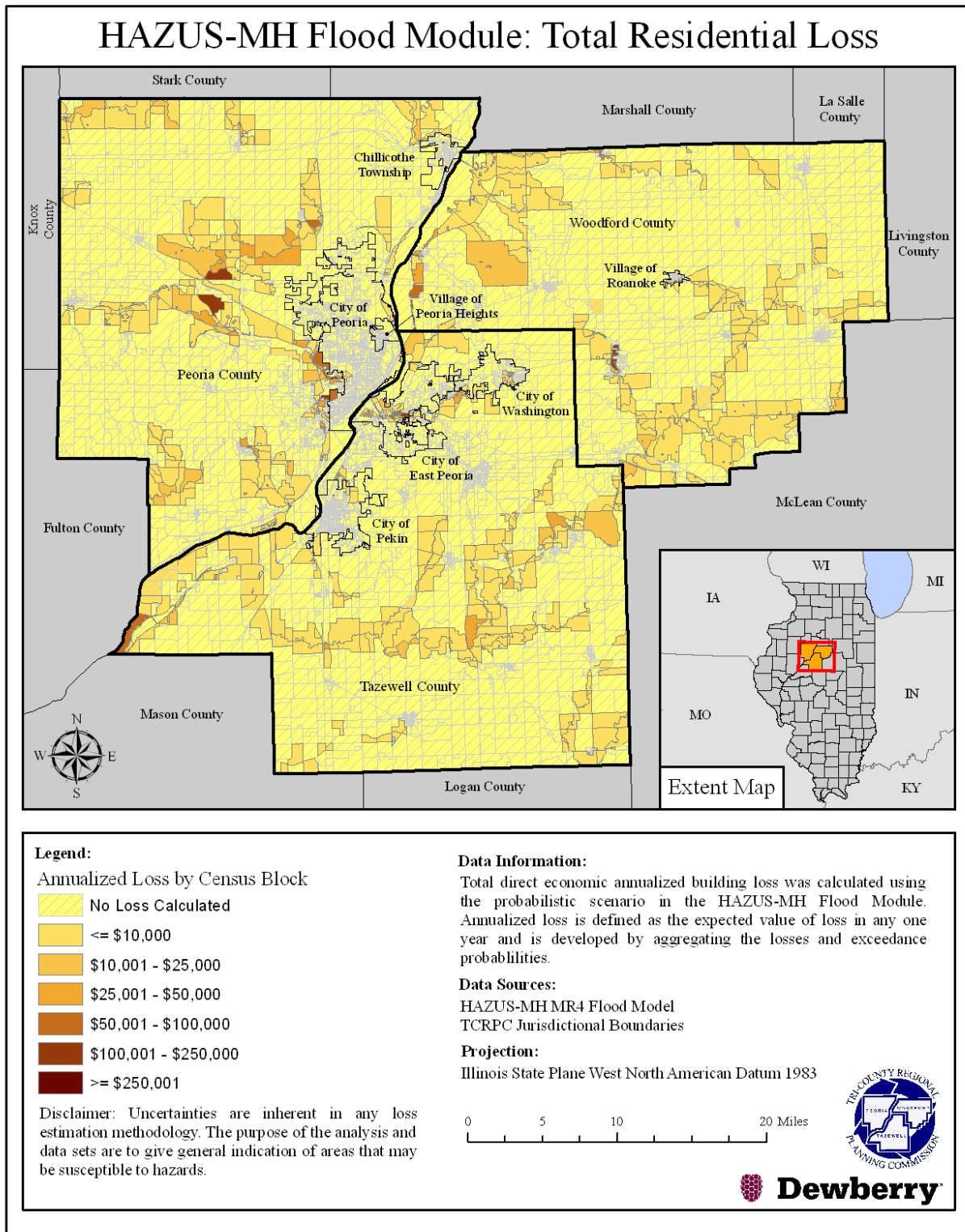


Figure V- 4: Total Residential Annualized Loss for Tri-County Area.

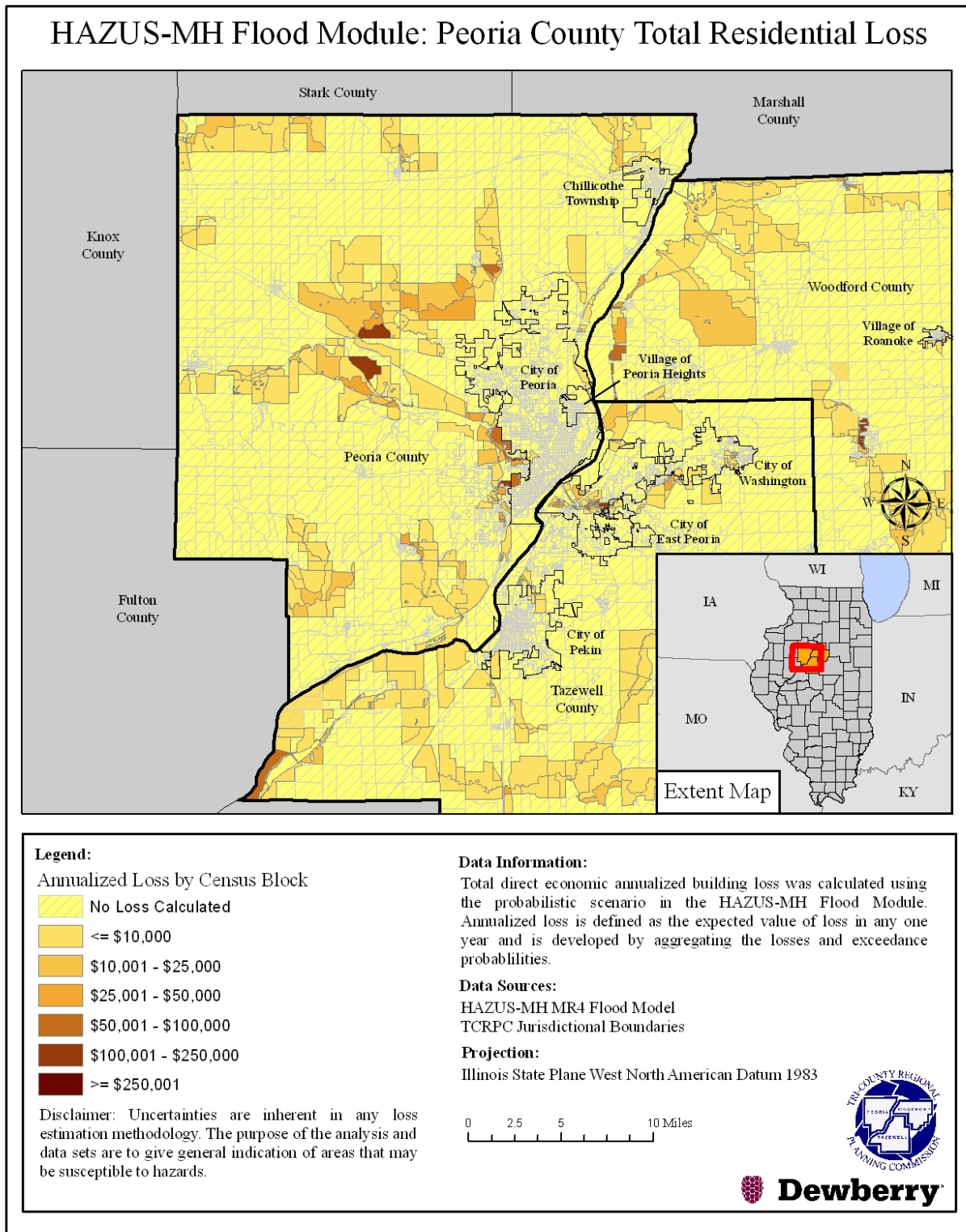


Figure V- 5: Total Residential Annualized Loss for Peoria County and included jurisdictions.

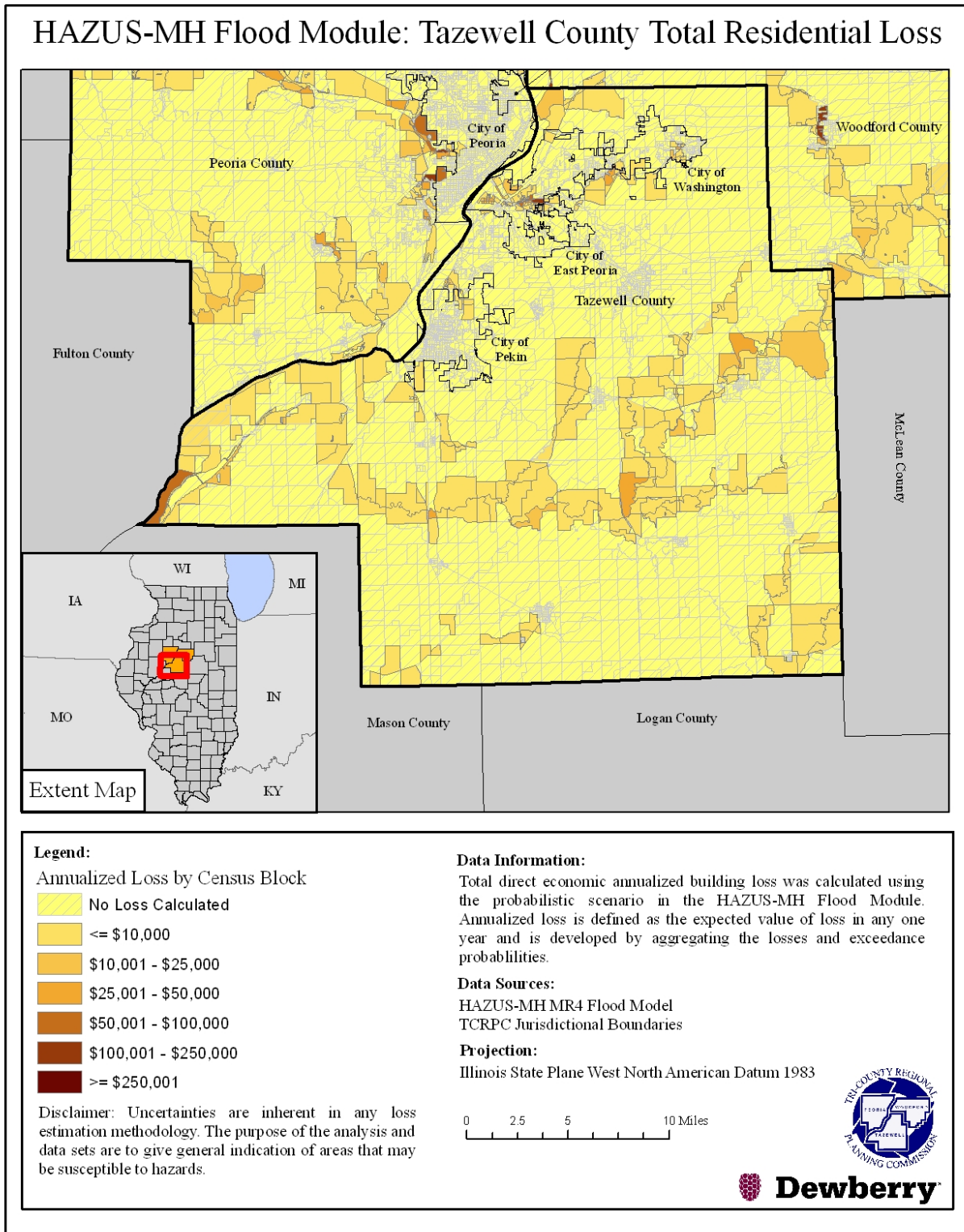


Figure V- 6: Total Residential Annualized Loss for Tazewell County and included jurisdictions.

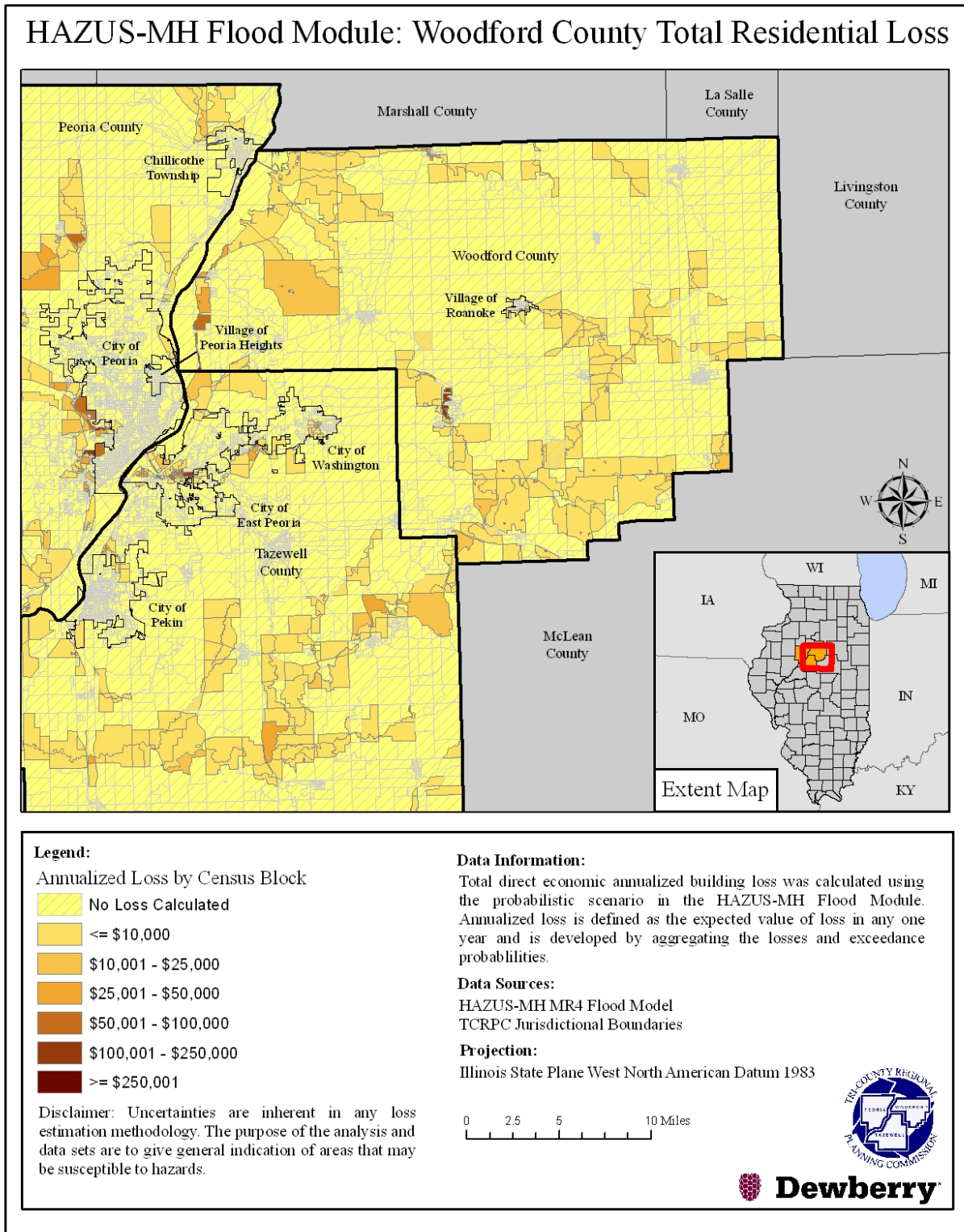


Figure V- 7: Total Residential Annualized Loss for Woodford County and included jurisdictions.



## Severe Storms and Tornadoes – High Hazard Ranking

### *2007 Illinois State Hazard Mitigation Plan Ranking for Severe Storms*

Peoria County – Severe

Tazewell County – Severe

Woodford County – High

### *2007 Illinois State Hazard Mitigation Plan Ranking for Tornado*

Peoria County – Elevated

Tazewell County – High

Woodford County – Elevated

#### *Description*

Severe thunderstorms are distinguished by stronger winds and heavier rain than the normal thunderstorm. These severe storms have the potential to produce damaging hail, spawn tornadoes, and initiate flash flooding. One of the most common hazards, severe thunderstorms can occur throughout the year although historical records indicate that the majority occur between April and October. These records also indicate that Tri-County area has endured



Supercell July 13, 2004: F4 Tornado Roanoke, IL

*Source: National Weather Service*

damaging hail storms on a regular basis since 1957, with several storms producing hailstones up to 2.75 inches in diameter. In 2002 alone, 7 separate hail storms were recorded. However, although frequent in occurrence the risk due to hail is relatively low compared to the other effects associated with severe thunderstorms. Therefore, the impacts of severe thunderstorms are primarily flood and wind related and these impacts will be included with the separate flood and wind sections later in this study.

The Tri-County area has a significant history of high wind events, including both straight line winds and tornadoes. Based on tornado data from 1950 to 1994, the State of Illinois



ranked 7th nationally in highest number of tornadoes, 8th in total dollar damages and 9th in the number of injuries (High Plains Regional Climatic Center). Historic records and documents compiled as part of this study indicate over 85 specific high wind events have occurred in the Tri-County area since 1933, including reports of 107 tornadoes.

Tornadoes are most frequent in the Midwest and Southeast. The usual tornado season runs March through August; however a tornado can occur in any month. Tremendous destruction can occur in paths over a mile wide and 50 miles long with winds reaching 300 mph. In the United States, tornadoes have been classified on the Fujita Scale, assigning numeric scores from zero to five (or higher) based on the severity of observed damages. The traditional Fujita scale, introduced in 1971, was used to rate the intensity of tornadoes thereafter, and was also applied to previously documented tornadoes (Table V-25). Starting in February of 2007, an “enhanced” Fujita scale was implemented, with somewhat lower wind speeds at the higher F-numbers, and more thoroughly-refined structural damage indicator definitions. Table V-26 shows the differences between the old and new tornado intensity scales.

Wind can be one of the most destructive forces of nature. Strong winds can erode mountains and shorelines, and topple trees and buildings. Damaging wind events in the Tri-County area typically occur in the form of tornadoes, straight line wind events, and severe thunderstorms. Depending on the type of wind event, the damage sustained can range from extremely localized to widespread and from moderate to devastating. The potential impacts of a severe wind event in the Tri-County area depend on the specific characteristics but can include broken tree branches and uprooted trees; snapped power, cable, and telephone lines; damaged radio, television, and communication towers; damaged and torn off roofs; blown out walls and garage doors; overturned vehicles; totally destroyed homes and businesses; and serious injury and loss of life. Downed trees and power lines can fall across roadways and block key access routes, as well as cause extended power outages to portions of the Tri-County area.

Table V- 25: Original Fujita Scale (F Scale) classifications<sup>11</sup>

F #	Est. Wind (mph)	Typical Damage
F0	< 73	Light: chimneys damaged, shallow-rooted trees pushed over
F1	73-112	Moderate: mobile homes pushed off foundations, cars blown
F2	113-157	Considerable: mobile homes demolished, trees uprooted, roofs torn off frame houses
F3	158-206	Severe: roof and walls torn down, trains overturned, cars

<sup>11</sup> Adapted from <http://www.spc.noaa.gov/faq/tornado/f-scale.html>



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F #	Est. Wind (mph)	Typical Damage
		thrown
F4	207-260	Devastating: well-constructed walls leveled, large objects thrown
F5	261-318	Incredible: homes lifted and carried, cars thrown 300 ft, trees de-barked

Table V- 26: Operational EF scale classifications in relation to original F Scale<sup>12</sup>

Fujita Scale			Derived EF		Operational EF Scale	
F #	Fastest ¼ mile (mph)	3 Second Gust (mph)	EF #	3 Second Gust (mph)	EF #	3 Second Gust (mph)
0	40-72	45-78	0	65-85	0	65-85
1	73-112	79-117	1	86-109	1	86-110
2	113-157	118-161	2	110-137	2	111-135
3	158-207	162-209	3	138-167	3	136-165
4	208-260	210-261	4	168-199	4	166-200
5	261-318	262-317	5	200-234	5	Over 200

Buildings must be designed to withstand both external and internal wind pressures on the structural framing and exterior elements. The level to which these structures are designed, as expected, directly correlates with its ability to resist damages due to high winds. The community's building code dictates to what design wind speed a structure must be designed to. Currently, Peoria County, Tazewell County, and Woodford County do not have an adopted building code. Therefore there are no current standards for the wind resistant design in these areas. The Cities of Peoria and Pekin do have an adopted building code, as well as many of the other incorporated areas throughout the Tri-County area. For some building types, those structures constructed in these areas subsequent to the adoption of the building code are the most likely to be the most resistant to damages from wind. However, no comprehensive data on the date built for these structures exists for the Tri-County area. The HAZUS-MH MR4

<sup>12</sup> <http://www.spc.noaa.gov/faq/tornado/ef-scale.html>, <http://www.spc.noaa.gov/faq/tornado/ef-ttu.pdf>





building stock sub-section provides information on the building stock for the planning area.

The type of building construction will have a significant impact on potential damages from high wind events. A summary of basic building types – listed in order of decreasing vulnerability (from most to least vulnerable) – is provided below.

**Manufactured:** This building type includes manufactured buildings that are produced in large numbers of identical or smaller units. These structures typically include light metal structures or mobile homes.

**Non-Engineered Wood:** Wood buildings that have not been specifically engineered during design. These structures may include single and multi-family residences, some one or two story apartment units, and small commercial buildings.

**Non-Engineered Masonry:** Masonry buildings that have not been specifically engineered during design. These structures may include single and multi-family residences, some one or two story apartment units, and some small commercial buildings.

**Lightly Engineered:** Structures of this type may combine masonry, light steel framing, open-web steel joists, wood framing, and wood rafters. Some portions of these buildings have been engineered attention while others have not. Examples of these structures include motels, commercial, and light industrial buildings.

**Fully Engineered:** These buildings typically have been designed for a specific location and have been fully engineered during design. Examples include high-rise office buildings, hotels, hospitals, and most public buildings.

The Tri-County area includes a variety of building types. Primarily residential construction is wood framed, varying from single story to multiple stories, although some masonry residential properties are present as well. As mentioned in the list above, manufactured and non-engineered wood framed structures are the most susceptible to potential damage. With these types of construction being the most prevalent for residential properties in the Tri-County area, a majority of residential structures in the area could be classified to have a high level of vulnerability to wind events.

Other types of structures that are vulnerable to damages during high wind events, and are found throughout the Tri-County area, are metal framed buildings usually associated with light industrial building uses as well as agricultural buildings. Because these structures are unoccupied for a majority of the day, the potential losses for these structures may be lower than those of residential buildings. However, the high numbers of employees present in some industrial buildings during working hours can increase the potential for losses during a tornado or high wind event. Agricultural buildings, such



as barns and silos, are not typically designed to be resistant to the forces of high winds. Although the potential for human losses in these structures may be lower, the potential for high amounts of damages are significant.

Other building related factors include height, shape, and the integrity of the building envelope. Taller buildings and those with complex shapes and complicated roofs are subject to higher wind pressures than those with simple configurations. The building envelope is composed of exterior building components and cladding elements including doors and windows, exterior siding, roof coverings, and roof sheathing. Any failure or breach of the building envelope can lead to increased pressures on the interior of the structure, further damage to contents and framing, and possible collapse.

### *Hazard History*

High straight line winds can occur at any time throughout the year, and can be accompanied by a variety of weather conditions. These events have often been accompanied by strong thunderstorms, but not always. Based on Tri-County area historic records, it is not uncommon to have sustained winds between 30 and 50 mph during these events with gusts between 50 and 70 mph. On July 5, 1953, an afternoon storm produced wind gusts to 96 mph and sustained 65 mph winds for five minutes resulting in major damage around the area. Typically, damage for the Tri-County area associated with these hazards includes: broken branches, uprooted trees, roofs blown off, walls blown down, small structures leveled, and in extreme cases, boats and planes being flipped over.

The majority of tornadoes that hit the Tri-County area are F0, F1, or F2, and historical records indicate that 25 of these tornadoes have touched down since 1990. There have also been several recorded F3 tornadoes, and one F4 tornado since 1956. The estimated damage values are not directly proportional to the strength of the tornado; instead, they vary greatly depending on where the tornado touches down, and how long it stays on the ground. For example, the F3 tornado that hit Tazewell County on August 13, 1956, only caused an estimated \$25,000 of damage, while the May 14, 1961 F3 tornado in Peoria and Woodford Counties caused an estimated \$2,500,000 of damage. An F1 tornado that struck Tazewell County on June 19, 1990 also caused an estimated \$2,500,000 of damage. On September 14th, 1966 a F3 tornado moved through the City of Peoria. This event was unique because of its high intensity and its location in a highly developed area. This tornado completely destroyed a number of buildings including a school and a manufacturing plant, affected 144 homes, and injured 28 people.

The Central Illinois tornado outbreak of May 4-10, 2003 was one of the worst on record. In Tazewell County, over 80 homes were destroyed and 30 to 40 more were damaged. A long tornado track was found in Tazewell County. This tornado was on the ground for 19 miles and reached a maximum intensity on the Fujita Scale of F3 (200 mph) with a maximum width of ¼ mile in the City of South Pekin. A second tornado then developed



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3 miles north of Morton around 10:16 pm. It was on the ground for 1 mile and lifted and dissipated 4 miles north northeast of Morton (in Tazewell County). Nine people were killed in South Pekin and two more lost their lives in Morton.

As for Woodford County, authorities reported much of the tornado damage around the Town of Eureka. Over 8,000 persons in Tazewell and Woodford Counties were without power. FEMA approved more than \$4.5 million for disaster assistance for Illinois residents for damage incurred during the May 4-10, 2003 time period. The Individual Assistance and Households Program approved 31 applications in Tazewell County for a total of \$291,128.18 and in Woodford County for a total of \$5,074.96.

On July 13, 2004 a tornado with a reported width of a quarter mile struck west of the village of Roanoke, damaging much of the area and cutting power to the main town of Roanoke for three days. The tornado was later rated as an F4 on the Fujita scale. The tornado started approximately one mile north of Metamora, located eight miles west of Roanoke, and lifted



F4 Tornado hitting Parson Plant July 13, 2004

*Source: Scott Smith, NWS.*

approximately one mile south of Roanoke. This was a distance of 9.6 miles making it a long-lived tornado. The worst damage was the destruction of the Parsons Company manufacturing plant, a parts supplier for Caterpillar Inc., which was completely leveled. Although over one hundred people were inside the building when the tornado struck, there were no fatalities and only minor injuries. This was attributed to preparations made during the construction of the plant and spotter training given to some of the workers.



On June 5, 2010, an EF-2 tornado struck the City of Elmwood in Peoria County. According to the National Weather Service, the tornado was approximately 50 yards wide with wind up to 130 mph. The damage to Elmwood's Central Business District was extensive. A total of 41 buildings sustained damaged, whereas 33 were originally deemed structurally unsafe for occupancy. Trees were uprooted, power lines toppled, and vehicles in the path incurred extensive damaged. Fortunately, no lives were lost and no injuries were reported as a result of appropriate storm tracking and siren activation. The Elmwood Disaster Recovery Plan 2010 was created as a result of an intense two week planning process between Peoria County and representatives from local township government, business leaders, and community activities. This Plan identified 19 projects that will form the basis for the rebuilding efforts in Elmwood. Projects were prioritized by residents and assigned a recovery value, with rankings consisting of high, moderate, and community interest. As a result of the Elmwood disaster, Peoria County is in the process of creating a Disaster Recovery Ordinance, which will outline the process and policies follow non-flood disasters. Mitigation projects related to hardening facilities is further discussed in the mitigation strategies (Section VII).



City of Elmwood EF-F2 Tornado June 5, 2010

*Source: Andrew Braun, Peoria County, IL*

Table V-27 contains the number of reported tornadoes by jurisdiction taken from the hazard history compiled in Appendix D. A number of these tornadoes have affected the more than one jurisdiction, and are therefore counted for all jurisdictions affected. A full table of all reported high wind events in the Tri-County is included in Section X. The locations of historic tornado touch downs and tracks for all jurisdictions are included in Figure V-8. The two F4 tornados in Peoria and Woodford counties occurred on June 29, 1976, and July 13, 2004, respectively.



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Table V- 27: Tornado Occurrence by Jurisdiction (NCDC)\*.

Magnitude	Unknown	F0	F1	F2	F3	F4	TOTAL
Peoria County	3	8	2	1**	2	1	17 (2 from other sources)
Tazewell County		24	15	8	3		50
Woodford County		20	8	6		1	35
City of Peoria	5						5 from other sources
Total	8	52	25	15	5	2	107
<b>Property Damages</b>	<b>N/A</b>	<b>\$182,000</b>	<b>\$5,939,000</b>	<b>\$7,328,000</b>	<b>\$19,025,000</b>	<b>\$250,000</b>	<b>\$32,724,000</b>

\*No record of specific tornadoes for the cities and villages participating in this plan.

\*\*Tornado on 6/5/2010 not included in totals. See above Hazard History.



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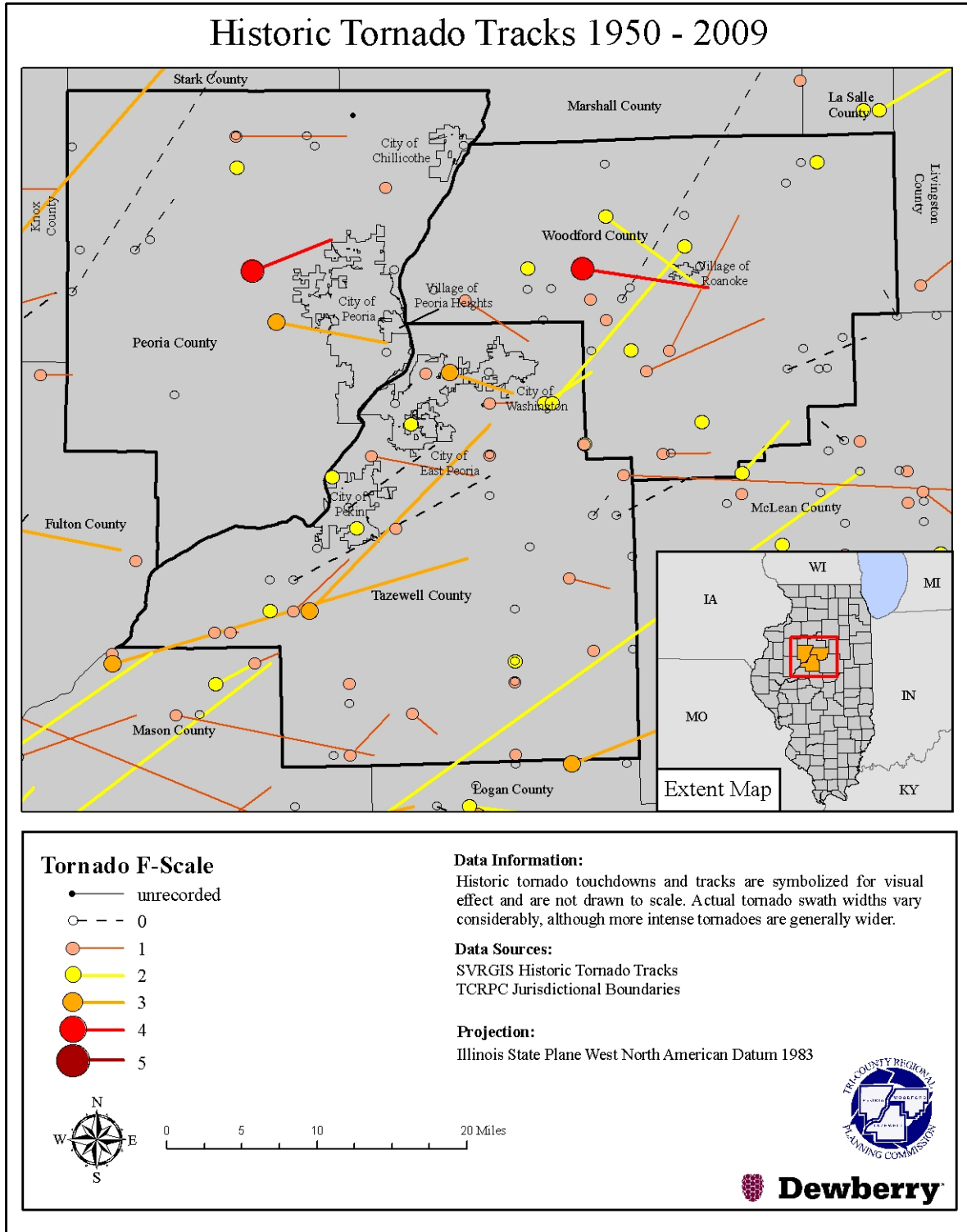


Figure V- 8: National Weather Service Historic Tornado Tracks (1950 – 2009).



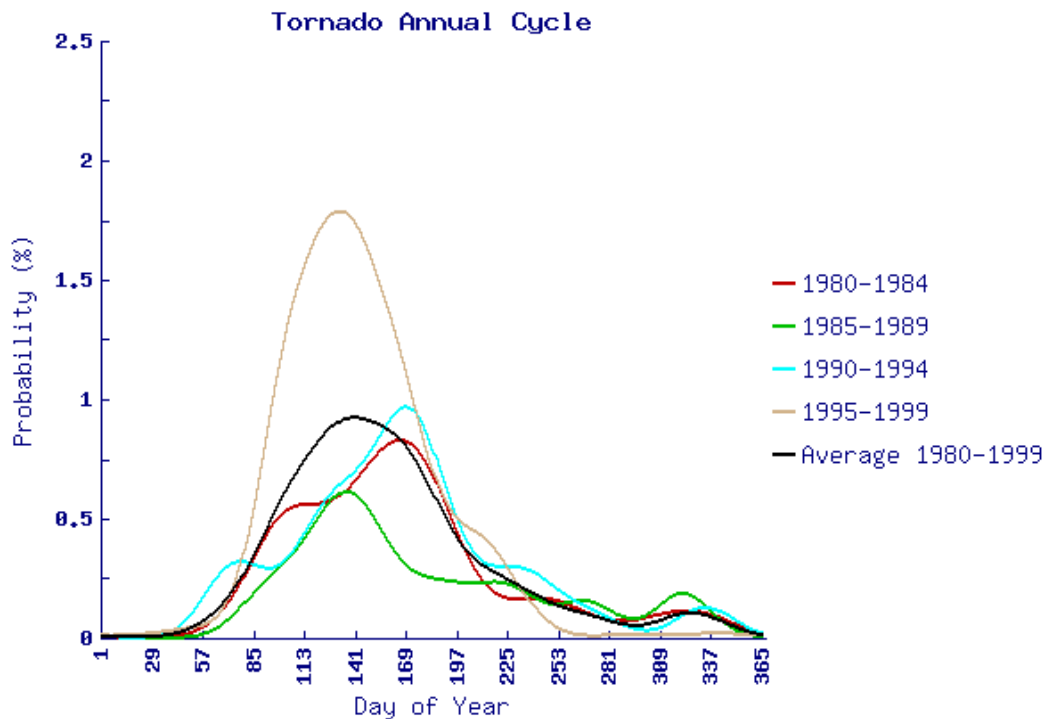
### *Risk Assessment*

Tornadoes and other high wind events such as severe thunderstorms and straight line events have occurred in every portion of the Tri-County area. There are no proven indicators to predict where a Tornado may occur, and straight line winds and those associated with severe thunderstorms can be expansive enough to affect the entire area. Therefore, specific sections of the Tri-County area where high wind events are more likely to occur cannot be identified. However, very specific and localized geography can contribute to potential damages caused by these events. A more detailed discussion of these characteristics will be included in the vulnerability analysis section below. Therefore, the entire Tri-County area is considered to have an equal risk of being impacted by a high wind event.

### **Probability**

A tornado or high wind event could occur in the Tri-County area at any time of the year, but wind events are most likely to occur from March through July, with a peak probability of an event occurring in May, as can be seen in the Tornado Annual Cycle for Central Illinois shown in Graph V-2 below.

Even though Central Illinois does have a higher than average number of tornadoes, it is not classified as an area with a higher than average base wind speed nationally. According to the American Society of Civil Engineers Minimum Design Loads for Buildings and other Structures (ASCE 7-98), the design wind speed for the Tri-County area is 90 mph. This threshold is based on the 50-year recurrence interval wind event, and is intended to represent the potential base wind event, not winds associated with a tornado. However, according to FEMA Publication 320 regarding the construction of residential tornado shelters, the Central Illinois area is located in a High Risk area. The Tri-County area is located in Wind Zone III, which requires a 200 mph design thresholds for tornado shelters. The difference in these thresholds is due to the relatively high occurrence of tornadoes and other localized high wind events in the Tri-County area, along with a lower probability of wide-spread high speed winds.



Graph V- 2: Tornado Annual Cycle for Central Illinois

### Impact & Vulnerability

Although no specific areas of the Tri-County area can be designated as having a higher risk of being affected by a severe wind event, there are a number of factors that contribute to a particular area's vulnerability to damages if a high wind event should occur. Certain characteristics of an area or of a structure increase its resistance to damages due to high wind events than others. Many of these factors are extremely specific to the particular location or the particular structure in question. However, each factor's affects on vulnerability can be discussed in general. The following sub-sections list these factors and a description of how they relate to vulnerability, particularly in the Tri-County area.





## Risk

Several different methods were utilized to determine and compare wind risk for the TCRPC area. These are further discussed in the Jurisdictional Risk sub-section below. Analysis methods include:

1. Original 2004 Heart of Illinois Hazard Mitigation Plan
2. NCDRC based annualized loss
3. 2007 State of Illinois Hazard Mitigation Plan

## Critical Facility Risk

The vulnerability of critical facilities such as police and fire stations, hospitals, shelters, and utility services varies greatly depending on the factors described in the sections above. In order to accurately assess the relative vulnerability of these structures, data regarding the vulnerability factors would be required. Generalizations based on the vulnerability factors can be made in certain instances. Due to the high level of importance to the community, the ability of these structures to resist the forces of high wind events greatly affects the community's overall vulnerability to these hazards.

The amount of warning time citizens have to an approaching high wind event, and the availability of shelters or safe rooms, is the most crucial factor regarding potential injury or loss of life. The Tri-County area does have extensive warning systems with tornado sirens covering virtually the entire area. When possible, this system of sirens can allow the residents of the area the maximum potential warning time of an approaching high wind event.

Most structures utilized as shelters throughout the Tri-County area are churches, schools, other community buildings. These shelters are not designed to, nor are they capable of providing shelter from a tornado or severe wind event. Instead, they have primarily been utilized in a post-disaster environment, following a flood, fire, or severe storm. A small portion of homes do have basements, which can be effective in providing some protection during a tornado. However, a majority of structures do not have basements, leaving residents with limited options for where to seek shelter, regardless of the amount of warning time available.

Each of the jurisdictions has expressed a need for wind resistant shelters.



## Jurisdictional Risk and Changes in Development

Population density is an important factor when analyzing vulnerability to high wind events. Since tornadoes affect localized areas, the highest potential for damages, injuries, and loss of life, will be where the highest concentration of development exists. The population density in the Tri-County area varies greatly. Portions of the unincorporated areas, mostly agricultural areas, are extremely sparsely developed and populated. However, areas of significantly higher density are present, particularly, the Cities of Peoria and Pekin, the other cities and villages throughout the Tri-County area, and the portions of the unincorporated county directly adjacent to the cities and villages. Therefore, these do have a higher potential vulnerability to damage and loss of life in a high wind event.

Due to the varying characteristics of the potential wind events that can affect the Tri-County area, preparing loss estimations for a particular event is not a simple task. Severe thunderstorms or straight line wind events could bring severe winds to the entire Tri-county area, while a tornado can contain winds of a much greater intensity and affect a much smaller geographic area. Even within a particularly type of event, for example a tornado, the number of structures and assets affected can vary greatly depending on the area in which the event occurs. Therefore, the most accurate estimate may be obtained by evaluating the damages from past events in the area.

Considering the variables described above, the May 10, 2004, tornado that struck the City of Pekin, Morton, and other areas of Tazewell and Woodford County, may be used as a guide for quantifying potential damages should a tornado strike in a populated portion of the Tri-County area. Because this tornado occurred in one of the more densely populated portions of the area, and caused significant damages and loss of life, this case provides a good example of the types of impacts that can be expected should an event like this occur again. However, it should be noted that the specific characteristics can cause the amounts of damages, as well as injuries and loss of life, to vary significantly. The time at which the tornado occurs along, the specific path of the storm, and the amount of warning available to residents will all play a major role in determining the storm's impacts.

Table V-29 includes a summary of the damages from the May 10, 2003 tornado. The damages are broken down by county, and estimates have been made to reflect potential damages amounts should a similar type of event occur in Peoria County. These estimates are made strictly based on extrapolations of population and number of housing units. The actual characteristics of a potential tornado, as described above, could greatly increase or decrease these estimates. No new analysis was completed for the 2010 update as it was determined that the 2004 estimates were still valid. As new source information becomes available, the MAC should determine if these estimates still represent risk in the Tri-County area.



The numbers in italics have been extrapolated from existing data from Tazewell and/or Woodford Counties, including actual damage amounts, existing number of housing units, and total population.

In addition to estimating potential losses for a particular event, potential damages due to a wind event can also be estimated based on specific characteristics of a structure and a potential wind speed. The FEMA Benefit Cost module, used for estimating the benefits of potential wind mitigation projects, contains a wind damage function based on building type, and potential wind speed. This wind damage function expresses the potential damage to a building as a percentage of the buildings replacement value, and potential damages to a building's contents as a percentage of the value of its contents. For use in this module, FEMA separates structures according to the building types described in the Vulnerability Analysis.

Using these building types, and the potential wind speeds for the Tri-County area, potential damages can be expressed in terms of a percentage of the building and content values. ASCE 7 categorizes the Central Illinois area as a 90-mph wind zone, based on a 50-year recurrence interval. Based on ASCE 7, the potential wind speed for an event with a 100-year recurrence interval was estimated to be 107% of the 50-year wind speed, or 96.3 mph. Table V-28 includes estimates of potential damage of the specific building types in the Tri-County area for the 50 and 100 year interval wind event. It should be noted that the 100-year wind speed assumed corresponds with an F1 category tornado on the Fujita scale. Damages from the impact of a tornado stronger than an F1 could greatly exceed these estimates.

Table V- 28: Potential Wind Damage by Building Type

Building Type	50-Year Event (90 mph)		100-Year Event (96.3 mph)	
	Building Damage	Contents Damage	Building Damage	Contents Damage
Light Engineered	5%	2.5%	15%	15%
Non-engineered wood	7.5%	5%	20%	20%
Non-engineered masonry	5%	2.5%	15%	15%
Fully Engineered	2.5%	2.5%	5%	15%
Manufactured	25%	40%	50%	100%



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Table V- 29: Tornado Loss Estimate based on May 10, 2003, Event

Information (Source)	Item Description	Tazewell County	Woodford County	Peoria County	Subtotal
General (2000 Census)	No. of Housing Units	52,973	12,762	78,204	143,939
	Median Value of Housing Unit	\$89,200	\$102,900	\$85,900	-
	\$ Value of Housing Units	\$4,725,191,600	\$1,313,209,800	\$6,717,723,600	\$12,756,125,000
	Total Population	128,485	35,469	183,433	347,387
	% Population Distribution	37.0%	10.2%	52.8%	100.0%
Damages from May 4-10, 2003 Tornadoes	No. of Houses Destroyed	80	19	118	198
	No. of Houses Damaged	40	10	59	99
	No. of Deaths	11	0	16	27
	No. of Homes Without Power	6,447	1,553	9,517	17,517
FEMA IA for May 4-10, 2003 Tornadoes	No. of Applications Approved	31	7	46	84
	Total \$ for Assistance	\$291,128	\$5,075	\$429,792	\$725,995
	Average \$ Assistance/Application	\$9,391	\$680	\$13,864	\$23,935
SBA Summary for May 4-10, 2003 Tornadoes	Home Loan Applications Approved	52	4	77	133
	Total \$ for Home Assistance	\$2,667,300	\$296,500	\$3,937,733	\$6,901,533



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Table V- 29: Tornado Loss Estimate based on May 10, 2003, Event

Information (Source)	Item Description	Tazewell County	Woodford County	Peoria County	Subtotal
	Average \$ Assistance/Application	\$51,294	\$74,125	\$51,294	\$176,713
	Business Loan Applications Approved	7	1	10	18
	Total \$ for Business Assistance	\$1,002,700	\$32,800	\$1,431,516	\$2,467,016
SBA Summary for May 4-10, 2003 Tornadoes (continued)	Average \$ Assistance/Application	\$143,243	\$32,800	\$143,243	\$319,286
	EIDL Loan Applications Approved	3	0	4	7
	Total \$ for EIDL Assistance	\$108,100	\$0	\$154,330	\$262,430
	Average \$ Assistance/Application	\$36,033	\$0	\$36,033	\$72,067
	Total Loan Applications Approved	62	5	91	158
	Total \$ for Assistance	\$3,778,100	\$329,300	\$5,523,579	\$9,630,979
	Average \$ Assistance/Application	\$60,937	\$65,860	\$60,669	\$187,466



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Table V-30 below compares the various loss estimates and methodologies used in the Tri-County area. The 2004 HOI HMP has the highest of the three loss estimates, with \$17.5 million in loss. This is higher than the others as a result of the estimate being based off of a specific event that had a significant amount of damages. The 2010 NCDC calculations were approximately three times higher than the 2007 Illinois state plan estimations of \$427,660.

Table V- 30: Comparison of Wind and Tornado loss estimates.

Plan	Loss Estimate	Methodology
2004 HOI HMP	\$17,258,507	May 10, 2004 variables for estimating loss as a test case.
NCDC Annualized Loss	\$1,651,858	Total reported property damages divided by total number of years of record for severe wind and tornado.
2007 IL HMP	\$427,660	Annual Probability x Average Damage = Estimated Loss per year State total was \$28,328,271

As discussed above, the 2007 Illinois State Plan estimated loss estimates for each of the counties in the State. Table V-31 below highlights the findings of this analysis. Tazewell County represents a little more than one percent of Illinois' estimated losses. The Tri-County region as a whole represents one and half percent of Illinois' estimated losses.

Table V- 31: Illinois State Hazard Mitigation Plan Tornado Loss Estimates (2007).

County	Estimated Loss
Tazewell County	\$307,037
Woodford County	\$16,283
Peoria County	\$104,340
<b>Total</b>	<b>\$427,660</b>



## Winter Storms - High Hazard Ranking

### *2007 Illinois State Hazard Mitigation Plan Ranking*

Peoria County – Severe

Tazewell County – Severe

Woodford County – Severe

### *Description*

Severe winter storms and blizzards are extra tropical cyclones that originate as mid-latitude depressions. Snowstorms, blizzards, and ice storms are the most common examples. These storms can bring heavy snowfall, typically six inches or more, high winds, ice, and extreme cold with them. In the Midwest, winter storms are caused by cold fronts from Canada and the Arctic pushing ice and snow down into the region. The cold, arctic air meets with warm, tropical air; the greater the temperature gradient, the greater the chance of a winter storm occurring.

Snow and ice storms have the potential to impact the entire Tri-County area and generally occur between December and March. These storms are often responsible for numerous traffic accidents, road closures, downed trees and power lines, as well as dangerous wind chills. People's health can also be adversely affected by severe winter weather. People who lose heat in their homes and do not seek alternate shelter, people who get stuck in snowdrifts while driving, and people working and playing outdoors can suffer from hypothermia and frostbite.

Winter storms in Illinois produce more total damage than any other form of short-term severe weather, including tornadoes, lightning and hail<sup>13</sup>. On average, Illinois experiences five winter storms each year, primarily between the months of November and April. Winter storms most often hit Illinois during the month of January, although December, February and March are also common. Most of the snowstorms that hit Illinois develop east of the Rocky Mountains in Colorado. Two other common places of winter storm origin for Illinois are Alberta, Canada and the Texas Gulf Coast. The storms usually cross the state from the southwest to the northeast, with the majority of precipitation on the leading eastern edge of the storm.

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<sup>13</sup> Hilberg and Angel, 1999



### *Hazard History*

A late season snow storm occurred on April 10 and 11, 1997 when areas around Peoria received 10 to 13 inches of snow. The weight of this heavy, wet snow not only brought down power lines, but also damaged vehicles and buildings that could not support the weight.

During the 20th Century, Illinois did not have a year without at least one severe winter storm. Three of the most severe winters in Illinois during the 20th Century occurred after 1976<sup>14</sup>. The worst winter of the Century occurred in 1977-78, followed in severity by the winters of 1981-82 and 1978-79. These three winters combined saw 53 severe winter storms.

An ice storm that hit the state on March 24, 1978 coated a 90-mile-wide belt of central Illinois with ½ to 2 inches of ice. Over one million people were without power for at least 24 hours. Over 1,000 auto accidents occurred, tree losses were estimated at over \$20 million, and twenty-four counties in Illinois were declared disaster areas. In addition to snow, the Tri-County area was hit by one inch of freezing rain during this storm.

The most damaging storm of the winter of 1981-82 occurred on January 29-31, 1982. On these dates, between 10 and 20 inches of snow fell from the southwestern portion to the east-central portion of the state. The storm resulted in 10 deaths. Just 10 days after this storm, these same areas were hit by another snowstorm that brought an additional 5 to 15 inches of snow, causing the Governor of Illinois to declare 15 counties in Illinois a disaster area. The Tri-County area was not as heavily impacted by these storms as the southern portion of the state: only 1 to 4 inches of snow fell in the Tri-County area.

The National Weather Service station at the Greater Peoria Regional Airport serves the Tri-County area. Table V-32 summarizes monthly snowfall data for the Tri-County area based on weather data collected since 1884.

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<sup>14</sup> Hilberg and Angel, 1999





**Tri-County Regional Planning Commission  
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Table V- 32: Monthly Snowfall Reported at Greater Peoria Regional Airport

Month	Average Total Snowfall	Monthly Snowfall Record	
	(in.)	(in.)	(year)
January	7.8	24.7	1979
February	5.8	26.5	1900
March	4.2	18.2	1926
April	1.3	13.4	1982
May	0	0.1	1923, 1966
June	0	0	
July	0	0	
August	0	0	
September	0	1.0	1942
October	Trace	3.3	1929
November	2.5	10.7	1926
December	7.1	21.7	1889, 1890
Total	28.7		

Since 1926, the Tri-County region has experienced 10 years when the amount of snowfall exceeded 32 inches during the winter months. The greatest single storm snowfalls recorded at the Peoria weather station are summarized in Table V-33.



Table V- 33: Single Storm Snowfall Totals

Date	Snowfall (in.)
February 28-29, 1900	18.0
January 16, 1911	9.9
January 6, 1918	8.5
January 12-13, 1927	14.4
February 7, 1933	8.4
March 8, 1946	9.0
January 26, 1967	9.8
December 18, 1973	10.2
December 31, 1978	9.0
January 13, 1979	12.2

In January 1979, 490 miles of streets in the City of Peoria were closed after a severe winter storm. During this time, Interstate 74 was closed for the first time on record. Schools were closed for days due to blowing and drifting snow<sup>15</sup>. Four-hundred people in the City of Peoria were housed in storm shelters and the City was declared a disaster area on January 17, 1979.

The winter of 2000-2001 was an unusually cold one for the Tri-County area. The temperatures combined with skyrocketing natural gas costs to affect residents' pocketbooks. The average household experienced a 240% increase in heating costs during this winter<sup>16</sup>.

At the end of January and beginning of February 2002, 9,500 residents of the City of Pekin and 36,178 Tazewell County power customers were without electricity after a winter storm<sup>17</sup>. As a result, the Salvation Army opened a shelter where residents without heat could go until their power was restored.

The weekend of February 17, 2003, Tazewell County citizens were hit by another severe winter storm. This storm resulted in many cars having to be pulled out of snow

<sup>15</sup> City of Peoria, 1983

<sup>16</sup> Peoria Journal Star, 2001

<sup>17</sup> Edwards, 2001



banks, 15 automobile accidents, and road crews working overtime to plow and sand streets and highways.

A full table of all reported winter storm events in the Tri-County is included in Section X.

### *Risk Assessment*

#### **Probability**

Due to the random nature of severe winter storms it is not possible to characterize identifiable hazard areas. However, given the location of the Tri-County area in the continental United States, and its relatively small size when considering regional weather patterns, the entire planning area is at equal risk of being impacted by a winter storm.

#### **Impact & Vulnerability**

Winter storms can disrupt lives for periods of hours to days, depending on the severity of the storm. Transportation systems are usually one of the first and hardest hit sectors of a community. Snow and ice can block primary and secondary roads, causing them to be closed. Treacherous conditions make driving difficult; some motorists may be stranded during a storm. Buses can be delayed due to road conditions, airline flights can be delayed or canceled, and airports may close, and trains may also be delayed or canceled if tracks are not able to be cleared. In addition, rivers may begin to freeze, rendering commercial waterways impassable.

Utilities infrastructure can also be adversely affected by winter storms. Heavy snow and ice can cause power lines to snap, leaving citizens without power and, in some cases, heat for hours or even days. Likewise, telephone lines can also snap, disabling one form of communication within portions of a community. Frozen water pipes can rupture in people's homes, and water and sewer mains can also freeze and leak or rupture if not properly maintained. These ruptures can lead to flooding and property damage.

The thaw that occurs after a severe winter storm can result in flooding in some communities located along waterways and communities with low base floodplain elevations. The spring thaw, and its effects on the Illinois River and tributaries, is also a primary concern for the Tri-County area<sup>18</sup>.

Secondary effects of winter storms are broad. Treacherous driving conditions can result in automobile accidents in which passengers may be injured and property damage

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<sup>18</sup> City of Peoria, 1983



occurs. Emergency responders such as police and fire departments and ambulances may be delayed responding to emergencies because of poor road conditions. Deliveries of heating fuel can be delayed by impassible roads. Business airline travelers may be stranded at airports, resulting in increased costs for accommodations and missed meetings. Impassable roads can also result in schools being closed because buses are not able to access their routes and bring children to school. The costs of salting and sanding roads and runways and of snow removal can be staggering to communities both large and small. The costs to repair roads after spring thaws can also be high.

## **Risk**

Relative to other hazards discussed, winter storms typically do not cause the same type of quantifiable damages. Economic impacts from a winter storm can affect all sectors of the economy. Because of the diverse types of damages associated with a winter storm, a quantifiable loss estimate is beyond the scope of this analysis. However, statistics on building stock and infrastructure have been provided in the HAZUS-MH MR4 building stock sub-section of this plan (Table V-5).

Committee members have described a majority of the risk due to winter storms in terms of building roof loads that can be addressed in the building codes, elderly populations being taken care of, and damage to infrastructure (downed power lines).



## Land and Mine Subsidence - Medium-High Hazard Ranking

### *2007 Illinois State Hazard Mitigation Plan Ranking*

Peoria County – Not Determined

Tazewell County – Not Determined

Woodford County – Not Determined

### *Description*

Land subsidence (i.e. karst) in Illinois is typically attributed to mine subsidence due to the large coal mining industry. While Illinois has historically been one of the largest coal producing states, there are currently only 30 active coal mines. Community officials acknowledged that mine subsidence has been a recurring problem for many years. While they specifically mentioned subsidence issues for Tazewell County in the Broadway Parkway and Arrow Street area during the late 1990's, subsidence is an issue in all jurisdictions of the Tri-County area. Currently, there is no way to predict when or how often land subsidence will occur.

Land subsidence is the loss of surface elevation due to a lack or loss of subsurface support. Land subsidence can include a gradual lowering of the ground surface elevation over a vast area, and sudden, localized collapses of the ground surface. Land subsidence can be caused by natural and man-made sources. In areas of karst topography, groundwater can erode limestone, dolomite and other soluble minerals to cause sinkhole formation. Land subsidence can also be generated by a controlled lowering of the groundwater table, which results in settlement. Underground mining and petroleum withdrawal can induce a lack of ground support, resulting in subsidence.

The results of land subsidence vary. Gradual lowering of the ground surface can result in increased potential for flooding along coasts, riverbanks, and lakeshores. The sudden formation of sinkholes from either natural or man-made causes can damage or destroy homes, businesses, roads, other transportation infrastructure, and utilities. The National Research Council estimates that approximately \$125 million in structural damages, personal property losses, and depreciation of land values result each year from land subsidence. Lowering of the groundwater table accounts for over half of these losses, but mine subsidence accounts for \$30 million in damages per year.

Land subsidence that has occurred in Illinois is primarily a result of mine subsidence. Two types of mine subsidence have occurred statewide – pit subsidence and sag subsidence. Pits are steep-sided holes that form over mines that are less than 180 feet deep; they range from 2 to 40 feet in diameter and 2 to 25 feet deep (Illinois Department of Natural Resources, 2003). Pits generally do not cause structural damage to houses, and other damages can be minimized or avoided if the pit is backfilled promptly. Sags are large, relatively shallow depressions that form at the ground surface as the result of failures within underground room and pillar mines. They can range from 350 to 450 feet



in diameter and about 3 feet deep at the center. Sags can take 3 to 5 years to fully develop.

The susceptibility of land to mine subsidence depends in a large part on the type of mining that was practiced in an area. In longwall mining, all of the coal was removed from sections of a mine, so that ground subsidence occurred almost immediately after mining. Room and pillar mining left columns or pillars of coal in place to support the overburden. Over time, these pillars can weaken and fail, causing ground subsidence, generally of the sag type.

### *Hazard History*

Historically, Illinois has been one of the largest coal-producing states in the nation (Illinois Department of Natural Resources, 2003). More than 800,000 acres of land in Illinois have been undermined by some 2,660 coal mines and 356 minerals/metals mines; currently, all but 30 coal and 10 mineral mines have been abandoned. A study completed by the Illinois State Geological Survey (ISGS) in 1991 estimated that 178,000 undermined acres in the state are in residential and other built-up areas. Another 878,000 acres of undermined land are located within one mile of built-up areas.<sup>19</sup>This is further discussed in the Jurisdictional Risk section.

### *Risk Assessment*

Land Subsidence has been ranked as Medium-High by the TCRPC; and the 2007 Illinois State Hazard Mitigation Plan ranked the region with having a Low Probability and/or Minor Impact.

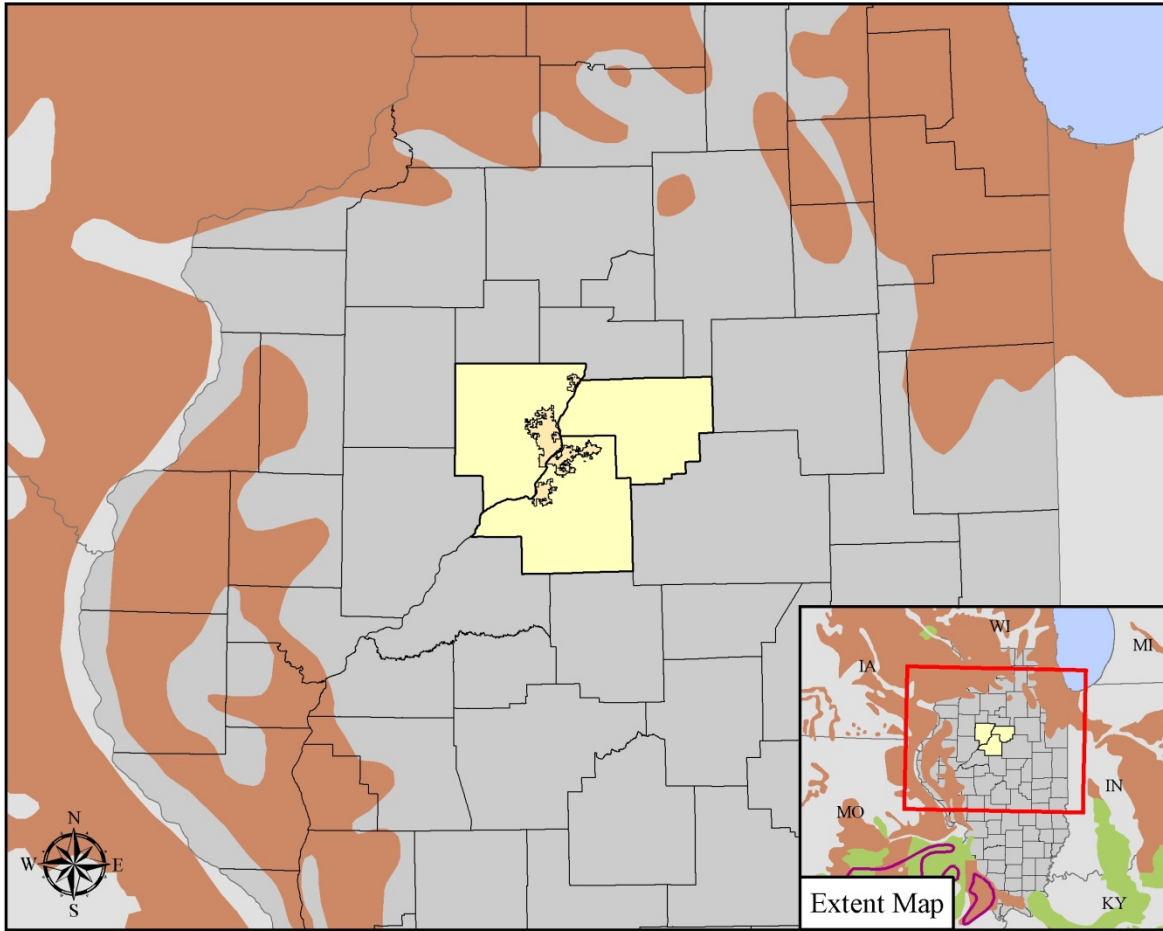
The Engineering Aspects of Karst data set shows areas of karst in the United States. This data set is a digital representation of USGS Open-Gile Report 2004-1352, which is a PDF version of the 1984 USGS Engineering Aspects of Karst map (scale 1:7,500,000). Figure V-9 shows that areas containing distinctive surficial and subterranean features, developed by solution of carbonate and other rocks and characterized by closed depressions, sinking streams, and cavern openings. As shown, the TCRPC is not located in areas that have been included in the USGS Engineering Aspects of Karst.

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<sup>19</sup> Treworgy and Hindman, 1991 Illinois State Geological Survey (ISGS)



## TCRPC Karst Regions and Historical Subsidence



**Legend:**

- Long Karst Type
- Short Karst Type
- Historical Subsidence
- Jurisdictions participating in 2010 HMP Update

**Data Information:**

- Long Karst Type: Fissures, tubes, and caves over 1,000 feet long; 50 feet to over 250 feet vertical extent
- Short Karst Type: Fissures, tubes and caves generally less than 1,000 feet long; 50 feet or less vertical extent
- Historical subsidence represents areas of extensive sinkhole development.

**Data Sources:**

- USGS Engineering Aspects of Karst
- TCRPC Jurisdictional Boundaries
- HAZUS-MH MR3 Boundaries

**Projection:**

Illinois State Plane West North American Datum 1983

0 20 40 80 Miles

*Disclaimer: Uncertainties are inherent in any loss estimation methodology. The purpose of the analysis and data sets are to give general indication of areas that may be susceptible to hazards.*



Figure V- 9: USGS karst regions and historical subsidence in and around Illinois.



## Probability

The exact time that land subsidence will occur cannot be predicted; it can occur suddenly without warning or over an extended period of several years. However, some factors that can cause a decrease in strength are wet conditions, vibrations, and increased surface loading. Land subsidence that occurs as a result of a drawdown of the groundwater table is likely to take place over a number of years. Procedures for predicting the occurrence of land subsidence have not yet been developed.

## Impact and Vulnerability

According to a National Research Council study completed in 1991, the State of Illinois had experienced cumulative subsidence damages totaling between \$1 million and \$10 million. The State also had \$1 million to \$10 million of damages due to drainage or organic soils, and an additional \$0 to \$1 million in damages resulting from sinkhole formations. No damages have been attributed to underground fluid withdrawal or hydro-compaction.

The potential impacts of land subsidence depend on the type of subsidence that occurs (regional or localized, gradual or sudden) and the location that the subsidence occurs. The impacts of subsidence occurring in nonurban areas are likely to be less damaging than subsidence that occurs in heavily populated locations. The amount of structural damage depends on the type of construction, the structure location and orientation with respect to the subsidence location, and the characteristics of the subsidence event (sag or pit).

Illinois State laws require insurance companies to provide mine subsidence insurance to property owners (Illinois Department of Natural Resources, 2003). The Illinois Mine Subsidence Fund (IMSF) provides reinsurance to insurance companies who offer mine subsidence coverage on permanent structures.

Potential impacts from land subsidence could include damage to residential, commercial, and industrial structures; damage to underground and above-ground utilities; damage to transportation infrastructure, including roads, bridges, and railroad tracks; as well as damage or loss of crops. The extent and value of the potential damage cannot be assessed because the nature of the damage is site- and event-specific.

Secondary effects of mine subsidence include inaccessible areas due to damaged/impassable roads; disruption in utility service; potential for explosion from ruptured gas lines; potential for localized flooding from decreases in elevation and ruptured water lines; and loss of revenue from closed businesses and delayed freight trains.





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**Risk**

Risk, strictly defined as probability multiplied by impact, cannot be fully estimated for land and/or mine subsidence due to the lack of historical data and detailed mapping. Available data sources have been utilized to determine critical facilities located in the undermined areas.

**Critical Facility Risk**

One police station, three emergency services, twenty-four schools and several communication centers have been located in or near undermined land and mine subsidence areas. Five schools and two airports are located in landslide areas in TCRPC. A list of these critical facilities, excluding road bridges, is shown in Table V-34.

Table V- 34: Critical Facilities located in or near Undermined Land/Mine Subsidence areas.

Type	Name of Facility	Address	City/Town	County
School	Bartonville Public School	6000 S. Adams St.	Bartonville	Peoria
School	Hollis School District	5613 W. Tuscarora Rd.	Bartonville	Peoria
School	Holy Cross Lutheran Church	618 S. Maxwell Rd.	Bartonville	Peoria
School	Limestone Community H.S.	4201 S. Airport Rd.	Bartonville	Peoria
School	Limestone-Walters School	8221 W. Smithville Rd.	Bartonville	Peoria
School	Monroe School	5137 W. Cisna Rd.	Bartonville	Peoria
School	Oak Grove West School	6018 W. Lancaster Rd.	Bartonville	Peoria
School	Hanna City School Dist. #324	511 N. Main St.	Hanna City	Peoria
School	Mapleton School	10107 S. Vine St.	Mapleton	Peoria
School	Bartonville Public School	1915 W. Garfield Ave.	Peoria	Peoria
School	Norwood School	6521 W. Farmington Rd.	Peoria	Peoria
School	Pleasant Hill School	3717 W. Malone St.	Peoria	Peoria
School	Pleasant Valley North Elem. School	4607 W. Elwood Dr.	Peoria	Peoria
School	Pleasant Valley Elem. School	4623 W. Red Bud Dr.	Peoria	Peoria
School	Rising Sun Baptist Church	4310 W. Charter Oak Rd.	Peoria	Peoria
TV/Radio Communications	CBW1 Peoria Weather Tower		Peoria	Peoria
Airport	Greater Peoria Airport	1900 S. Maxwell Rd.	Peoria	Peoria
Electric	CILCO		Limestone	Peoria
Railroad Bridge	Kickapoo Creek Bridge #1702	CNWRR		Peoria
Emergency Services	Peoria Police Benevolent	3703 S. Airport Rd.	Bartonville	Peoria
School	Parkview Jr. High School	800 Groveland St.	Creve Coeur	Tazewell



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Type	Name of Facility	Address	City/Town	County
School	Broadmoor Jr. High School	501 Maywood Ave.	Pekin	Tazewell
School	Pekin Community H.S.		Pekin	Tazewell
School	Schramm Education Center	300 Cedar St.	Pekin	Tazewell
School	Sunset Hills Elem. School	1730 Highwood Ave.	Pekin	Tazewell
School	Willow Elem. School	1110 Veerman St.	Pekin	Tazewell
TV/Radio Communications	WCBU FM 89.9		Tazewell	Tazewell
TV/Radio Communications	WHOI TV Ch. 19		Tazewell	Tazewell
TV/Radio Communications	WIRL AM 1290		Tazewell	Tazewell
TV/Radio Communications	WTVP TV Ch. 47		Tazewell	Tazewell
School	Roanoke Benson CUSD	208 W. High St.	Roanoke	Woodford
School	Saint Joseph's Catholic Church	508 W. Randolph	Roanoke	Woodford
School	Sowers Elementary School	202 W. High St.	Roanoke	Woodford
Emergency Services	Roanoke Fire Dept.	108 Broad St.	Roanoke	Woodford
Emergency Services	Roanoke Police Dept.	201 Husseman St.	Roanoke	Woodford

Critical facility risk was not updated since the 2004 hazard mitigation plan. While the boundaries of the residential, urban, urban buffer, and nonurban areas may have shifted somewhat, the total number of acres represented in the study remains accurate. Critical facility data sources have not drastically improved since the 2004 plan. One of the primary mitigation goals for the Tri-County area is to develop a detailed building inventory for all structures located in each of participating jurisdictions including critical facilities and infrastructure. When a detailed building inventory becomes available, a greater level of vulnerability analysis, and consequently risk assessment, will be possible.

### **Jurisdictional Risk and Changes in Development**

Loss estimates could not be calculated for land and/or subsidence events due to a lack of detailed and accurate information regarding structures and assets located in the previously determined hazard areas. In addition, due to the extremely localized and site specific nature of typical subsidence events, any inventory of potential at risk structures may grossly over-estimate potential losses. Jurisdictional risk and areas of future development are highlighted in the following paragraphs.

In 1991, the ISGS completed a study, "The Proximity of Underground Mines to Residential and Other Built-up Areas in Illinois." This study calculated the acreage of



residential, urban (commercial, industrial, and mixed), urban buffer, and nonurban land undermined in Illinois. The study also estimated the number of housing units close to underground mines. The four areas were defined according to USGS data sets – “residential” is a residential area of 10 or more acres; “urban” is industrial, commercial, industrial and commercial, mixed urban, transportation, and other urban; “urban buffer” is a one-mile wide zone surrounding residential and urban lands; and “nonurban” is all other land, including farmland, forests, and pastures.

The study established two zones. Zone 1 was based on the mapped locations and extents of underground mines, and included the land that was directly over or adjacent to these mines. Zone 1 boundaries extend 500 feet beyond the mine boundaries to account for lateral propagation of subsidence. Zone 2 represents additional land that could be undermined but where the exact extents of the mine boundaries were unknown. Zone 2 generally extends 1,000 feet beyond Zone 1 for coal mines, but the exact extent of Zone 2 varies based on the type of mine and available information about the mine boundary locations.

Because the study was published in 1991, 1980 census tract data was used. The data should be adjusted to reflect growth and population trends that have occurred during the past 3030 years. While the boundaries of the residential, urban, urban buffer, and nonurban areas may have shifted somewhat, the total number of acres represented in the study remains accurate, and the study provides a reasonable estimate of undermined land areas and their uses.

### ***Peoria County***

Based on the results of the 1991 ISGS mine subsidence study, the County of Peoria has approximately 15.3% of residential acres, 13.5% of urban acres, 20.0% of buffer acres, and 14.1% of nonurban acres in Zones 1 and 2. This data suggests that as urban areas in the County expand into the buffer zones, additional residential and urban developments will be located over undermined lands. This expansion will increase the susceptibility to damages from a mine subsidence event.

The results of the 1991 ISGS study indicate that Peoria County ranked 13th in the State in total number of acres located in Zone 1 undermined areas and 10th in the State in number of housing units located in Zone 1 undermined areas. The study calculated that 2,084 residential acres, 1,283 urban acres, 17,975 urban buffer acres, and 27,824 nonurban acres containing approximately 5,896 housing units are located in Zone 1 and are susceptible to mine subsidence. These numbers represent 8% of the land in Peoria County, with 12% of urban buffer land being located in Zone 1. This suggests that as the urban and residential areas in Peoria County expand, there could be an increased risk of exposure to damage from mine subsidence. An additional 1,064 residential acres, 856 urban acres, 11,875 urban buffer acres, and 22,651 nonurban acres



containing 3,601 housing units are located in Zone 2 and could be susceptible to mine subsidence.

Of approximately 234 mines located in Peoria County, only one practices longwall mining, the rest of the mines are room and pillar. Consequently, it is unknown if the majority of mines that existed in Peoria County have already subsided or if future subsidence could occur. Areas of abandoned mines, which are therefore subject to subsidence, are shown on Section X.

### **City of Peoria**

As discussed previously, approximately one percent of the land in the City is located in Zone 1, but approximately 32 percent of urban buffer land in townships immediately west and south of the City are in Zone 1. As the City grows, westward and southward expansion toward these townships could increase the amount of undermined land that the City occupies. These newly developed areas would be at increased risk to damage from mine subsidence.

The study completed by ISGS primarily evaluated data by County. However, the study does state that less than one percent of the City of Peoria is located in Zone 1. Three townships located immediately west and south of the City (West Peoria, Limestone, and Hollis) have 32 percent of urban buffer land in Zone 1. Areas of abandoned mines, which are therefore subject to subsidence, are shown on Figure V-1.

According to outlines of coal mined areas in Illinois, there are two (2) non-active underground mines associated with the Springfield seam and exist on the west-central edge of the City. The coal mined areas data is geospatial mapping layers (i.e., GIS data) and is a merge of all updated coal seam geographic shapefiles including updated underground mine outlines as of January 1, 2009 and surface mine outlines as of June 30, 2008 and are suitable for local and regional thematic analysis (scale of 1:100,000 or smaller). The aforementioned mines comprise an area of approximately 226 acres (Surface Area Only). The City is comprised of approximately 30,000 acres; therefore the mines correspond to an approximate area of less than one-percent (< 1%) of the City. However, three (3) educational facilities exist within the immediate or nearby vicinity and may require appropriate emergency and/or mitigation strategies.



### **City of Pekin**

Specific data was not available for the amount of undermined land that is located within City limits. However, mine maps indicate that expansion of the City eastward could result in newly developed areas being located on undermined land. These areas would have increased risk to mine subsidence.

The ISGS study concentrated on defining data according to counties, and so the City of Pekin was not specifically analyzed. HAZUS maps of Tazewell County show that the eastern portion of the City is undermined by the Grant, Schaefer, and Pekin mines, which were shaft mines in operation between 1915 and 1953. The southeastern portion of the City is undermined by the Grant and Ubben mines (shaft mines, 1891-1938); the Alexander, Hope and Grant mines (shaft mines, 1869-1892); and Chapman and Petrie, Champion, Johnston City-Big Muddy, Pekin, and Regal mines (shaft, 1905-1925). As the City expands, eastward expansion could result in additional residential and urban construction over undermined lands. Areas of abandoned mines, which are therefore subject to subsidence, are shown in Section X.

### **Tazewell County**

Based on the results of the 1991 ISGS mine subsidence study, the County of Tazewell has approximately 17.8% of residential acres, 10.9 percent of urban acres, 3.8% of buffer acres, and 1.5% of nonurban acres in Zones 1 and 2. While a relatively large proportion of residential and urban areas are susceptible to damage from mine subsidence, the data for buffer areas suggests that urban expansion will not greatly increase the susceptibility of newly developed areas.

The results of the 1991 ISGS study indicate that Tazewell County was ranked 12th in the State in the number of housing units located in Zone 1. At the time the study was completed, it had 1,795 residential acres, 598 urban acres, 3,696 urban buffer acres, and 6,182 nonurban acres containing approximately 5,125 housing units in Zone 1 that are susceptible to mine subsidence. These numbers represent approximately 1.5 percent of the land in Tazewell County. Almost 12 percent of the residential acres in the County are located in Zone 1. Only about 2.5 percent of urban buffer land is located in Zone 1, so urban expansion is not likely to dramatically increase susceptibility to risk from mine subsidence. An additional 934 residential acres, 461 urban acres, 2,001 urban buffer acres, and 2,137 nonurban acres containing 2,905 housing units are located in Zone 2 and could be susceptible to mine subsidence.

A directory of mines for Tazewell County lists 47 mines at 16 different ISGS index locations. Thirteen of the 47 mines were slope mines, the rest were shaft mines. The records indicate that all of the mines in the County were rock and pillar mines.



Therefore, it is unknown if the land overlying these mines has already undergone subsidence or if subsidence could occur at any of these locations in the future. Areas of abandoned mines, which are therefore subject to subsidence, are shown in Section X.

### **Woodford County**

The area in Woodford County that is most susceptible to damage from mine subsidence is the Township of Roanoke. This area has a significant mine that was mined using both longwall and room and pillar methods. Because available mine maps do not distinguish between where the longwall or room and pillar methods were used, the whole undermine area should be considered to have a potential to undergo mine subsidence.

Based on the results of the 1991 ISGS mine subsidence study, the County of Woodford has approximately 6.7% of acres, 13.8% of urban acres, 3.5% of buffer acres, and 1.0% of nonurban acres in Zones 1 and 2. The data for buffer areas suggests that urban expansion will not greatly increase the susceptibility of newly developed areas.

The results of the 1991 ISGS study indicate that Woodford County had 190 residential acres, 287 urban acres, 1,988 urban buffer acres, and 2,055 nonurban acres containing approximately 617 housing units in Zone 1 that are susceptible to mine subsidence. These numbers represent approximately 0.7 percent of the land in Woodford County. Almost 11 percent of the urban acres in the County are located in Zone 1. Only about 2.2% of urban buffer land is located in Zone 1, so urban expansion is not likely to dramatically increase susceptibility to risk from mine subsidence. An additional 84 residential acres, 83 urban acres, 1,069 urban buffer acres, and 1,306 nonurban acres containing 226 housing units are located in Zone 2 and could be susceptible to mine subsidence.

Woodford County has five mines, only two of which are significant. One of these significant mines is located in Minonk Township, and the other in Roanoke Township. The longwall method was used in the Minonk mine, so it is expected that subsidence at this location has already occurred and that future subsidence should not be of concern (Woodford County Regional Planning Commission, 1996). Both longwall and room and pillar methods were used in the Roanoke mine. Mine maps do not indicate which method was used at exact locations. Therefore, the potential for mine subsidence still exists at the Roanoke mine location. Areas of abandoned mines, which are therefore subject to subsidence, are shown in Section X.



### **City of Chillicothe**

According to outlines of coal mined areas in Illinois, there are no mines in the City of Chillicothe. The coal mined areas data is geospatial mapping layers (i.e., GIS data) and is a merge of all updated coal seam geographic shapefiles including updated underground mine outlines as of January 1, 2009 and surface mine outlines as of June 30, 2008 and are suitable for local and regional thematic analysis (scale of 1:100,000 or smaller).

### **Village of Peoria Heights**

According to outlines of coal mined areas in Illinois, there are no mines in the Village of Peoria Heights. The coal mined areas data is geospatial mapping layers (i.e., GIS data) and is a merge of all updated coal seam geographic shapefiles including updated underground mine outlines as of January 1, 2009 and surface mine outlines as of June 30, 2008 and are suitable for local and regional thematic analysis (scale of 1:100,000 or smaller).

### **City of East Peoria**

According to outlines of coal mined areas in Illinois, there are eight (8) adjacent, non-active, underground mines associated with the Springfield seam and exist on the south-central edge of the City. The coal mined areas data is geospatial mapping layers (i.e., GIS data) and is a merge of all updated coal seam geographic shapefiles including updated underground mine outlines as of January 1, 2009 and surface mine outlines as of June 30, 2008 and are suitable for local and regional thematic analysis (scale of 1:100,000 or smaller). The aforementioned mines comprise an area of approximately 526 acres (Surface Area Only). The City is comprised of approximately 13,507 acres; therefore the mines correspond to an approximate area of 4% of the City. However, three (3) facilities (1-Nursing Home, 1-Medical Facility and 1-Education) exist within the immediate or nearby vicinity and may require appropriate emergency and/or mitigation strategies.

### **City of Washington**

According to outlines of coal mined areas in Illinois, there are no mines in the City of Washington. The coal mined areas data is geospatial mapping layers (i.e., GIS data) and is a merge of all updated coal seam geographic shapefiles including updated underground mine outlines as of January 1, 2009 and surface mine outlines as of June 30, 2008 and are suitable for local and regional thematic analysis (scale of 1:100,000 or smaller).



### **Village of Roanoke**

According to outlines of coal mined areas in Illinois, there is a single (1) non-active, underground mines associated with the Colchester seam and encompasses most of the eastern-half of the City. The coal mined areas data is geospatial mapping layers (i.e., GIS data) and is a merge of all updated coal seam geographic shapefiles including updated underground mine outlines as of January 1, 2009 and surface mine outlines as of June 30, 2008 and are suitable for local and regional thematic analysis (scale of 1:100,000 or smaller). The aforementioned mine comprises an area of approximately 315 acres (Surface Area Only). The City is comprised of approximately 599 acres; therefore the mine corresponds to an approximate area of 53% of the City. Three (3) facilities (one Medical and two Education) and a few bridges exist within the immediate or nearby vicinity and may require appropriate emergency and/or mitigation strategies.





## Landslides - Medium Hazard Ranking

### *2007 Illinois State Hazard Mitigation Plan Ranking*

Peoria County – Not Determined

Tazewell County – Not Determined

Woodford County – Not Determined

### *Description*

A landslide is the downhill movement of soil, rock, or other earth materials, in response to gravity. Landslides may include rock falls and topples, debris flows and debris avalanches, earthflows, mudflows and mudslides, creep, and lateral spread of rock or soil. Frequently landslides occur in areas where the soil is saturated from heavy rains or snowmelt. They can also be started by earthquakes, changes in groundwater, disturbance or change of a slope by man-made construction activities, or any combination of these factors. A landslide occurs when the force that is pulling the slope downward (gravity) exceeds the strength of the earth materials that compose the slope.<sup>20</sup>

Some landslides move slowly and cause damage gradually, whereas others move so rapidly that they can destroy property and take lives suddenly and unexpectedly. Debris flows (also referred to as mudslides, mudflows, or debris avalanches) are a common type of fast-moving landslide that generally occurs during intense rainfall on water-saturated soil. They usually start on steep hillsides as soil slumps or slides that liquefy and accelerate to speeds as great as 35 miles per hour or more. They continue flowing down hills and into channels, depositing sand, mud, boulders, and organic material onto more gently sloping ground. The flow consistency ranges from watery mud to thick, rocky mud (like wet cement), which is dense enough to carry boulders, trees, and cars. Debris flows from different sources can combine in channels, where their destructive power may be greatly increased.<sup>21</sup>

Landslides are a major geologic hazard because they are widespread, occurring in all 50 states and U.S. territories, causing \$1-2 billion in damages, and leading to more than 25 fatalities on average each year<sup>1</sup>. Casualties in the United States are primarily caused by rockfalls, rock slides, and debris flows. Expansion of urban and recreational developments into hillside areas exposes more people to landslide-prone conditions each year.

<sup>20</sup> National Atlas Articles Geology: [http://www.nationalatlas.gov/articles/geology/a\\_geohazards.html](http://www.nationalatlas.gov/articles/geology/a_geohazards.html)

<sup>21</sup> USGS Fact Sheet: **FS-159-96: Debris-Flow Hazards in the Blue Ridge of Virginia** <http://landslides.usgs.gov/docs/faqfs159-96.pdf>



While the topography of the Tri-County area is generally flat, there are several steep slopes that are susceptible to landslides.

*Hazard History*

Recorded instances of landslides have been uncommon in the Tri-County area, according to the National Climate and Data Center (NCDC) and USGS maps.

Nine landslides have been recorded in Peoria County, two in the City of Peoria, and one in Woodford County. There have not been any recorded landslides in remaining jurisdictions this plan focuses on. In addition to the two landslides reported in the City of Peoria on the NCDC and USGS maps, another event occurred in 1982 across the street from 4433 Grandview Drive, according to the Peoria Park District.

*Risk Assessment*

The landslide data set shows areas in the United States where large numbers of landslides have occurred and areas which are susceptible to landslides. This data set is a digital representation of USGS Open-File Report 97-289, which is a PDF version of the 1997 USGS Digital representation of Landslide Overview Map (scale 1:4,000,000). The report classifies the major physical subdivision of the United States and assesses the vulnerability based on subdivision characteristics. Figure V-10 highlights the areas of increased risk

**Risk**

**Critical Facility Risk**

Table V-35 shows seven critical facilities being located in or near landslide risk zones. The majority of the facilities are classified as schools and airports.

Table V- 35: Critical facilities located in or near landslide risk zones.

<b>Facility Type</b>	<b>Name</b>	<b>Address</b>	<b>Location</b>	<b>County</b>
School	Brimfield High School	200 Clinton St.	Brimfield	Peoria
School	Brimfield Grade School	200 Clinton St.	Brimfield	Peoria
School	Charter Oak School	5221 W. Timberedge Dr.	Peoria	Peoria
Airport	Hendryx Private Airfield		Chillicothe	Peoria
School	Averyville Baptist School	1070 Spring Bay Rd.	E. Peoria	Woodford
School	Riverview Community College	1421 Spring Bay Rd.	E. Peoria	Woodford
Airport	Jerry E. Stabb Private Airfield		Peoria	Woodford

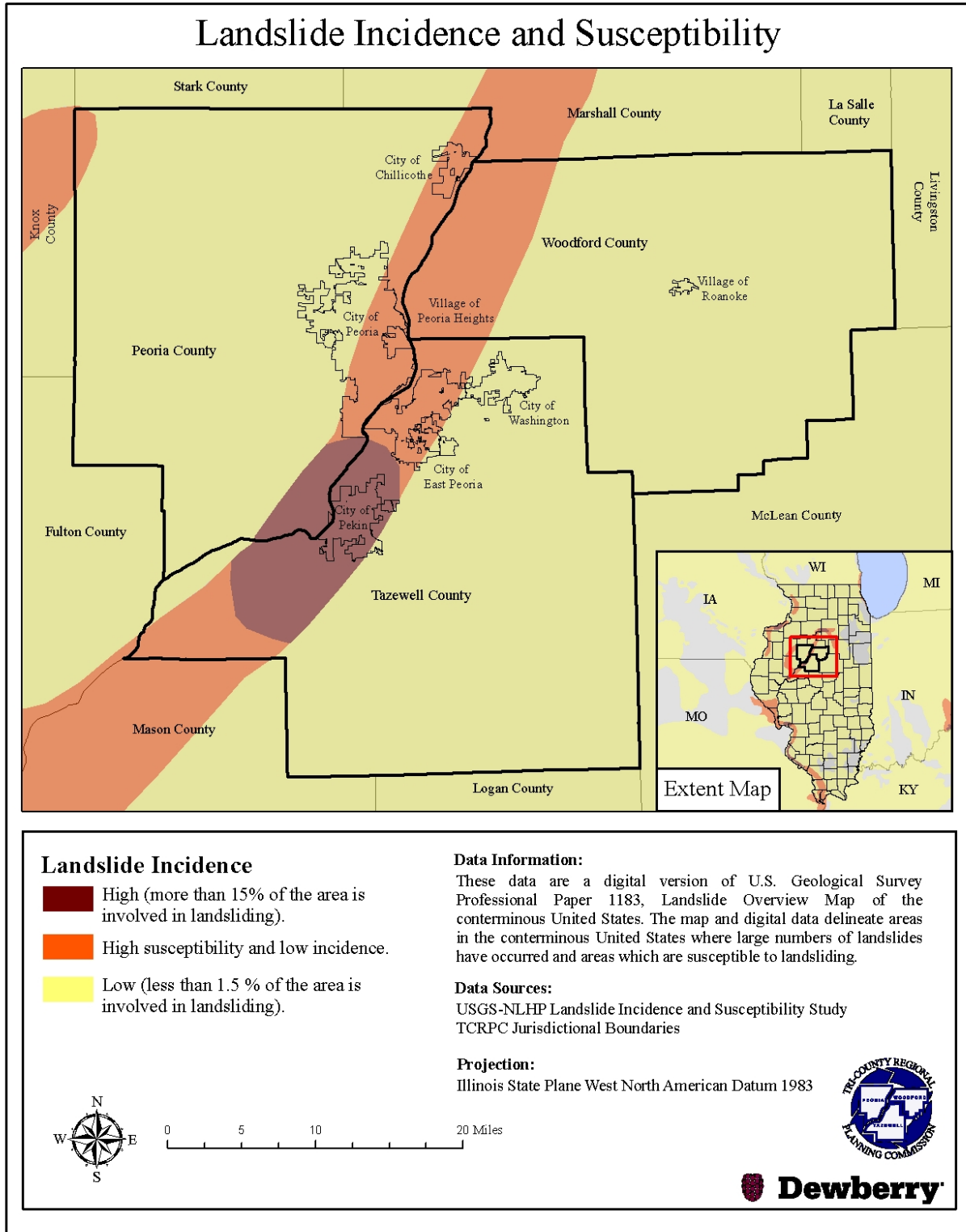


Figure V- 10: USGS Landslide Incidence and Susceptibility in the Tri-County area.



### **Probability**

Landslide probability is highly site-specific, and cannot be accurately characterized on a statewide basis, except in the most general sense. Relative risk ranking is intended only for general comparison to the other hazards that impact TCRPC. The magnitude of landslides is dependent on the amount of liquid and landmass in motion and the amount of development in the area. Often a landslide will be more severe in areas with higher slopes with poorly drained soils. Some areas that are generally prone to landslides include old landslide sites, base of slopes, base of minor drainage hollows, base or top of old fill slope, base or top of a steep cut slope, and developed hillsides where leach field septic systems are used.

### **Impact & Vulnerability**

Landslides can cause serious damage to highways, buildings, homes and other structures that support a wide range of economies and activities. Landslides commonly coincide with other natural disasters. Expansion of urban development contributes to greater risk of damage by landslides.

### **Risk**

Since the data is highly generalized, owing to the small scale and the scarcity of precise landslide information for much of the country, it is unsuitable for local planning or actual site selection. Without well established occurrence probabilities true risk and annualized dollar losses cannot be estimated.

The majority of the TCRPC is in the low landslide incidence category with a path of high susceptibility low incidence in all three counties following the Illinois River and a small portion in the North West tip of Peoria County. Areas of high susceptibility and incidence are centered along the Illinois River in the Cities of Pekin, Peoria, and East Peoria. Figure V-11 shows the areas that may be susceptible to landslides in the Tri-County area.



## Drought - Medium Hazard Ranking

### *2007 Illinois State Hazard Mitigation Plan Ranking*

Peoria County – Guarded

Tazewell County – Guarded

Woodford County – Guarded

### *Description*

Droughts are short-term or long-term water deficiencies that cause agricultural, environmental, and societal impacts. They can occur in any part of the Tri-county area and can last for long periods of time. Agricultural drought is the most common, characterized by unusually dry conditions during the growing season, and can have significant economic effects on local agriculture. Meteorological drought is defined as an extended period (generally 6 months or more) when precipitation is less than 75% of normal during that period. Hydrologic drought is characterized by extremely low stream flow levels, and is caused by a prolonged meteorological drought.

Current drought conditions nationwide are tracked by the U.S. Drought Monitor, a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, federal, and state environmental and climatologic organizations. The U.S. Drought Monitor blends a variety of drought indicators to produce a weekly drought condition status map for the nation.<sup>22</sup>

Droughts are typically quantified based on indices that consider rainfall, temperature, stream flow, groundwater, and/or other factors. One of the most commonly-cited drought measures is the Palmer Drought Severity Index, first documented in a 1965 paper by Wayne Palmer, uses temperature and precipitation information for a location in a formula to quantify dryness. A Palmer index value of zero indicates normal conditions, with increasingly negative values indicating increasing drought severity. Other drought indices use different methods and formulas to quantify dryness, and may be more appropriate for specific applications. The U.S. Drought Monitor uses a variety of drought indices, including the Palmer index, to produce an overall drought severity classification.

Short-term droughts occurring in sync with the growing season may have a significant impact on agricultural productivity, but may have little impact on public drinking water supply. Long-term hydrologic drought can impact public water supplies, forcing local

<sup>22</sup> US Drought Monitor available online at: <http://www.drought.unl.edu/dm/monitor.html>



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governments to enact water conservation restrictions. Jurisdictions which have invested in water supply and distribution infrastructure are less vulnerable to drought.

Extended periods of drought can increase the risk of wildfire occurrences. Wildfire occurrences can lead to an increase of burned woody debris that could increase the potential for landslides or mudflows.

Due to the limited impacts to population and infrastructure, this hazard was not analyzed in detail as part of this plan update.



## Extreme Heat - Medium Hazard Ranking

*2007 Illinois State Hazard Mitigation Plan Ranking*

Peoria County – High

Tazewell County – High

Woodford County – High

### *Description*

A heat wave is defined as prolonged periods of excessive heat, often combined with excessive humidity. Extreme heat is defined as temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks. A heat wave combined with a drought is a very dangerous situation.

The main concern in periods of extreme heat is the potential public health impact, such as heat exhaustion or heat stroke. Individuals of particular concern include those living in residences without air-conditioning, or in areas where electric service is unavailable due to system-wide blackouts.

Due to the limited impacts to population and infrastructure, this hazard was not analyzed in detail as part of this plan update.



## Wildfires - Medium Hazard Ranking

### *2007 Illinois State Hazard Mitigation Plan Ranking*

Peoria County – Not Determined

Tazewell County – Not Determined

Woodford County – Not Determined

### *Description*

A wildfire is an undesirable fire occurring in the natural environment and is a serious and growing hazard over much of the United States. Wildfires pose a great threat to life and property, particularly when they move from forest or rangeland into developed areas. An average of 5 million acres burn every year in the United States as a result of wildfires; causing millions of dollars in damage. Each year more than 100,000 wildfires occur in the United States, almost 90 percent of which are started by humans; the rest are caused by lightning. Weather is one of the most significant factors in determining the severity of wildfires<sup>23</sup>.

Due to the limited impacts to population and infrastructure, this hazard was not analyzed in detail as part of this plan update.

### *Hazard History*

Based on historical data, wildfires have not been prevalent in the Tri-County area. The few events on record were sparked by lightning and mainly affected structures rather than vast expanses of forest or farmland.

Recent efforts by the Geospatial Multi-Agency Coordination Group or GeoMAC has brought internet-based mapping originally designed for fire managers to the public. Users can access online maps of current fire locations and perimeters in the conterminous 48 States and Alaska. Using a standard web browser, fire personnel can view this information to pinpoint the affected areas. With the growing concern of western wildland fires in the summer of 2000, this application also became available to the public.

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<sup>23</sup> HAZUS-MH Risk Assessment and User Group Series How-to-Guide: Using HAZUS-MH for Risk Assessment (FEMA 433/August 2004)





GeoMAC was used to search for Wildland Fire histories as well as current active fires. None had been reported in the period of record. However, it is important to note fire perimeters are submitted to GeoMAC by field offices and then posted on the FTP site for downloading. While every effort is made to provide accurate and complete information there may be gaps in daily coverage. Please Note: Files only contain perimeter data as they are submitted by field offices. Files do not contain all fires. This data is not the authoritative fire perimeter data and should not be used as such. The US Search and Rescue Task Force reported a total of 29 wildland fires encompassing 597 Acres during the period from January 1, 2000 to July 12, 2004 for the State of Illinois.

### *Risk Assessment*

Population deconcentration in the U.S. has resulted in rapid development in the outlying fringe of metropolitan areas and in rural areas with attractive recreational and aesthetic amenities, especially forests. This demographic change is increasing the size of the wildland-urban interface (WUI), defined as the area where structures and other human development meet or intermingle with undeveloped wildland. The expansion of the WUI in recent decades has significant implications for wildfire management and impact. The WUI creates an environment in which fire can move readily between structural and vegetation fuels. Its expansion has increased the likelihood that wildfires will threaten structures and people<sup>24</sup>.

The Wildland-Urban Interface is where houses meet or intermingle with wildland vegetation. The WUI is where wildfire pose the biggest risk to human lives and structures<sup>25</sup>. Intermix WUI are areas where housing and vegetation intermingle; interface WUI are areas with housing in the vicinity of contiguous wildland vegetation. Figure V-11 shows the WUI Interface for the entire state of Illinois. The majority of the Tri-County area around the cities and villages is considered medium and high density housing and do not have a WUI risk. Small portions outside of the cities and villages have some intermix WUI areas.

<sup>24</sup> University of Wisconsin-Madison Forest & Wildlife Ecology SILVIS Lab. The Wildland-Urban Interface. [http://silvis.forest.wisc.edu/projects/WUI\\_Main.asp](http://silvis.forest.wisc.edu/projects/WUI_Main.asp) 6/20/2010

<sup>25</sup> Radeloff, V. C., R. B. Hammer, S. I Stewart, J. S. Fried, S. S. Holcomb, and J. F. McKeefry. 2005. The Wildland Urban Interface in the United States. *Ecological Applications* 15:799-805.

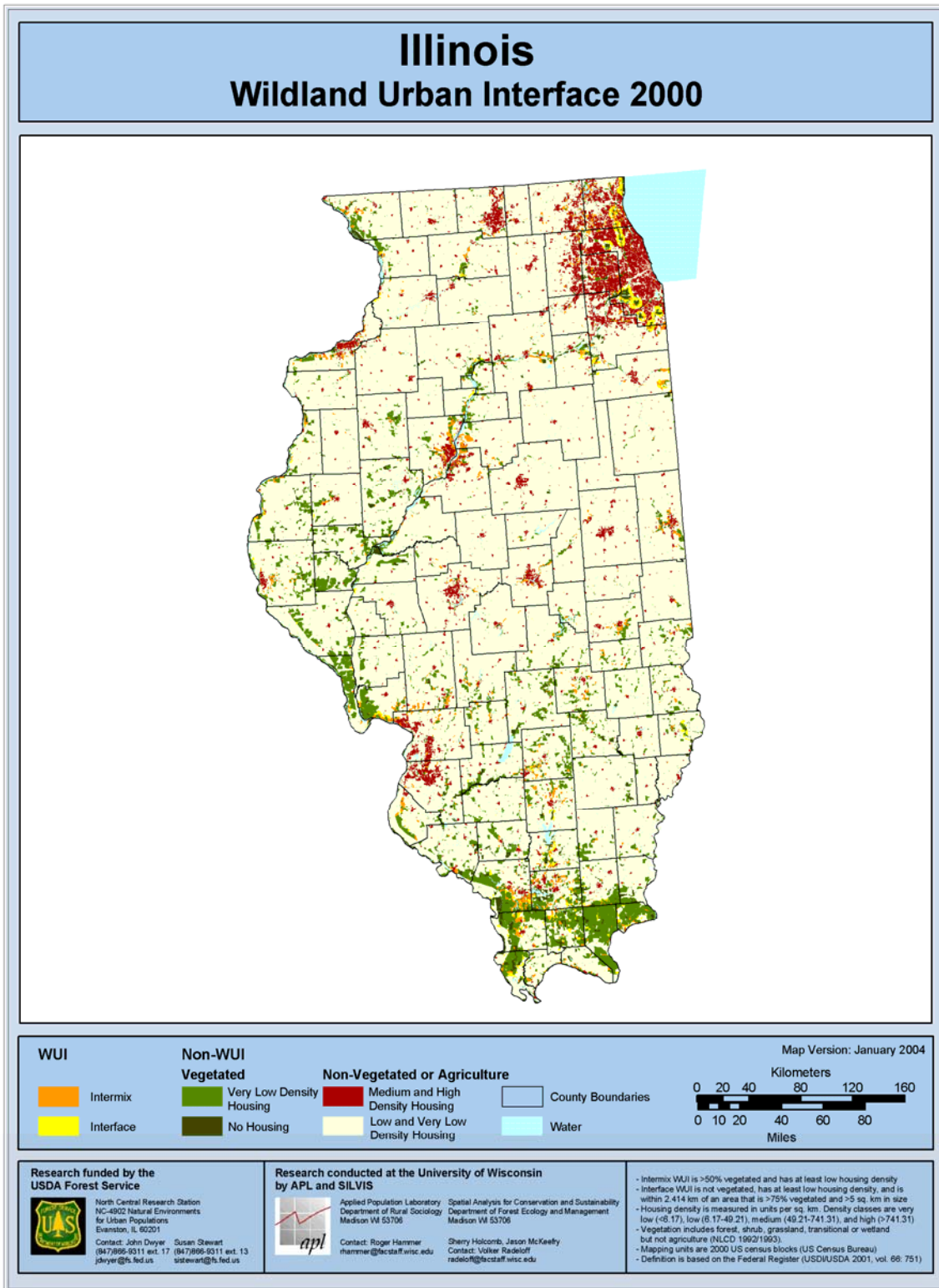


Figure V- 11: Wildland Urban Interface (WUI) for the State of Illinois. From the University of Wisconsin-Madison Forest & Wildlife Ecology SILVIS Lab



## Earthquakes - Medium Hazard Ranking

### *2007 Illinois State Hazard Mitigation Plan Ranking*

Peoria County – Guarded

Tazewell County – Guarded

Woodford County – Guarded

### *Description*

An earthquake (also known as a quake, tremor, or temblor) is the result of a sudden release of energy in the Earth's crust that creates seismic waves. Illinois is at risk from two major seismic zones, the Wabash Valley Seismic Zone and the New Madrid Seismic Zone (NMSZ). The Wabash Valley Zone is located between southeastern Illinois and southwestern Indiana. The NMSZ is located in the Central Mississippi Valley and includes portions of the states of Alabama, Arkansas, Illinois, Indiana, Kentucky, Missouri, Mississippi, and Tennessee. Earthquakes are a possibility in the Tri-County area due to its proximity to the New Madrid Fault Zone. While these hazards can affect an entire county, the majority of structural damage typically occurs in the downtown areas.

A typical way of measuring earthquake risk is in peak ground acceleration. The higher the acceleration of the ground during an earthquake, the greater the potential for damages. Appendix F includes a map of the Tri-County area and the associated peak acceleration according to the U. S. Geologic Survey (USGS). Areas with peak acceleration less than 3% are considered to be at low risk to earthquakes. Only a very small portion of the southern Tazewell County, primarily an agricultural area, has a risk higher than 2%. For this reason, earthquakes are not a significant hazard to the Tri-County area.

### *Hazard History*

During any 50-year time span, there is a 25% to 40% chance of a magnitude 6.0 or greater earthquake in this seismic zone. Since 1974, the year network monitoring of seismic activity began, more than 3000 earthquakes have been recorded in the NMSZ. Fortunately, none of these earthquakes exceeded a magnitude of 5.0, and most occurred without our noticing. The largest earthquake in recent years occurred on the Wabash Valley Seismic Zone. This earthquake registered a magnitude of 5.4 and occurred in Mt. Carmel, Illinois on April 18th, 2008<sup>26</sup>.

<sup>26</sup> Illinois Emergency Management Agency (IEMA) <http://www.state.il.us/iema/disaster/eQuakeMain.htm>  
6/1/2010



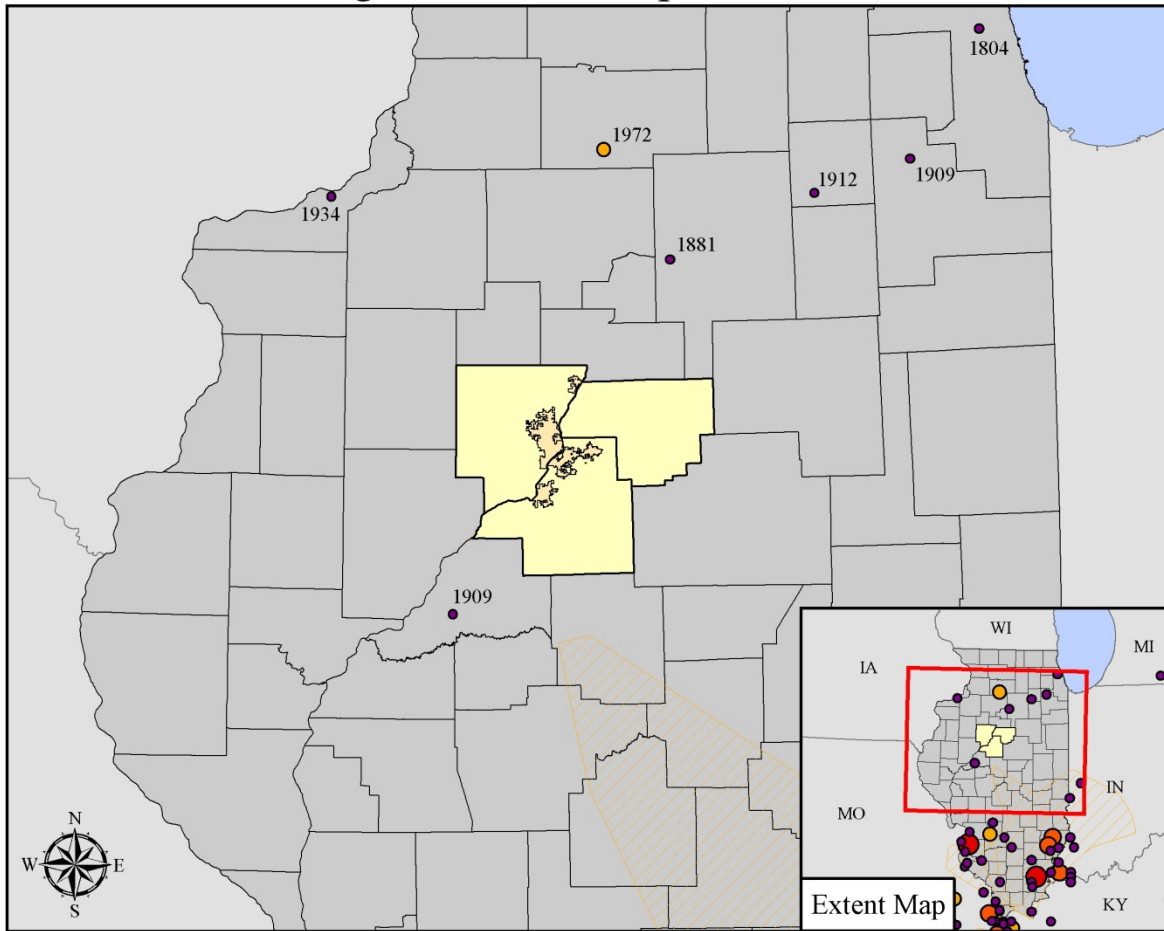
## Tri-County Regional Planning Commission Natural Hazards Mitigation Plan

The last two recorded earthquakes around the Tri-County area occurred on March 1, 1942 in Kewanee, Illinois, and on November 9, 1968 in Southern Illinois. The 1968 earthquake registered a magnitude of 5.3 on the Richter Scale, while the 1942 earthquake's magnitude is unknown. Shockwaves were felt in the area after both earthquakes, but no damage was reported. Earthquakes have not occurred with any frequency in the Tri-County area, nor have they produced significant damage.

Figure V-12 shows the significant earthquakes that have taken place around the TCRPC area. As shown, no earthquakes have occurred within the study region.



## TCRPC Significant Earthquakes 1568 - 2004



**Legend:**

**Richter Magnitude**

- Unknown
- 1 - 2.9
- 3 - 3.9
- 4 - 4.9
- > 5

▨ Quaternary Faults/Folds

■ Jurisdictions participating in 2010 HMP Update

**Data Information:**

This map layer contains the locations of significant, historic earthquakes that caused deaths, property damage, and geological effects, or were otherwise experienced by populations in the United States (1568 - 2004). USGS Quaternary Faults and Folds are believed to be sources of earthquakes, greater than magnitude 6, in the past 1,600,000 years.

**Data Sources:**

- USGS Significant Earthquakes
- USGS Quaternary Faults
- TCRPC Jurisdictional Boundaries
- HAZUS-MH MR3 Boundaries

**Projection:**

Illinois State Plane West North American Datum 1983

0 20 40 80 Miles

*Disclaimer: Uncertainties are inherent in any loss estimation methodology. The purpose of the analysis and data sets are to give general indication of areas that may be susceptible to hazards.*



Figure V- 12: USGS Significant Earthquakes.



## *Risk Assessment*

IEMA has funded a project by the Mid-America Earthquake Center to conduct a Comprehensive Seismic Loss Assessment for the State. Data from the Mid-America Earthquake Center (MAE-Center), University of Illinois (Georgia Institute of Technology, Illinois State Geological Survey, Illinois Emergency Management Agency) was used to highlight earthquake scenarios of a moment magnitude 7.7 and 6.3 near the northern end of the New Madrid seismic zone and a magnitude 7.1 for the Wabash Valley seismic zone, all analyzed for damage inflicted from at the state level.

The MAE-Center, Institute for Crisis, Disaster and Risk Management produced a report on the impacts of Earthquakes on the Central USA in September 2008<sup>27</sup>. This study focused on the New Madrid Seismic Zone. A HAZUS-MH scenario was completed for the state of Illinois. None of the Tri-County jurisdictions were identified as the critical counties; most of the high levels of damage occurred in the southern portion of the state.

HAZUS-MH MR4 was utilized for the Tri-County plan revision and further described in the critical facility and jurisdictional risk sections.

## **Probability**

Earthquakes are low probability, high consequence events. Although they may only occur once in the lifetime of an asset, they can have devastating impacts. A moderate earthquake can cause serious damage to unreinforced buildings, building contents, and non-structural systems, and can cause serious disruption in building operations. Moderate and even very large earthquakes are inevitable, although very infrequent, in areas of normally low seismic activity. Consequently, in these regions buildings are seldom designed to deal with an earthquake threat; therefore, they are extremely vulnerable.

## **Impact & Vulnerability**

HAZUS-MH can be used to evaluate a variety of hazards and associated risks to support hazard mitigation. This revision of the Hazard Mitigation Plan utilizes only using the provided hazard and inventory data with no outside data collection. This is an

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<sup>27</sup> Mid-America Earthquake Center, Institute for Crisis, Disaster and Risk Management MEA Center Report No. 08-02, September 2008



acceptable level of information for mitigation planning; future versions of this plan can be enhanced with Level 2 and 3 analysis.

## **Risk**

### **Critical Facility Risk**

For the HAZUS earthquake run, the region had 1,285 hospital beds available for use. On the day of the earthquake, the model estimates that only 64 hospital beds (5.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 11.00% of the beds will be back in service. By 30 days, 32% will be operational.

### **Jurisdictional Risk**

HAZUS building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. Table V-36 shows the annualized building losses by occupancy type. The total annualized losses are estimated to be \$9,295,433. HAZUS predicts residential housing would sustain the largest losses, comprising 57% of damage estimates.

Figure V-13 shows the distribution of total annualized losses for all buildings in the Tri-County area. It should be noted that the annualized loss for the cities and villages are included in the overall county totals. For this analysis, HAZUS was run by the TCRPC at the county level; to be able to show annualized losses for the cities and villages the census blocks were queried to estimate the residential loss only.



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Natural Hazards Mitigation Plan**

Table V- 36: County based HAZUS annualized loss by occupancy type.

County	Total Exposure	Agricultural	Commercial	Educational	Government	Industrial	Religious	Residential	Annualized Loss
Peoria County	\$14,768,003	\$29,045	\$1,717,378	\$99,240	\$75,676	\$310,977	\$131,107	\$2,724,640	\$5,088,062
<i>City of Chillicothe</i>								\$72,140	
<i>Village of Peoria Heights</i>								\$131,231	
<i>City of Peoria</i>								\$3,369,584	
Tazewell County	\$9,428,933	\$35,323	\$1,011,970	\$83,913	\$34,935	\$229,907	\$96,124	\$2,413,216	\$3,905,388
<i>City of Pekin</i>								\$1,393,520	
<i>City of East Peoria</i>								\$697,146	
<i>City of Washington</i>								\$279,048	
Woodford County	\$2,623,681	\$6,606	\$55,210	\$11,106	\$2,499	\$29,244	\$8,417	\$188,902	\$301,984
Village of Roanoke								\$18,286	
<b>Total</b>	<b>\$26,820,617</b>	<b>\$70,973</b>	<b>\$2,784,558</b>	<b>\$194,259</b>	<b>\$113,110</b>	<b>\$570,128</b>	<b>\$235,648</b>	<b>\$5,326,757</b>	<b>\$9,295,433</b>
% of Annualized Loss		0.76%	29.96%	2.09%	1.22%	6.13%	2.54%	57.31%	HAZUS-MH (MR4) results
% of Exposure		0.26%	10.38%	0.72%	0.42%	2.13%	0.88%	19.86%	

*All values are in thousands of dollars*





HAZUS-MH MR4 also estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. Table V-37 shows the household displacement and shelter estimates for each county. The model estimates 10 percent of households to be displaced due to the earthquake. Of these, 2.6% of the total population will seek temporary shelter in public shelters. Figure V-14 shows the distribution of displaced households throughout the Tri-County area.

Table V- 37: HAZUS-MH probabilistic scenario social vulnerability results.

County	No. of Displaced Households	No. of People Needing Short Term Shelter
Peoria County	7,322	5,042
Tazewell County	6,571	3,993
Woodford County	273	159
<b>Total</b>	<b>14,165</b>	<b>9,195</b>

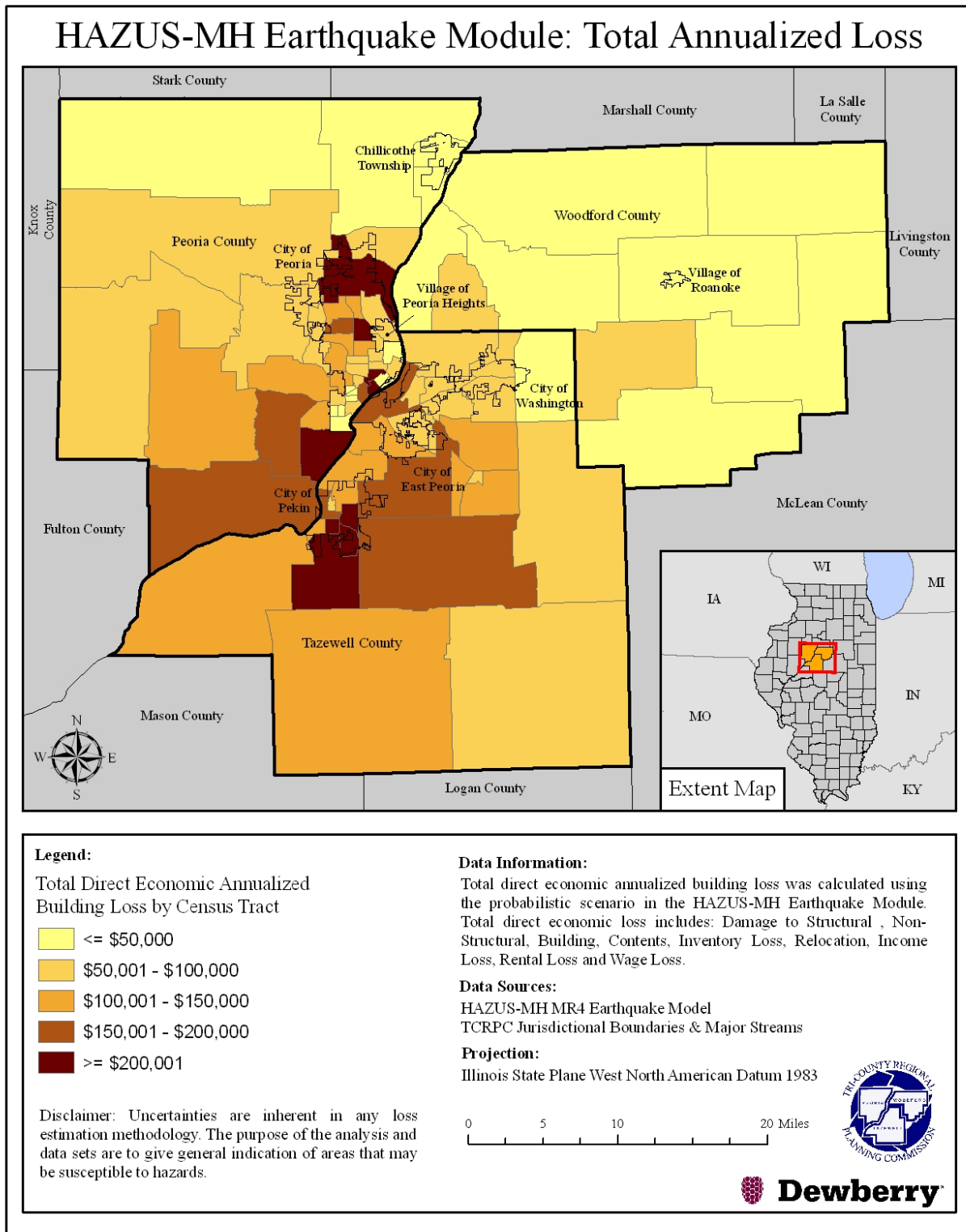


Figure V- 13: HAZUS-MH MR4 annualized loss estimates for Tri-County area.

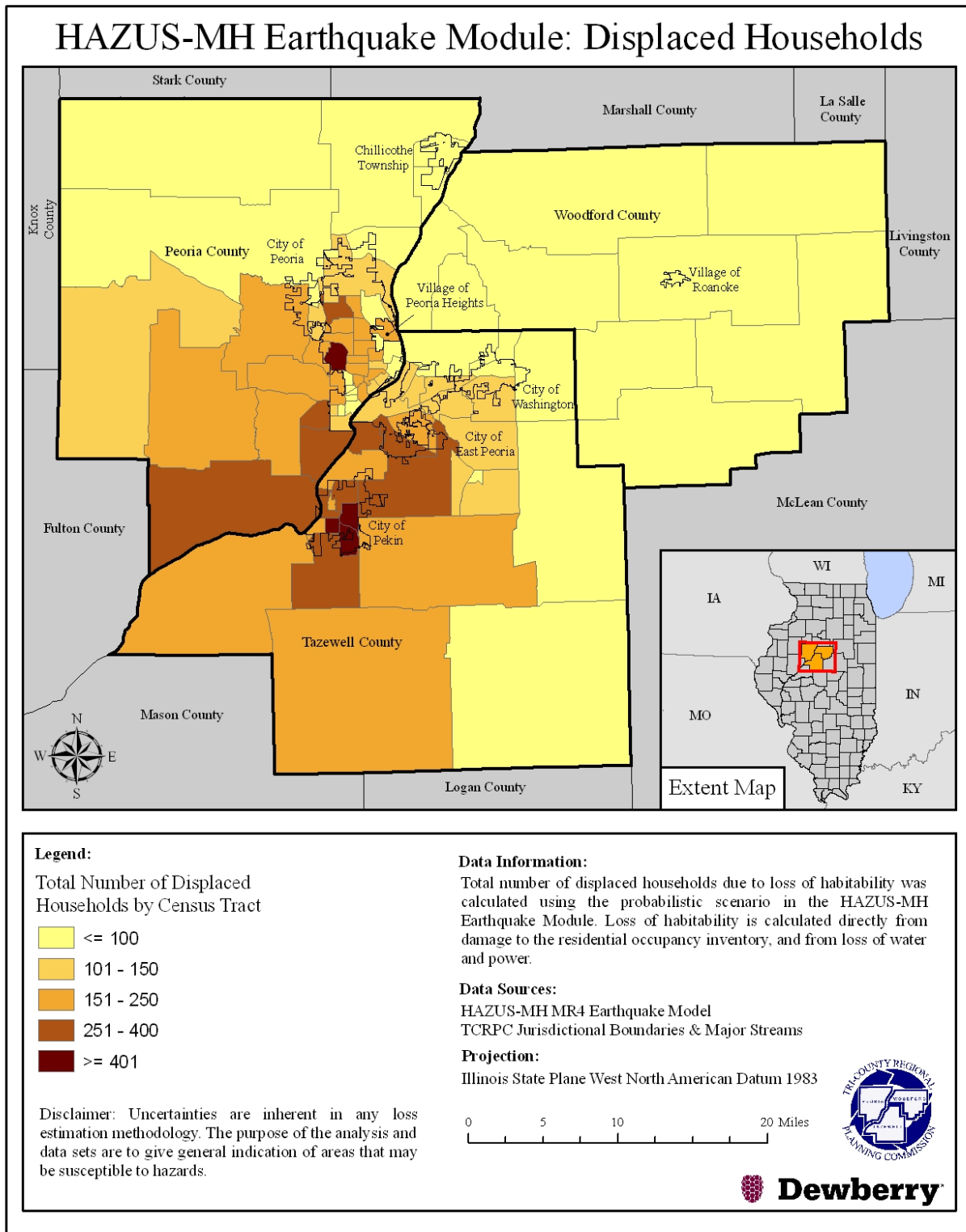


Figure V- 14: HAZUS-MH MR4 annualized displaced household estimates for Tri-County area.



## Overall Hazard Results

The previous hazard sections discussed the probability, impacts, and risk for each of the natural hazards that have been determined to have a significant impact on the population and infrastructure in the Tri-County region. This final sub-section to the HIRA provides an overall assessment and summary of the individual hazard analyses.

As previously discussed, the 2007 Illinois State Hazard Mitigation Plan was reviewed and compared to the 2004 and updated 2010 versions of the TCRPC hazard mitigation plan. Table V-38 below shows the 2007 Illinois ranking schema and table V-39 compares all three ranking methodologies. All three of the versions rank flood, severe storms as high risk, followed by winter storms.

Table V- 38: 2007 State of Illinois HMP ranking results.

County Name	Severe Storms	Floods	Winter Storms	Drought	Extreme Heat	Earthquake	Tornado
Peoria County	Severe	Guarded	Severe	Guarded	High	Guarded	Elevated
Tazewell County	Severe	Guarded	Severe	Guarded	High	Guarded	High
Woodford County	High	Elevated	Severe	Guarded	High	Guarded	Elevated



Table V- 39: Comparison of ranking results from 2010, 2004 plan, 2007 State of Illinois HMP.

2010 Hazard Categorization	TRCPC 2010 Update	State of Illinois HMP 2007	2004 Hazard Type	HOI Project Impact 2004
Flood	High	Primary Hazard (Flood)	Flood - Flash	Medium-High
			Flood - Riverine	High
Severe Storms & Tornadoes	High	Primary Hazard (Severe Storms & Tornadoes)	Severe Thunderstorm	Medium-High
			Wind Event - Microburst/Straight-line	High
		Primary Hazard (Severe Storms & Tornadoes)	Tornado - All Other Categories	Medium-High
			Tornado (F0)	High
			Tornado (F1)	High
			Tornado (F2)	Medium-High
Winter Storms	High	Primary Hazard	Winter Storms	Medium-High
Land/Mine Subsidence	Medium-High	Low Probability and/or Minor Impact	Land/Mine Subsidence	Medium-High
Landslide	Medium	Low Probability and/or Minor Impact	Landslide	Medium
Drought	Medium	Primary Hazard	Drought	Medium
Extreme Heat	Medium	Primary Hazard	Extreme Heat	Medium
Wildfire	Medium	Low Probability and/or Minor Impact	Wildfire	Medium
Earthquake	Medium	Primary Hazard	Earthquake	Medium



### *Estimating Potential Losses*

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

Rough estimates of annualized losses can be generated based on the NCDC Storm Events database, which documents the damage costs associated with the various hazards. Supplemental annualized loss values for flooding and earthquake have been derived from the other sources as described in each of the individual hazard sections.

### **Annualized Loss**

Based on information from the NCDC database, the Tri-County region can expect approximately \$1,714,625 in annualized damages due to all the hazards that impact the area. As previously discussed, this data has limitations due to the amount of historical data available, and reporting of significant events. Table V-40 below illustrates the number of years of record for each hazard, total damages reported in 2009 dollars, and annualized loss values. Tornado damages make up over 86% of the annualized damages.

NCDC data was also used to derive rough loss estimates for the counties within TCRPC. Estimated loss was calculated by taking the total property damage by hazard and dividing by the length of record for each hazard. The annualized value should only be utilized as an estimate of what can be expected in a given year. Based on these records and assumptions, Tri-County area can expect hazard related losses close to \$1.7 million in any given year. The hazard specific sections include additional information regarding the annualized loss by jurisdiction. At this time NCDC records were not available for the cities and towns participating in the plan.



Table V- 40: Annualized Loss Estimates based on NCDC records (1950 – 2009).

County	Extreme Heat	Flood	Severe Storms	Tornado	Winter Storm
<i>Years of Record</i>	12	16	54	55	14
Peoria County	No Loss Recorded	No Loss Recorded	\$58,573	\$664,547	\$14,947
Tazewell County	No Loss Recorded	No Loss Recorded	\$89,014	\$754,291	\$14,235
Woodford County	No Loss Recorded	\$9,030	\$26,028	\$59,404	\$24,555
<b>Total</b>	<b>No Loss Recorded</b>	<b>\$9,030</b>	<b>\$173,615</b>	<b>\$1,478,243</b>	<b>\$53,737</b>

As shown in the individual hazard sections, HAZUS-MH loss estimates are significantly higher than the NCDC estimates. This is to be expected as the HAZUS-MH results consider the total direct economic losses including damage to structural, non-structural, building contents, inventory loss, relocation, income loss, rental and wage loss. The NCDC loss estimates provided in this report are solely based on the reported property damage of past events. By substituting the HAZUS-MH results in the loss estimate table, TCRPC can expect over \$10.9 million in annualized loss for the hazards analyzed (Table V-41). Flooding related damages significantly increases as compared to the NCDC results which are more in line with the MAC estimation and the high hazard ranking. Based on the annualized loss values and analysis completed, flood and wind mitigation strategies should be high priorities for the Tri-County area.



Table V- 41: Annualized Loss Estimates based on NCDC records (1950 – 2009) and HAZUS-MH MR4 results.

Hazard Type	Ranking	Annualized Loss	
		NCDC	HAZUS-MH MR4
Flood	High	\$9,030	\$16,460,000
Severe Storms	High	\$173,615	
Tornado	High	\$1,478,243	
Winter Storms	High	\$53,737	
Land/Mine Subsidence	Medium-High	<i>No Loss Estimated</i>	
Landslide	Medium	<i>No Loss Estimated</i>	
Drought	Medium	<i>No Loss Estimated</i>	
Extreme Heat	Medium	<i>No Loss Estimated</i>	
Wildfire	Medium	<i>No Loss Estimated</i>	
Earthquake	Medium	<i>No Loss Estimated</i>	\$ 9.2 Million





## Limitations of Data

It should be noted that the data sources used in this HIRA are varied in their degree of completeness, accuracy, precision, etc. and our ability to accurately prioritize some of the hazards would be greatly improved with better information about them (e.g., landslide, land subsidence, etc.).

## Future Revisions to HIRA

An attempt was made to include the best available data for this revision of the hazard mitigation plan. Spatial data is constantly changing and efforts are being made to increase the accuracy of this data by the regional commission and local entities. As this data is made available it will be used in revisions of this plan. During the update period, the TCRPC should have updated digital Flood Insurance Rate Maps (DFIRMs) which will considerably increase the ability to complete higher end analysis for flooding.

### *Using HIRA results in Mitigation Strategies*

Data limitations have been fully noted throughout the HIRA section. Some of the issues can be resolved through coordination of the TCRPC and localities. Data creation and management issues will take more time and effort to resolve and incorporate into revisions of this plan. The MAC is dedicated to the long-term vision of this plan and are currently working towards the next revision. Mitigation actions have been created to address most of the data maintenance and limitations.





## SECTION VI — CAPABILITY ASSESSMENT

### Introduction

This portion of the Plan assesses the Tri-County area's current capacity to mitigate the effects of the natural hazards identified in Section IV, the Hazard Identification and Risk Assessment. This assessment includes a comprehensive examination of the following local government capabilities:

1. *Staff and Organizational Capability*
2. *Technical Capability*
3. *Fiscal Capability*
4. *Policy and Program Capability*
5. *Legal Authority*
6. *Political Willpower*

The capabilities assessment was conducted to identify potential hazard mitigation opportunities available to the Tri-County area local governments. Careful analysis should detect any existing gaps, shortfalls, or weaknesses within existing governmental activities that could exacerbate a community's vulnerability. The assessment will also highlight the positive measures already in place or being done at the city or county level, which should continue to be supported and enhanced, if possible, through future mitigation efforts.

The capabilities assessment serves as the foundation for designing an effective hazard mitigation strategy. It not only helps establish the goals and objectives for the Tri-County area to pursue under this Plan, but assures that those goals and objectives are realistically achievable under given local conditions.

### *Local Government Capabilities*

The following sections review each of the ten entities analyzed in the Tri-County area, and summarize the capabilities of each entity. The six main capabilities are explained below and summarized by jurisdiction in Table VI-1. Table VI -2 provides a summary of each of these individual reviews of ordinances and plans.



1.



Table VI- 1: Capability Assessment Summary

County	Community Name	Staff & Org. Responsibility	Technical Capability				Fiscal	Policy & Program Capability										Legal Authority					Political Willpower	OVERALL RANK	
			Technical Expertise	GIS	Internet Access	TOTAL		Recent Hazard Mitigation Efforts	CRS Activities	Emergency Operations Plans	Floodplain Management Plans	Stormwater Management Plans	Comprehensive Plans	Ordinances	Open Space Plans	Watershed Protection Plans	TOTAL	Regulations	Land Use	Acquisition	Taxation	Spending			TOTAL
Peoria	City of Chillicothe	L	x	x	x	L	L	x		x	x		x	x	x		L	x	x		x	x	L	L	L
	Peoria County	M	x	x	x	M	L	x	x	x	x	x	x	x	x		M	x	x	x	x	x	L	M	M
	Peoria Heights, Village of	L	x	x	x	L	L	x			x		x	x			L	x	x		x	x	L	L	L
	Peoria, City of	L	x	x	x	L	L	x		x			x				M	x	x		x	x	M/L	M/L	L
Tazewell	Tazewell County	L	x	x	x	L	L	x		x			x				L	x	x		x	x	M/L	M/L	L
	Washington, City of	L	x	x	x	L	L	x			x	x	x	x	x		M	x	x		x	x	M/L	M/L	L
	City of Pekin	L	x	x	x	L	L	x		x		x	x	x	x		L	x	x		x	x	M/L	M/L	L
	City of East Peoria	L	x	x	x	L	L	x									L	x	x		x	x	L	L	L
Woodford	Woodford County	L	x	x	x	L	L	x			x	x	x	x	x		M	x	x		x	x	M/L	M/L	L
	Village of Roanoke	L	x	x	x	L	L	x									L	x	x				L	L	L



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Table VI- 1: Capability Matrix Plans and Ordinances

Plan or Ordinance	Peoria County				Tazewell County				Woodford County	
	City of Chillicothe	Peoria County	Village of Peoria Heights	City of Peoria	Tazewell County	City of Washington	City of Pekin	City of East Peoria	Woodford County	Village of Roanoke
Comprehensive Land Use Plan	X	2009	2008	Update in Progress (2010)	Update in Progress (2010)	2001	2006	2004	Update in Progress (2010)	2003
Separate Local Hazard Mitigation Plan		Update in Progress (2010)		X			X			
Emergency Operations Plan	X	X		X	X		X			
Floodplain Management Plan	TRRPC	1995	X			X			X	
Stormwater Management Plan**	X	X		X	X	X	X	X	X	X
Open Space Plan	X*	2001				X			X	
Watershed Protection Plan						X	X		X	
Flood Damage Prevention Ordinance	TRRPC	1991		X	X		X		X*	
Subdivision Ordinance	X	2005		X	X	2010	X	X	X	X
Building Code	IBC	2006	X	X		IBC	IBC	X		X
Land Use Regulation	In Comp Plan	Update in Progress (2010)*	X	X	X	X	X	X	X*	X*
Zoning Ordinance	In Comp Plan	Update in Progress (2010)*	X	X	X	2010	X	X	2009	X
Stormwater Ordinance		Written, not adopted by IL				X	X	X	X	X

\*Governed by zoning ordinance \*\*Part of the TCRPC Regional Stormwater Management Plan



## Peoria County

### 1. Staff and Organizational Capability

Peoria County has limited staff and organizational capability to implement hazard mitigation strategies. Peoria County is governed by an 18-member County Board (one representative per district). The Board has a peer-elected Chairperson and delegates day-to-day duties to a hired County Administrator. The Board bears the responsibility of serving the people and improving the quality of life in the county. The business of the County Board is conducted through the committee system, where each of the 10 standing committees is responsible for oversight and budgetary control of its assigned areas. The committees report their activities to the full Board every month. Every two years the Board reorganizes, selects a new Chairperson and updates its Rules of Order.

A County Administrator, who is hired by the County Board, acts on their behalf and manages the various County departments. More specifically, the County Administrator directs and supervises the administration of all county offices, boards, commissions and agencies under the general direction and control of the Board.

Responsibilities include:

- Development of the annual budget
- Coordination of public relations programs
- Provision of administrative services to the County Board
- Administration of equal employment opportunity and affirmative action policies and programs
- Human resource Management and Payroll
- Risk Management
- Facilities Management
- A number of delegated programs

The County has a number of professional staff departments to serve the residents of Peoria County and to carry out day-to-day administrative activities. These include the following:

#### Development and Infrastructure

- Planning and Zoning
- Highway Department
- Recorder of Deeds

#### Real Estate Tax Cycle Services

- County Clerk
- Supervisor of Assessments
- Board of Review
- Treasurer



### **Administrative Services**

- Administration
- County Board
- IT Services
- County Auditor
- Facilities Management

### **Health and Human Services**

- Allied Agencies
- Recycling Services
- Bel-Wood Nursing Home
- Regional Office of Education

### **Public Safety and Justice**

- Sheriff's Office
- Adult Probation
- Court Administration/Jury
- Juvenile Detention Center
- Circuit Clerk
- ESDA
- Juvenile Probation



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The Regional Office of Education is responsible for the operation of the county school system and is also elected at large by the people. County funds usually maintain the buildings and provide funds for other capital projects, with state funds paying salaries, purchasing textbooks and supplies.

The Circuit Clerk is the custodian of the court system in Peoria County. The Recorder of Deeds and the Sheriff operate on a budget approved annually by the County Board.

The Planning and Zoning Department is responsible for the mitigation, preparedness, response and recovery operations that deal with both natural and man-made disaster events. The department maintains a full time planner that is also responsible for addressing land use planning and economic development concerns, as well as, developing mitigation strategies. The department also enforces the National Flood Insurance Program requirements, the Community Rating System, and other applicable local codes.

The Administrative Department is responsible for the oversight and management of the County's budget and fiscal programs, including the administration of state and federal grants.

Of the above-listed County departments, the Planning and Zoning Department and the ESDA have been assigned specifically delegated responsibilities to carry out mitigation activities or hazard control tasks. These departments have been involved in the development of this mitigation plan in order to identify gaps, weaknesses or opportunities for enhancement with existing mitigation programs. For the most part, it was determined that these departments are adequately staffed, trained and funded to accomplish their missions.

## *2. Technical Capability*

Peoria County has limited technical capability to implement hazard mitigation strategies.

### **a. Technical Expertise**

Peoria County utilizes the Director of Planning and Zoning to administer the County's hazard mitigation programs. The County does not have a licensed engineer or related technical expert on staff, and has in the past relied upon outside contractors/consultants to perform a majority of any required technical work. The county does not currently have a building department, but is preparing to implement the International Building Code effective in January of 2005.

Peoria County does have a person responsible for IT that can enhance local government operations and the County's ability to develop and maintain a state-of-the-art hazard mitigation program.

**b. Geographic Information Systems**

GIS systems can best be described as a set of tools (hardware, software and people) used to collect, manage, analyze and display spatially-referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. Peoria County currently has GIS capabilities to help achieve their hazard mitigation goals.

**c. Internet Access**

Peoria County provides its employees with high-speed broadband Internet service. This provides an enormous opportunity for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. Information technology also offers increased economic opportunities, higher living standards, more individual choices, and wider and more meaningful participation in government and public life. Simply put, information technology can make distance – a major factor for Peoria County officials and residents - far less important than it used to be. Internet access will also help further the County's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

*3. Fiscal Capability*

Peoria County has limited fiscal capability to implement hazard mitigation strategies. For Fiscal Year 2010, Peoria County budgeted expenditures were \$113,281,229. The majority of these funds are obligated to health and welfare (27.8%), although “public safety” was second in the budget by function (27.3%) for this period according to the most recent financial statements. The County receives most of its revenues through charges for services and through restricted intergovernmental contributions (federal and state pass through dollars). It is highly unlikely that Peoria County could afford to provide the local match for the existing hazard mitigation grant programs. Considering the current budget deficits at both the State and local government level, in Illinois, combined with the apparent increased reliance on local accountability by the Federal government, this is a significant and growing concern for Peoria County.

Under the DMA2K, FEMA has made special accommodations for "small and impoverished communities," that will be eligible for a 90% Federal share, 10% non-Federal cost share for projects funded through the Pre-Disaster Mitigation (PDM) grant program. Unfortunately, according to the current Interim Final Rule for Section 322 of the Act, Peoria County will not qualify as a small and impoverished community. The definition is restricted to “communities of 3,000 or fewer individuals that are identified by the State as a rural community.”

*4. Policy and Program Capability*

This part of the capabilities assessment includes the identification and evaluation of existing plans, policies, practices, programs, or activities that either increase or decrease the community's vulnerability to natural hazards. Positive activities, which

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decrease hazard vulnerability, should be sustained and enhanced if possible. Negative activities, which increase hazard vulnerability, should be targeted for reconsideration and be thoroughly addressed within the Mitigation Strategy section for Peoria County.

**a. Recent Hazard Mitigation Efforts**

Peoria County has undertaken specific hazard mitigation efforts in the past. These recent mitigation efforts are summarized as follows:

- *Ongoing Voluntary and/or Required Elevation of Structures* – Elevation of 50 flood-prone homes to 2-feet above the determined base flood elevation for each site.
- *Illinois River Acquisition Program* – Acquisition and demolition of 120 flood-prone properties. Completed in (2003).

**b. Community Rating System Activities**

Communities that regulate development in floodplains are able to participate in the NFIP. In return, the NFIP makes federally-backed flood insurance policies available for properties in the community. The CRS was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction.

Peoria County participates in the CRS as a “Class 8” community. This allows County residents to receive a 10% discount on their flood insurance premiums for policies purchased under the NFIP. A total of 2,240 credit points have been verified for the County. The County does not have building codes, therefore there is no Building Code Effectiveness Grading Schedule (BCEGS) Classification and the community does not meet the prerequisite for Class 6. The following is a summary of ISO findings with the total CRS credit points for each activity listed in parenthesis:

**Activity 310 – Elevation Certificates:** Elevation Certificates are maintained in the Peoria County Planning and Zoning Office. Photocopies will be made available upon request. The community also maintains a limited number of elevation certificates for post-firm buildings. (101 points)

**Activity 320 – Map Information:** Credit is provided for furnishing inquirers with information from the community’s latest Flood Insurance Rate Map (FIRM), publicizing the service and maintaining records. (140 points)

**Activity 330 – Outreach Projects:** The community mails out a newsletter annually to all owners of all structures in the floodplain. The mailing covers a multitude of topics on flooding issues. In addition, the community has a booth at the Heart of Illinois Fair and the Mall Event annually. (99 points)

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**Activity 340 – Hazard Disclosure:** Credit is provided for Illinois laws requiring final subdivision plats to show if any part of the property is in the Special Flood Hazard Area (SFHA) and the Illinois “Sellers Disclosure Law” that requires property owners to identify if their property is in the SFHA. (10 points)

**Activity 350 – Flood Protection Library:** Documents relating to floodplain management are available in the reference section of the Peoria Public Library and made available to all libraries in the area. (21 points)

**Activity 410 – Additional Flood Data:** Credit is given for floodway delineation and State review of the flood studies done in the community. Credit is also provided for the Illinois law that requires a more restrictive floodway standard. (24 points)

**Activity 420 – Open Space Preservation:** Credit is provided for preserving open space in the SFHA. Credit is also provided for open space land that is deed restricted. (44 points)

**Activity 430 – Higher Regulatory Standards:** Peoria County is requiring a regulation that new development be provided more protection than the NFIP’s minimum requirements. The county requires a higher freeboard on buildings and cumulative substantial improvement threshold. The county enforces State-mandated regulatory standards. The County also has two Certified Floodplain Managers who regulate the SFHA. (296 points)

**Activity 440 – Flood Data Maintenance:** Credit is provided for utilizing additional map data during the permitting and enforcement procedures and for maintaining FIRM maps and studies that have been issued and allowing public access. (48 points)

**Activity 510 – Floodplain Management Planning:** Based on the corrections made to the NFIP Report of Repetitive Losses as of January 31, 2001, Peoria County has 224 repetitive loss properties and is a Category C community for CRS purposes. All requirements for the FY 2001 cycle have been met. Credit is provided for the adoption and implementation of the Floodplain Management Plan. Since Peoria County is a Category C community with an approved Floodplain Management Plan, a progress report must be submitted on an annual basis. (23 points)

**Activity 520 – Acquisition and Relocation:** Credit is provided for acquiring and relocating buildings from the community’s flood hazard area. (996 points)

**Activity 530 – Retrofitting:** Credit is provided for buildings that have been elevated or otherwise modified to protect them from flood damage. (179 points)

**Activity 540 – Drainage System Maintenance:** Peoria County Highway Department maintains all drainage areas not only in the flood plains, but also throughout the County. The County is credited for inspecting and removing debris. (200 points)

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**Activity 630 – Dam Safety:** All of the Illinois communities receive credit for the State’s dam safety program. (59 points)

**c. Emergency Operations Plan**

Peoria County has developed and adopted a Comprehensive Emergency Management Plan dated March 2000 which predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. For the most part, the Plan describes the County’s capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster. The Plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the County to protect lives and property immediately before, during, and immediately following an emergency. There are no foreseeable conflicts between this Hazard Mitigation Plan and Peoria County’s Comprehensive Emergency Management Plan, primarily because they are each focused on two separate phases of emergency management (mitigation vs. preparedness and response). The Plan does identify the County Administrator, the County Finance Officer and the County Planner as having lead roles in the long-term reconstruction phase following a disaster – which presents a unique window of opportunity for implementing hazard mitigation strategies. However, no hazard mitigation strategies are specified within the Emergency Management Plan.

Peoria County has developed and adopted a current Hazard Mitigation Plan. It was first developed and adopted in 1985 and amended in 2001. It was designed to address hazard mitigation efforts relevant to flooding, tornadoes, and earthquakes. The bulk of the document is structured to 1) provide a detailed analysis of the flooding problem, 2) recommend mitigation alternatives for individual property owners, 3) recommend mitigation alternatives for the creation of aggregate open space, and 4) develop mitigation strategies.

The plan identifies and organizes the following mitigation activities which a community should address:

**FLOOD CONTROL**

- Levees/floodwalls
- Reservoirs/Detention
- Channel Improvements
- Control Gates/Back-Up valves

**EMERGENCY SERVICES**

- Flood Warning
- Sandbagging
- Evacuation/Rescue
- Public Health/Safety Maintenance

**PROPERTY PROTECTION**

- Building Relocation/Acquisition
- Building Elevation
- Floodproofing
- Self-Help Advice/Assistance
- Flood Insurance

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**FLOODPLAIN MANAGEMENT**

- Planning/Zoning
- Floodplain Development Regulations
- Open Space/Easements
- Stormwater Management
- Erosion/Sediment Control
- Stream Maintenance

The focus of the plan is the “flood protection” category and open space acquisition, as well as, the planning elements of the “floodplain management” category.

In summary, the plan provides guidance with regard to natural hazards and mitigation and develops specific recommendations, which when implemented, will reduce the threat of natural hazards in the County. It also includes a general summary of the various projects recommended in the plan by sub-area. The summary provides 1) a description of the project, 2) estimated project costs (2001 dollars), 3) probable funding sources, 4) areas to be refined with more detailed information, and 5) general project benefit(s).

Peoria County has also developed and adopted the Kickapoo Valley Hazard Mitigation Plan dated 1997. The plan describes 1) a community background, 2) a description of flooding, 3) current mitigation activities, 4) community hazard mitigation goals, 5) estimated project costs, 6) potential funding sources, 7) an open space plan, 8) mitigation recommendations, 9) project implementation, and 10) project benefits.

Emergency Services standard operating procedures (SOPs) are outlined in the plan. The County’s two feet above Base Flood Elevation (BFE) requirement for new and substantially improved structures is noted under the Floodplain Regulations and Property Protection section of the Plan.

**d. Floodplain Management Plan**

Peoria County does not currently have a separate floodplain management plan for purposes of the NFIP’s CRS. This Hazard Mitigation Plan is intended to revise the community’s current hazard mitigation plan and fulfill the CRS planning requirement when it becomes adopted, and will be maintained as such. However the Kickapoo Valley Hazard Mitigation Plan and the Hazard Mitigation Plan (1985) for residential and commercial policies address many of these concerns.

**e. Stormwater Management Plan**

Peoria County does not currently have an adopted stormwater management plan, but does apply stormwater management provisions through their subdivision regulations. According to the Peoria County Subdivision Ordinance, lands subject to flooding, irregular drainage conditions, excessive erosion, and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and

necessary stormwater drainage improvements must be completed before final plat approval.

**f. Comprehensive Plan**

The county adopted a Comprehensive Land Use Plan in 1992 and updated this plan in 2009.

**g. Ordinances**

Peoria County has adopted several ordinances that are relevant to hazard mitigation, as described in more detail below.

**Flood Damage Prevention Ordinance (1991) Kickapoo Valley Hazard Mitigation Plan**

The Flood Damage Prevention Ordinance is designed to minimize public and private losses due to flood conditions in specific areas. It requires a development permit be submitted to the County prior to any construction or substantial improvement activities. Permits will only be approved if they meet the provisions of the ordinance, which include development standards that will minimize the potential for flood losses. Standards are established for construction materials, equipment, methods, practices and uses. Most importantly, it establishes the requirements for elevation and floodproofing (non-residential) to the BFE (two feet above BFE for new and substantially improved structures).

The Ordinance requires the minimum standards of the NFIP. The County's floodplain areas are currently being re-studied as part of the State's Floodplain Mapping Program. It is possible those floodplain areas will be re-delineated with updated topography and that BFEs will be recalculated. The mitigation effectiveness of this ordinance is high.

**Subdivision Ordinance (1969)**

The Subdivision Ordinance is designed to regulate all divisions of land for purposes of sale or building development (immediate or future), including all divisions of land involving the dedication of new streets/roads or a change in existing streets/roads. All proposed subdivisions must go through an approval process involving multiple individuals/agencies. Subdivision plats are required for review and must include the location of areas subject to flooding. Lands subject to flooding, irregular drainage conditions, excessive erosion and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval. Furthermore, all waterfront development must meet setback requirements and impervious surface requirements. Plats are also reviewed to identify matters of topography and drainage.

Although not designed specifically for hazard mitigation purposes, this ordinance will prevent flood losses in tandem with the Flood Damage Prevention Ordinance. It will also minimize the adverse effects that development can have on stormwater drainage through impervious surface requirements and through sedimentation and erosion control. Through its roadway requirements, the ordinance also provides for adequate ingress and egress to subdivisions by emergency vehicles for fires or severe weather events. The mitigation effectiveness of this ordinance is moderate.

### **Peoria County State of Emergency Ordinance (2000)**

The purpose of this ordinance is to authorize the proclamation of a State of Emergency and the imposition of prohibitions and restrictions during a State of Emergency. This ordinance establishes the authority and procedures for the Chairperson of the County Board to proclaim a State of Emergency, and to impose the following restrictions as described in the ordinance: curfew; evacuation; possession, transportation, and transfer of intoxicating liquors, dangerous weapons and substances; access to areas; movements of people in public places; operation of businesses and other places; and other activities or conditions the control of which may be reasonably necessary to maintain order and protect lives or property during the State of Emergency.

The ordinance does not incorporate any long-term mitigation actions, such as temporary moratoria on the reconstruction of structures damaged or destroyed by a disaster event. The mitigation effectiveness of this ordinance is low.

#### **h. Open Space Plans**

Peoria County has an Open Space Plan dated 2001.

#### **i. Watershed Protection Plan**

Peoria County does not currently have a separate Watershed Protection Plan.

### **5. Legal Authority**

Local governments in Illinois have a wide range of tools available to them for implementing mitigation programs, policies and actions. A hazard mitigation program can utilize any or all of the four broad types of government powers granted by the State of Illinois, which are (a) Regulation, (b) Acquisition, (c) Taxation, and (d) Spending. The scope of this local authority is subject to constraints, however, as all of Illinois' political subdivisions must not act without proper delegation from the State. All power is vested in the State and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capabilities assessment will summarize Illinois' enabling legislation which grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

#### **a. Regulation**

- (1) General Police Power



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Illinois' local governments have been granted broad regulatory powers in their jurisdictions. Illinois State Statutes bestow the general police power on local governments, allowing them to enact and enforce ordinances which define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), towns, cities and counties may include requirements for hazard mitigation in local ordinances. Local governments may also use their ordinance-making power to abate "nuisances," which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard. Peoria County has enacted and enforces regulatory ordinances designed to promote the public health, safety and general welfare of its citizenry.

(2) Building Codes and Inspection

Many structural mitigation measures involve constructing and retrofitting homes, businesses and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through building codes. Peoria County does not have building codes. However, municipalities and counties may adopt codes for their respective areas if approved by the State as providing "adequate minimum standards." Local regulations cannot be less restrictive than the State code.

Local governments in Illinois are also empowered to carry out building inspections. It empowers cities and counties to create an inspection department, and enumerates their duties and responsibilities, which include enforcing state and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters. Peoria County has not adopted a building code or established a Building Inspections Department to carry out its building inspections. However, the county completed a building code study in 2003 and began implementing a building code program under the IBC beginning in 2006.

**b. Land Use**

Regulatory powers granted by the state to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development. All these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses great power to prevent unsuitable development in hazard-prone areas. Peoria County's land use regulations are governed by its zoning ordinance.

(1) Planning

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According to State Statute, local governments in Illinois may create or designate a planning agency. The planning agency may perform a number of duties, including: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties. The importance of the planning powers of local governments is illustrated by the requirement that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted “in accordance with a plan”, the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community. Peoria County has established a Planning and Zoning Department. The county has adopted a Comprehensive Land Use Plan from 1992 that was updated in 2009.

(2) Zoning

Zoning is the traditional and most common tool available to local governments to control the use of land. Broad enabling authority is granted for municipalities and counties in Illinois to engage in zoning. Counties may also regulate inside municipal jurisdiction at the request of a municipality. The statutory purpose for the grant of power is to promote health, safety, morals, or the general welfare of the community. Land use controlled by zoning includes the type of use (e.g., residential, commercial, industrial) as well as minimum specifications for use such as lot size, building height, setbacks, density of population, etc. Local governments are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts. Districts may include general use districts, overlay districts, and special use districts or conditional use districts. Zoning ordinances consist of maps and written text. Peoria County enforces a countywide zoning ordinance adopted in 1996 and updated in 2006.

(3) Subdivision Regulations

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that sub-dividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division/sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures. Broad subdivision control enabling authority for municipalities is granted for counties outside of municipalities. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street. The definition of subdivision does not include the division of land into parcels greater than 10 acres where no street right-of-way dedication is involved. Peoria County has adopted a Subdivision Ordinance.

(4) Stormwater Regulations

Stormwater regulations are most often used to control runoff and erosion potential which results from small-scale development of less than five acres. A reduction in damage from small-scale development is achieved through requirements such as on-site retention/detention ponds, etc. The State of Illinois encourages local governments to adopt stormwater regulations under land use authorities.

(5) Floodplain Regulation

Illinois State Statutes provide cities and counties the land use authority. In particular, issues such as floodwater control are empowered through 70 ILCS 405/25.

**c. Acquisition**

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find the most effective method for completely “hazard proofing” a particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. Illinois legislation empowers cities, towns, and counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease, or eminent domain. Peoria County has used acquisition as a local mitigation tool. Through the implementation of the Illinois River Program, 120 properties have been acquired.

**d. Taxation**

The power to levy taxes and special assessments is an important tool delegated to local governments by Illinois law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the community. Communities have the power to set preferential tax rates for areas which are more suitable for development in order to discourage development in otherwise hazardous areas. Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood protection works within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development. Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development. Peoria County does levy property taxes and uses preferential tax districts or special assessments for purposes of guiding growth and development.

**e. Spending**

The fourth major power that has been delegated from the Illinois General Assembly to local governments is the power to make expenditures in the public's interest. Hazard mitigation principles can be made a routine part of all spending decisions made by the local government, including the adoption annual budgets and a Capital Improvement Plan (CIP). A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a deference to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent especially in areas where the provision of on-site sewage disposal and water supply are unusually expensive. In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs. Peoria County does have a Capital Improvement Plan.

*6. Political Willpower*

Most Peoria County residents are quite knowledgeable about the potential hazards that their community faces, and in recent years, they have become more familiar with the practices and principles of mitigation. Many flood prone structures have been acquired thereby removing residents from harm's way. It is strongly believed that such tangible and visual changes within the community have created a greater sense of awareness among local residents, and that hazard mitigation is a concept that they are beginning to readily accept and support. This, coupled with Peoria County's history with natural disasters, it is expected that the current and future political climates are favorable for supporting and advancing future hazard mitigation strategies.

## **City of Chillicothe**

### *1. Staff and Organizational Capability*

The City of Chillicothe has limited staff and organizational capability to implement hazard mitigation strategies.

### *2. Technical Capability*

The City of Chillicothe has limited technical capability to implement hazard mitigation strategies.

#### **a. Technical Expertise**

The City of Chillicothe has limited technical expertise to implement hazard mitigation strategies.

#### **b. Geographic Information Systems**

GIS systems can best be described as a set of tools (hardware, software, and trained staff) used to collect, manage, analyze and display spatially-referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. The City of Chillicothe has availability for GIS capability to further hazard mitigation goals.

#### **c. Internet Access**

The City of Chillicothe provides its employees with high-speed broadband Internet service. This provides an enormous opportunity for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. Information technology also offers increased economic opportunities, higher living standards, more individual choices, and wider and more meaningful participation in government and public life. Simply put, information technology can make distance – a major factor for the City of Chillicothe officials and residents - far less important than in the past. Internet access will help further the Village's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

### *3. Fiscal Capability*

The City of Chillicothe has limited fiscal capability to implement hazard mitigation strategies.

### *4. Policy and Program Capability*

This part of the capabilities assessment includes the identification and evaluation of existing plans, policies, practices, programs, or activities that either increase or decrease the community's vulnerability to natural hazards. Positive activities, which decrease hazard vulnerability, should be sustained and enhanced if possible. Negative activities, which increase hazard vulnerability, should be targeted for reconsideration and be thoroughly addressed within Mitigation Strategy for the City of Chillicothe.

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Currently the City of Chillicothe does not undertake activities that significantly decrease hazard vulnerability.

**a. Recent Hazard Mitigation Efforts**

The City of Chillicothe has undertaken hazard mitigation efforts to support ongoing activities in the city. This hazard mitigation plan is an example of their efforts.

**b. CRS Activities**

Communities that regulate development in floodplains are able participate in the NFIP. In return, the NFIP makes Federally-backed flood insurance policies available for properties in the community. The CRS was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction.

The City of Chillicothe does not participate in the CRS.

**c. Emergency Operations Plans**

The City of Chillicothe has developed and adopted an Emergency Operations Plan which predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. The Plan describes the City's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster. The plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the City to protect lives and property immediately before, during and immediately following an emergency.

**d. Floodplain Management Plan**

The City of Chillicothe does not currently have a separate floodplain management plan for NFIP purposes. This Hazard Mitigation Plan is intended to fulfill the CRS planning requirement should the community decide to enter the program.

**e. Stormwater Management Plan**

The City of Chillicothe does not currently have an adopted stormwater management plan, but does apply stormwater management provisions through their subdivision regulations. According to the City's Subdivision Ordinance, lands subject to flooding, irregular drainage conditions, excessive erosion, and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval.

**f. Comprehensive Plan**

The City of Chillicothe developed and adopted a Comprehensive Plan. The plan provides the future vision for the community regarding growth and development. Hazard mitigation planning is not specifically addressed in the plan.

**g. Ordinances**

The City of Chillicothe has adopted several ordinances that are relevant to hazard mitigation, as described in more detail below.

**Zoning Ordinance**

The Zoning Ordinance requires building permits for all structures. It requires a development permit to be submitted to the City prior to any construction or substantial improvement activities. Permits will only be approved if they meet the provisions of the ordinance. Standards are established for construction materials, equipment, methods, practices and uses. The mitigation effectiveness of this ordinance is low.

**The City of Chillicothe State of Emergency Ordinance (2003)**

The purpose of this ordinance is to authorize the proclamation of a State of Emergency and the imposition of prohibitions and restrictions during a State of Emergency. It establishes the authority and procedures for the City of Chillicothe Administration to proclaim a State of Emergency, and to impose the following restrictions as described in the ordinance: curfew; evacuation; possession/transportation/transfer of intoxicating liquors, dangerous weapons and substances; access to areas; movements of people in public places; operation of businesses and other places; and other activities or conditions the control of which may be reasonably necessary to maintain order and protect lives or property during a State of Emergency.

The ordinance does not incorporate any long-term mitigation actions, such as temporary moratoria on the reconstruction of structures damaged or destroyed by a disaster event. The mitigation effectiveness of this ordinance is low.

**h. Open Space Plans**

The City of Chillicothe does not currently have a separate open space plan.

**i. Watershed Protection Plan**

The City of Chillicothe does not currently have a separate watershed protection plan.

*5. Legal Authority*

Local governments in Illinois have a wide range of tools available to them for implementing mitigation programs, policies, and actions. A hazard mitigation program can utilize any or all of the four broad types of government powers granted by the State of Illinois, which are (a) regulation, (b) acquisition, (c) taxation, and (d) spending. The

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scope of this local authority is subject to constraints, however, as Illinois' political subdivisions must not act without proper delegation from the State. All power is vested in the State and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capabilities assessment will summarize Illinois' enabling legislation that grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

**a. Regulation**

(1) General Police Power

Illinois' local governments have been granted broad regulatory powers in their jurisdictions. Illinois State Statutes bestow the general police power on local governments, allowing them to enact and enforce ordinances that define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), towns, cities and counties may include requirements for hazard mitigation in local ordinances. Local governments may also use their ordinance-making power to abate "nuisances," which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard. The City of Chillicothe has enacted and enforces regulatory ordinances designed to promote the public health, safety and general welfare of its citizenry.

(2) Building Codes and Building Inspection

Many structural mitigation measures involve constructing and retrofitting homes, businesses, and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through building codes, as is the case in the City of Chillicothe. Municipalities and counties may adopt codes for their respective areas if approved by the State as providing "adequate minimum standards." Local regulations cannot be less restrictive than the State code.

Local governments in Illinois are also empowered to carry out building inspections. It empowers cities and counties to create an inspection department, and enumerates its duties and responsibilities which include enforcing State and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters. The City of Chillicothe uses the International Build Code (IBC).

**b. Land Use**

Regulatory powers granted by the State to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development. All of these



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characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, and enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses great power to prevent unsuitable development in hazard-prone areas. The City of Chillicothe addresses land use regulation in their comprehensive plan.

(1) Planning

According to State statutes, local governments in Illinois may create or designate a planning agency. The planning agency may perform a number of duties including: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties. The importance of the planning powers of local governments is illustrated by the requirement that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted “in accordance with a plan,” the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community. The City of Chillicothe has established a Planning Office.

(2) Zoning

Zoning is the traditional and most common tool available to local governments to control the use of land. Broad enabling authority is granted for municipalities and counties in Illinois to engage in zoning. Land “uses” controlled by zoning include the type of use (e.g., residential, commercial, industrial) as well as minimum specifications for use such as lot size, building height and setbacks, density of population, etc. Local governments are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts. Districts may include general use districts, overlay districts, and special use districts or conditional use districts. Zoning ordinances consist of maps and written text. The City of Chillicothe enforces a City wide zoning ordinance.

(3) Subdivision Regulations

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that sub-dividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division or sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures. Subdivision is defined as all divisions of a tract or

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parcel of land into two or more lots and all divisions involving a new street. The definition of subdivision does not include the division of land into parcels greater than 10 acres where no street right-of-way dedication is involved. The City of Chillicothe addresses subdivision in their comprehensive plan.

**(4) Stormwater Regulations**

Stormwater regulations are most often used to control runoff and erosion potential which results from small-scale development of less than five acres. A reduction in damage from small-scale development is achieved through requirements such as on-site retention/detention ponds, etc. The State of Illinois encourages local governments to adopt stormwater regulations under land use authorities.

**(5) Floodplain Regulation**

Illinois State statutes provide cities and counties the land use authority. In particular, issues such as floodwater control are empowered through 70 ILCS 405/25.

**c. Acquisition**

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find the most effective method for completely “hazard proofing” a particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. Illinois legislation empowers cities, towns, and counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease, or eminent domain. The City of Chillicothe proposes to use acquisition as a local mitigation tool.

**d. Taxation**

The power to levy taxes and special assessments is an important tool delegated to local governments by Illinois law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the community. Communities have the power to set preferential tax rates for areas which are more suitable for development in order to discourage development in otherwise hazardous areas. Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood protection works within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development. Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing to the new

property owners the costs of the infrastructure required by new development. The City of Chillicothe does levy property taxes.

**e. Spending**

The fourth major power that has been delegated from the Illinois General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine part of all spending decisions made by the local government, including the adoption annual budgets and a Capital Improvement Plan (CIP). A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a deference to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent especially in areas where the provision of on-site sewage disposal and water supply are unusually expensive. In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs.

*6. Political Willpower*

Most City residents are knowledgeable about the potential hazards that their community faces, and in recent years, they have become more familiar with the practices and principles of mitigation. Many flood prone structures have been acquired thereby removing residents from harm's way. Such tangible and visual changes within the community have created a greater sense of awareness among local residents, and hazard mitigation is a concept that they are beginning to readily accept and support. Because of this fact, coupled with the City of Chillicothe's history with natural disasters, it is expected that the current and future political climates are favorable for supporting and advancing future hazard mitigation strategies.

## **Village of Peoria Heights**

### *1. Staff and Organizational Capability*

The Village of Peoria Heights is a home rule municipality governed by a Village Board of Trustees form of government. The legislative body (Village Board) consists of six trustees elected for a four-year term. Their terms are staggered, so that half are elected every two years. The Mayor is elected at large to a four-year term, as well as, the Village Clerk. The Mayor appoints the Village Treasurer. The Mayor is the Chief Executive Officer of the Village and presides over meetings of the Village Board. With the approval of the Village Board, the Mayor appoints non-elected Village officials.

The six trustees of the Village Board are elected to serve overlapping four-year terms and may be elected for an indefinite number of terms. The Village Board formulates policy and enacts local laws, usually in the form of resolutions and ordinances. The Village Board is directly responsible to the citizens of Peoria Heights.

The Village Clerk is the recording officer and is elected at large to a four-year term. The Village Clerk is responsible for attending all meetings of the Village Board and keeping records of the proceedings. Village Board meetings are the first and third Tuesday of each month.

### *3. Technical Capability*

The Village has limited technical capability to implement hazard mitigation strategies.

#### **a. Technical Expertise**

The Village has limited technical expertise to implement hazard mitigation strategies.

#### **b. Geographic Information Systems**

GIS systems can best be described as a set of tools (hardware, software, and trained staff) used to collect, manage, analyze and display spatially-referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. The Village of Peoria Heights has access to GIS capability to further hazard mitigation goals.

#### **c. Internet Access**

The Village of Peoria Heights provides its employees with high-speed broadband Internet service. This provides an enormous opportunity for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. Information technology also offers increased economic opportunities, higher living standards, more individual choices, and wider and more meaningful participation in government and public life. Simply put, information technology can make distance – a major factor for the Village of Peoria Heights officials and residents - far less important than in the past. Internet access will help further the Village's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

### *3. Fiscal Capability*

The Village of Peoria Heights has limited fiscal capability to implement hazard mitigation strategies. The Village receives most of its revenues through State and local sales tax and other local services and through restricted intergovernmental contributions (Federal and State pass through dollars). It is highly unlikely that the Village of Peoria Heights could afford to provide the cost share for the existing hazard mitigation grant programs. Considering the current budget deficits at both the State and local government level in Illinois combined with the apparent increased reliance on local accountability by the Federal government, this is a significant and growing concern for the community.

Under the DMA2K, FEMA has made special accommodations for "small and impoverished communities," that will be eligible for a 90% Federal share, 10% non-Federal cost share for projects funded through the Pre-Disaster Mitigation (PDM) grant program. Unfortunately, according to the current Interim Final Rule for Section 322 of the Act, the Village of Peoria Heights will not qualify as a small and impoverished community. The definition is restricted to "communities of 3,000 or fewer individuals that are identified by the State as a rural community."

### *4. Policy and Program Capability*

This part of the capabilities assessment includes the identification and evaluation of existing plans, policies, practices, programs, or activities that either increase or decrease the community's vulnerability to natural hazards. Positive activities, which decrease hazard vulnerability, should be sustained and enhanced if possible. Negative activities, which increase hazard vulnerability, should be targeted for reconsideration and be thoroughly addressed within Mitigation Strategy for the Village of Peoria Heights. Currently the Village of Peoria Heights does not undertake activities that significantly decrease hazard vulnerability.

#### **b. CRS Activities**

Communities that regulate development in floodplains are able participate in the NFIP. In return, the NFIP makes Federally-backed flood insurance policies available for properties in the community. The CRS was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction.

The Village of Peoria Heights does not participate in the CRS.

#### **c. Emergency Operations Plans**

The Village of Peoria Heights has not developed an Emergency Operations Plan. Immediately before, during and immediately following an emergency.

**d. Floodplain Management Plan**

The Village of Peoria Heights does not currently have a separate floodplain management plan for NFIP purposes. This Hazard Mitigation Plan is intended to fulfill the CRS planning requirement should the community decide to enter the program.

**e. Stormwater Management Plan**

The Village of Peoria Heights does not currently have an adopted stormwater management plan, but does apply stormwater management provisions through their subdivision regulations. According to the Village's Subdivision Ordinance, lands subject to flooding, irregular drainage conditions, excessive erosion, and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval.

**f. Comprehensive Plan**

The Village of Peoria Heights developed and adopted a Comprehensive Plan in 2008. The plan provides the future vision for the community regarding growth and development. Hazard mitigation planning is not specifically addressed in the plan.

**g. Ordinances**

The Village of Peoria Heights has adopted several ordinances that are relevant to hazard mitigation. The Zoning Ordinance requires building permits for all structures. It requires a development permit to be submitted to the Village prior to any construction or substantial improvement activities. Permits will only be approved if they meet the provisions of the ordinance. Standards are established for construction materials, equipment, methods, practices and uses. The mitigation effectiveness of this ordinance is low.

The purpose of this ordinance is to authorize the proclamation of a State of Emergency and the imposition of prohibitions and restrictions during a State of Emergency. It establishes the authority and procedures for the Village of Peoria Heights Board of Trustees to proclaim a State of Emergency, and to impose the following restrictions as described in the ordinance: curfew; evacuation; possession/transportation/transfer of intoxicating liquors, dangerous weapons and substances; access to areas; movements of people in public places; operation of businesses and other places; and other activities or conditions the control of which may be reasonably necessary to maintain order and protect lives or property during a State of Emergency.

The ordinance does not incorporate any long-term mitigation actions, such as temporary moratoria on the reconstruction of structures damaged or destroyed by a disaster event. The mitigation effectiveness of this ordinance is low.

**h. Open Space Plans**

The Village of Peoria Heights does not currently have a separate open space plan.

**i. Watershed Protection Plan**

The Village of Peoria Heights does not currently have a separate watershed protection plan.

*5. Legal Authority*

Local governments in Illinois have a wide range of tools available to them for implementing mitigation programs, policies, and actions. A hazard mitigation program can utilize any or all of the four broad types of government powers granted by the State of Illinois, which are (a) regulation, (b) acquisition, (c) taxation, and (d) spending. The scope of this local authority is subject to constraints, however, as Illinois' political subdivisions must not act without proper delegation from the State. All power is vested in the State and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capabilities assessment will summarize Illinois' enabling legislation that grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

**a. Regulation**

**(1) General Police Power**

Illinois' local governments have been granted broad regulatory powers in their jurisdictions. Illinois State Statutes bestow the general police power on local governments, allowing them to enact and enforce ordinances that define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), towns, cities and counties may include requirements for hazard mitigation in local ordinances. Local governments may also use their ordinance-making power to abate "nuisances," which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard. Peoria County has enacted and enforces regulatory ordinances designed to promote the public health, safety and general welfare of its citizenry.

**(2) Building Codes and Building Inspection**

Many structural mitigation measures involve constructing and retrofitting homes, businesses, and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through building codes, as is the case in the Village of Peoria Heights. Municipalities and counties may adopt codes for their respective areas if approved by the State as providing "adequate minimum standards." Local regulations cannot be less restrictive than the State code.

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Local governments in Illinois are also empowered to carry out building inspections. It empowers cities and counties to create an inspection department, and enumerates its duties and responsibilities which include enforcing State and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters. The Village of Peoria Heights has adopted a building code.

**b. Land Use**

Regulatory powers granted by the State to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development. All of these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, and enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses great power to prevent unsuitable development in hazard-prone areas. The Village of Peoria Heights has not adopted a land use regulation.

(1) Planning

According to State statutes, local governments in Illinois may create or designate a planning agency. The planning agency may perform a number of duties including: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties. The importance of the planning powers of local governments is illustrated by the requirement that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted “in accordance with a plan,” the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community. The Village of Peoria Heights has established an established agency.

(2) Zoning

Zoning is the traditional and most common tool available to local governments to control the use of land. Broad enabling authority is granted for municipalities and counties in Illinois to engage in zoning. Land “uses” controlled by zoning include the type of use (e.g., residential, commercial, industrial) as well as minimum specifications for use such as lot size, building height and setbacks, density of population, etc. Local governments are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts. Districts may include general use districts, overlay districts, and special use districts or conditional use districts. Zoning ordinances



consist of maps and written text. The Village of Peoria Heights enforces a zoning ordinance.

(3) Subdivision Regulations

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that sub-dividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division or sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street. The definition of subdivision does not include the division of land into parcels greater than 10 acres where no street right-of-way dedication is involved.

(4) Stormwater Regulations

Stormwater regulations are most often used to control runoff and erosion potential which results from small-scale development of less than five acres. A reduction in damage from small-scale development is achieved through requirements such as on-site retention/detention ponds, etc. The State of Illinois encourages local governments to adopt stormwater regulations under land use authorities.

(5) Floodplain Regulation

Illinois State statutes provide cities and counties the land use authority. In particular, issues such as floodwater control are empowered through 70 ILCS 405/25.

**c. Acquisition**

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find the most effective method for completely “hazard proofing” a particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. Illinois legislation empowers cities, towns, and counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease, or eminent domain. The Village of Peoria Heights proposes to use acquisition as a local mitigation tool.

**d. Taxation**

The power to levy taxes and special assessments is an important tool delegated to local governments by Illinois law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the

community. Communities have the power to set preferential tax rates for areas which are more suitable for development in order to discourage development in otherwise hazardous areas. Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood protection works within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development. Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development.

**e. Spending**

The fourth major power that has been delegated from the Illinois General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine part of all spending decisions made by the local government, including the adoption annual budgets and a Capital Improvement Plan (CIP). A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a deference to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent especially in areas where the provision of on-site sewage disposal and water supply are unusually expensive. In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs.

*6. Political Willpower*

Most Village residents are knowledgeable about the potential hazards that their community faces, and in recent years, they have become more familiar with the practices and principles of mitigation. Many flood prone structures have been acquired thereby removing residents from harm's way. Such tangible and visual changes within the community have created a greater sense of awareness among local residents, and hazard mitigation is a concept that they are beginning to readily accept and support. Because of this fact, coupled with the Village of Peoria Heights history with natural disasters, it is expected that the current and future political climates are favorable for supporting and advancing future hazard mitigation strategies.

## **City of Peoria**

### *1. Staff and Organizational Capability*

The City of Peoria has limited staff and organizational capability to implement hazard mitigation strategies. The City of Peoria is governed by a ten member City Council. Five members represent the five districts into which the City is divided. There are an additional five members who serve “at large.” There is also a Mayor. The Council bears the responsibility of serving the people and improving the quality of life in the City. The business of the City is conducted through the department and board system. There are 17 City departments and boards as follows:

1. Board of Election Commissioners
2. Economic Development Department
3. Emergency Services & Disaster Agency
4. Equal Opportunity Office
5. Finance Department
6. Human Resources
7. Information Systems
8. Inspections
9. Legal Department
10. Peoria Animal Welfare Shelter
11. Peoria City Employees Credit Union
12. Peoria Fire Department
13. Planning and Growth Management
14. Police Department
15. Public Works Department
16. Riverfront Development
17. Workforce Development

The Emergency Services & Disaster Agency (ESDA) is responsible for the mitigation, preparedness, response and recovery operations that deal with both natural and man-made disaster events. The Planning and Growth Management maintains a full-time planner that is also responsible for addressing land use planning as well as developing mitigation strategies. The department also enforces the NFIP requirements and other applicable local codes. The Public Works Department oversees the maintenance of City infrastructure including roadways, sewer and stormwater facilities, and the community’s water treatment facilities. The Planning and Zoning Department, ESDA, and Public Works Department have been assigned specifically delegated responsibilities to carry out mitigation activities or hazard control tasks. They have been involved in the development of this mitigation plan in order to identify gaps, weaknesses, or opportunities for enhancement with existing mitigation programs. For the most part, it was determined that the departments are adequately staffed, trained, and funded to accomplish their missions.

## *2. Technical Capability*

The City of Peoria has limited to adequate technical capability to implement hazard mitigation strategies.

### **a. Technical Expertise**

The City does have a full-time planner on staff to administer the community's hazard mitigation programs. The City Engineer provides expertise in the area of water resources and associated technical work. The City does have an inspections office that enforces a building code.

The City also has a person responsible for IT which can enhance local government operations and the community's ability to develop and maintain a state-of-the art hazard mitigation program.

### **b. Geographic Information Systems**

GIS systems can best be described as a set of tools (hardware, software and people) used to collect, manage, analyze and display spatially-referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. The City of Peoria currently has GIS capability to further hazard mitigation goals.

### **c. Internet Access**

The City of Peoria provides its employees with high-speed broadband Internet service. This provides an enormous opportunity for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. Information technology also offers increased economic opportunities, higher living standards, more individual choices, and wider and more meaningful participation in government and public life. Simply put, information technology can make distance – a major factor for City officials and residents - far less important than in the past. Internet access will help further the City's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

## *3. Fiscal Capability*

The City of Peoria has limited fiscal capability to implement hazard mitigation strategies. The City receives most of its revenues through State and local sales tax and other local services and through restricted intergovernmental contributions (Federal and State pass through dollars). It is highly unlikely that the City of Peoria could afford to provide the cost share for the existing hazard mitigation grant programs. Considering the current budget deficits at both the State and local government level in Illinois combined with the apparent increased reliance on local accountability by the Federal government, this is a significant and growing concern for the community.

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Under the DMA2K, FEMA has made special accommodations for "small and impoverished communities," that will be eligible for a 90% Federal share, 10% non-Federal cost share for projects funded through the Pre-Disaster Mitigation (PDM) grant program. Unfortunately, according to the current Interim Final Rule for Section 322 of the Act, the City of Peoria will not qualify as a small and impoverished community. The definition is restricted to "communities of 3,000 or fewer individuals that are identified by the State as a rural community."

#### *4. Policy and Program Capability*

This part of the capabilities assessment includes the identification and evaluation of existing plans, policies, practices, programs, or activities that either increase or decrease the community's vulnerability to natural hazards. Positive activities, which decrease hazard vulnerability, should be sustained and enhanced if possible. Negative activities, which increase hazard vulnerability, should be targeted for reconsideration and be thoroughly addressed within Mitigation Strategy for the City of Peoria. The City Emergency Operations Plan was updated and approved by the State January 2010. Additionally, The City of Peoria is now deemed a Storm Ready community by the National Weather Service.

##### **a. Recent Hazard Mitigation Efforts**

The City of Peoria acquired multiple-loss structures along the Illinois River in 2002.

The City of Peoria continues to participate in the STAR program that donates weather radios to various organizations throughout the Peoria area.

Within the City of Peoria, the City Link transportation terminal installed wind resistant glass in 2003. The facility also provides certain reinforcements to internal areas for use as a storm shelter.

The City of Peoria is in the process of performing several hazard mitigation efforts to ensure the safety of its citizens and reduce loss. Details of these processes are listed below.

- Water Street.-Complete rising of Water St. by the Fall to reduce redundant flooding.
- Flood Buyout Plan- Continue to work with FEMA to identify uninhabitable land due to potential or historical flooding and convert into green space
- Continue to upgrade multi-hazard sirens throughout the City as funding becomes available. To date 3 sirens have been replaced and there have been 2 new additions.
- Check Valve program through Public Works allows resident to get reimbursed by the City.

**b. Community Rating System Activities**

Communities that regulate development in floodplains are able participate in the NFIP. In return, the NFIP makes federally-backed flood insurance policies available for properties in the community. The CRS was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction.

The City of Peoria does not participate in the Community Rating System.

**c. Emergency Operations Plans**

The City of Peoria developed and adopted a Comprehensive Emergency Management Plan dated March 2000 that predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. The plan was adopted in March 2000. For the most part, the plan describes the City's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster. The plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the City to protect lives and property immediately before, during and immediately following an emergency. There are no foreseeable conflicts between this Hazard Mitigation Plan and the City of Peoria's Comprehensive Emergency Management Plan, primarily because they are each focused on two separate phases of emergency management (mitigation vs. preparedness and response). The Plan does identify the City Council as having lead role in the long-term reconstruction phase following a disaster – which presents a unique window of opportunity for implementing hazard mitigation strategies. However, no hazard mitigation strategies are specified within the Emergency Management Plan.

The City of Peoria developed and adopted a current Hazard Mitigation Plan. It was first developed and adopted in 1988. It was modeled after the Peoria County Hazard Mitigation Plan and designed to address hazard mitigation efforts relevant to flooding, hazardous materials, and earthquakes. The bulk of the document is structured to 1) provide a detailed analysis of the flooding problem, 2) recommend mitigation alternatives for individual property owners, 3) recommend mitigation alternatives, and 4) develop mitigation strategies.

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The plan identifies and organizes the following mitigation activities that the community should address:

**FLOOD CONTROL**

- Levees/floodwalls
- Reservoirs/Detention
- Channel Improvements
- Control Gates/Back-Up Valves

**EMERGENCY SERVICES**

- Flood Warning
- Sandbagging
- Evacuation/Rescue
- Public Health/Safety Maintenance

**PROPERTY PROTECTION**

- Building Relocation/Acquisition
- Building Elevation
- Floodproofing
- Self-Help Advice/Assistance
- Flood Insurance

**FLOODPLAIN MANAGEMENT**

- Planning/Zoning
- Floodplain Development
- Regulations
- Open Space/Easements
- Stormwater Management
- Erosion/Sediment Control
- Stream Maintenance

The focus of the plan is the “flood protection” category and its associated planning elements. In summary, the Plan targets three project areas in the community for flood hazard mitigation. It also provides guidance with regard to natural hazards and mitigation and develops specific recommendations, which when implemented, will reduce the threat of natural hazards in the City.

**d. Floodplain Management Plan**

The City of Peoria does not currently have a separate floodplain management plan for purposes of the NFIP’s CRS. This plan is intended to fulfill the CRS planning requirement should the City decide to enter the CRS.

**e. Stormwater Management Plan**

The City of Peoria does not currently have an adopted stormwater management plan, but does apply stormwater management provisions through their Subdivision and Stormwater Ordinances. Lands subject to flooding, irregular drainage conditions, excessive erosion, and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval.

**f. Comprehensive Plan**

The City of Peoria does have a Comprehensive Plan that is currently being updated (2010).

**g. Ordinances**

The City of Peoria has adopted several ordinances that are relevant to hazard mitigation, as described in more detail below.

**Flood Damage Prevention and Control Ordinance (03/20/90)**

This ordinance is designed to minimize public and private losses due to flood conditions in specific areas. It requires a development permit be submitted to the City prior to any construction or substantial improvement activities. Permits will only be approved if they meet the provisions of the ordinance, which include development standards that will minimize the potential for flood losses. Standards are established for construction materials, equipment, methods, practices and uses. Most importantly, this ordinance establishes the requirements for elevation and floodproofing (non-residential) to base flood elevation.

The ordinance requires the minimum standards of the NFIP. The City's floodplain areas are currently being re-studied as part of the State's Floodplain Mapping Program. It is possible those floodplain areas will be re-delineated with updated topography, and that base flood elevations will be recalculated. The mitigation effectiveness of this ordinance is high.

**Subdivision Ordinance (02/22/72)**

This ordinance regulates all divisions of land for purposes of sale or building development (immediate or future), including all divisions of land involving the dedication of new streets/roads or a change in existing streets/roads. All proposed subdivisions must go through an approval process involving multiple individuals/agencies. Subdivision plats are required for review and must include the location of areas subject to flooding. Lands subject to flooding, irregular drainage conditions, excessive erosion, and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval. Plats are also reviewed by the local permit officer to determine whether the property lies within a designated AEC, and what permits are required. Furthermore, all waterfront development must meet setback requirements and impervious surface requirements. Plats are also reviewed by the Planning and Growth Management to identify matters of topography and drainage.

Although not designed specifically for hazard mitigation purposes, this ordinance will prevent flood losses in tandem with the Flood Damage Prevention Ordinance. It will also minimize the adverse effects that development can have on stormwater drainage through impervious surface requirements and through sedimentation and erosion control. Through its roadway requirements, the ordinance also provides for adequate ingress and egress to subdivisions by emergency vehicles for fires or severe weather events. The mitigation effectiveness of this ordinance is moderate.



### **City of Peoria State of Emergency Ordinance (03/16/93)**

The purpose of this ordinance is to authorize the proclamation of a State of Emergency and the imposition of prohibitions and restrictions during a State of Emergency. It establishes the authority and procedures for the City Council to proclaim a State of Emergency, and to impose the following restrictions as described in the ordinance: curfew; evacuation; possession/transportation/transfer of intoxicating liquors, dangerous weapons and substances; access to areas; movements of people in public places; operation of businesses and other places; and other activities or conditions the control of which may be reasonably necessary to maintain order and protect lives or property during a State of Emergency.

The ordinance does not incorporate any long-term mitigation actions, such as temporary moratoria on the reconstruction of structures damaged or destroyed by a disaster event. The mitigation effectiveness of this ordinance is low.

#### **h. Open Space Plans**

The City of Peoria does not currently have a separate Open Space Plan.

#### **i. Watershed Protection Plan**

The City of Peoria does not currently have a separate Watershed Protection Plan, however many watershed related concerns are addressed through the City's Stream Buffer Ordinance and Stormwater Ordinance.

### *5. Legal Authority*

Local governments in Illinois have a wide range of tools available to them for implementing mitigation programs, policies and actions. A hazard mitigation program can utilize any or all of the four broad types of government powers granted by the State of Illinois, which are (a) Regulation, (b) Acquisition, (c) Taxation, and (d) Spending. The scope of this local authority is subject to constraints, however, as all of Illinois' political subdivisions must not act without proper delegation from the State. All power is vested in the State and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capabilities assessment will summarize Illinois' enabling legislation which grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

#### **a. Regulation**

##### **(1) General Police Power**

Illinois' local governments have been granted broad regulatory powers in their jurisdictions. Illinois State Statutes bestow the general police power on local governments, allowing them to enact and enforce ordinances that define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as

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protection of public health, safety and welfare), towns, cities and counties may include requirements for hazard mitigation in local ordinances. Local governments may also use their ordinance-making power to abate “nuisances,” which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard. The City of Peoria has enacted and enforces regulatory ordinances designed to promote the public health, safety and general welfare of its citizenry.

(2) Building Codes and Building Inspection

Many structural mitigation measures involve constructing and retrofitting homes, businesses, and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through building codes, as is the case in the City of Peoria. Municipalities and counties may adopt codes for their respective areas if approved by the State as providing “adequate minimum standards.” Local regulations cannot be less restrictive than the State code.

Local governments in Illinois are also empowered to carry out building inspections. It empowers cities and counties to create an inspection department, and enumerates its duties and responsibilities which include enforcing State and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters. The City of Peoria has adopted a building code and established a Building/ Inspections Department to carry out its building inspections.

**b. Land Use**

Regulatory powers granted by the State to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development. All of these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, and enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses great power to prevent unsuitable development in hazard-prone areas. The City of Peoria has adopted a land use regulation and includes it within its Zoning Plan.

(1) Planning

According to State Statutes, local governments in Illinois may create or designate a planning agency. The planning agency may perform a number of duties, including: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties. The importance of the planning powers of local governments is illustrated by the requirement that zoning regulations be made in accordance with a comprehensive plan. While the ordinance

itself may provide evidence that zoning is being conducted “in accordance with a plan,” the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community. The City of Peoria has established a Planning Department.

(2) Zoning

Zoning is the traditional and most common tool available to local governments to control the use of land. Broad enabling authority is granted for municipalities and counties in Illinois to engage in zoning. Land “uses” controlled by zoning include the type of use (e.g., residential, commercial, industrial) as well as minimum specifications for use such as lot size, building height and setbacks, density of population, etc. Local governments are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts. Districts may include general use districts, overlay districts, and special use districts or conditional use districts. Zoning ordinances consist of maps and written text. The City of Peoria enforces a City-wide zoning ordinance which was adopted in 1991.

(3) Subdivision Regulations

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that sub-dividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division or sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street. The definition of subdivision does not include the division of land into parcels greater than 10 acres where no street right-of-way dedication is involved. The City of Peoria has adopted a subdivision ordinance.

(4) Stormwater Regulations

Stormwater regulations are most often used to control runoff and erosion potential which results from small-scale development of less than five acres. A reduction in damage from small-scale development is achieved through requirements such as on-site retention/detention ponds, etc. The State of Illinois encourages local governments to adopt stormwater regulations under land use authorities.

(5) Floodplain Regulation

Illinois State statutes provide cities and counties the land use authority. In particular, issues such as floodwater control are empowered through 70 ILCS 405/25.

**c. Acquisition**

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find the most effective method for completely “hazard proofing” a particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. Illinois legislation empowers cities, towns, and counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease, or eminent domain. The City of Peoria proposes to continue using acquisition as a local mitigation tool.

**d. Taxation**

The power to levy taxes and special assessments is an important tool delegated to local governments by Illinois law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the community. Communities have the power to set preferential tax rates for areas which are more suitable for development in order to discourage development in otherwise hazardous areas. Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood protection works within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development. Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development. The City of Peoria does levy property taxes, and uses preferential tax districts or special assessments for purposes of guiding growth and development.

**e. Spending**

The fourth major power that has been delegated from the Illinois General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine part of all spending decisions made by the local government, including the adoption annual budgets and a Capital Improvement Plan (CIP). A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a deference to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent especially in areas where the provision of on-site sewage

disposal and water supply are unusually expensive. In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs. The City of Peoria has adopted and implemented a five-year capital improvement program.

#### *6. Political Willpower*

Most City residents are quite knowledgeable about the potential hazards that their community faces, and in recent years, they have become more familiar with the practices and principles of mitigation. Many flood prone structures have been acquired thereby removing residents from harm's way. Such tangible and visual changes within the community have created a greater sense of awareness among local residents, and hazard mitigation is a concept that they are beginning to readily accept and support. Because of this fact, coupled with the City of Peoria's history with natural disasters, it is expected that the current and future political climates are favorable for supporting and advancing future hazard mitigation strategies.

## **Tazewell County**

### *1. Staff and Organizational Capability*

Tazewell County has limited staff and organizational capability to implement hazard mitigation strategies. Tazewell County is governed by a 21-member County Board. The Board has an at-large-elected Chairperson and delegates day-to-day duties to County Department Administrators. The Board bears the responsibility of serving the people and improving the quality of life in the county. The business of the County Board is conducted through the department system. Each of the county departments is responsible for oversight and budgetary control of its assigned areas. The department heads report their activities to the full Board every month.

The County Board manages the various County departments. More specifically, the County Board directs and supervises the administration of all county offices, boards, commissions and agencies under the general direction and control of the Board. Responsibilities include:

- Development of the annual budget
- Coordination of public relations programs
- Provision of administrative services
- Administration of equal employment opportunity and affirmative action policies and programs
- Human resource Management and Payroll
- Risk Management
- Facilities Management
- A number of delegated programs

Tazewell County has a number of professional staff departments to serve the residents of the County and to carry out day-to-day administrative activities. These include the following:

- Planning and Zoning Department
- Sheriff's Department
- Health Department
- Highway Department
- Administration

The Planning and Zoning Department is responsible for the mitigation, preparedness, response and recovery operations that deal with both natural and man-made disaster events. The department maintains a full-time Administrator and Land Use Planner who are also responsible for addressing land use planning and economic development concerns, as well as, developing mitigation strategies. The department also enforces the NFIP requirements and other applicable local codes. The Administrative Department is responsible for the oversight and management of the County's budget and fiscal

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programs, including the administration of State and Federal grants. Of the above-listed County departments, only the Planning and Zoning Department has been assigned specifically delegated responsibilities to carry out mitigation activities or hazard control tasks. The department has been involved in the development of this mitigation plan in order to identify gaps, weaknesses, or opportunities for enhancement with existing mitigation programs. For the most part, it was determined that the department is adequately staffed, trained, and funded to accomplish their missions.

*2. Technical Capability*

Tazewell County has very limited technical capability to implement hazard mitigation strategies.

**a. Technical Expertise**

Tazewell County does have a full-time Administrator and uses the Tri-County Regional Planning Commission for Land Use Planning. The County does not have a licensed engineer or related technical expert on staff, and has in the past relied upon outside contractors/consultants to perform a majority of any required technical work. The county does not have a building department.

Tazewell County does have a person responsible for IT, which can enhance local government operations and the County's ability to develop and maintain a state-of-the-art hazard mitigation program.

**b. Geographic Information Systems**

GIS systems can best be described as a set of tools (hardware, software, and people) used to collect, manage, analyze, and display spatially-referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. Tazewell County does not currently have GIS capability to further hazard mitigation goals.

**c. Internet Access**

Tazewell County does provide its employees with high-speed broadband Internet service. Internet access provides an enormous opportunity for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. Information technology also offers increased economic opportunities, higher living standards, more individual choices, and wider and more meaningful participation in government and public life. Simply put, information technology can make distance – a major factor for Tazewell County officials and residents - far less important than it used to be. It is believed that Internet access will help further the County's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

### *3. Fiscal Capability*

Tazewell County has limited fiscal capability to implement hazard mitigation strategies. For Fiscal Year 2003, Tazewell County has no budgeted projects. The County receives most of its revenues through fees, taxes, and through restricted intergovernmental contributions (Federal and State pass-through dollars). It is highly unlikely that Tazewell County could afford to provide the local match for the existing hazard mitigation grant programs. Considering the current budget deficits at both the State and local government level in Illinois combined with the apparent increased reliance on local accountability by the Federal government, this is a significant and growing concern for Tazewell County.

Under the DMA2K, FEMA has made special accommodations for "small and impoverished communities," that will be eligible for a 90% Federal share, 10% non-Federal cost share for projects funded through the Pre-Disaster Mitigation (PDM) grant program. Unfortunately, according to the current Interim Final Rule for Section 322 of the Act, Tazewell County will not qualify as a small and impoverished community. The definition is restricted to "communities of 3,000 or fewer individuals that are identified by the State as a rural community."

### *4. Policy and Program Capability*

This part of the capabilities assessment includes the identification and evaluation of existing plans, policies, practices, programs, or activities that either increase or decrease the community's vulnerability to natural hazards. Positive activities, which decrease hazard vulnerability, should be sustained and enhanced if possible. Negative activities, which increase hazard vulnerability, should be targeted for reconsideration and be thoroughly addressed within Mitigation Strategy for Tazewell County. Currently Tazewell County does not undertake activities that significantly decrease hazard vulnerability.

#### **a. Recent Hazard Mitigation Efforts**

Tazewell County has not undertaken specific hazard mitigation efforts in the past. However, the county is currently working with the Army Corps of Engineers on a project to update the floodplain evaluations of the county.

#### **b. CRS Activities**

Communities that regulate development in floodplains are able participate in the NFIP. In return, the NFIP makes federally-backed flood insurance policies available for properties in the community. The CRS was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction.

Tazewell County does not participate in the CRS.



**c. Emergency Operations Plans**

Tazewell County has developed and adopted a Local Emergency Operations Plan (LEOP) dated which predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. For the most part, the plan describes the County's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster. The plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the County to protect lives and property immediately before, during and immediately following an emergency. There are no foreseeable conflicts between this Hazard Mitigation Plan and Tazewell's LEOP, primarily because they are each focused on two separate phases of emergency management (mitigation vs. preparedness and response). The plan does identify the County Board as having lead role in the long-term reconstruction phase following a disaster – which presents a unique window of opportunity for implementing hazard mitigation strategies. However, no hazard mitigation strategies are specified within the LEOP.

**d. Floodplain Management Plan**

Tazewell County does not currently have a separate floodplain management plan for purposes of the NFIP's CRS. The county has a 1981 ordinance that does not allow residential development in floodplains. If a resident seeks to build or seeks a building permit and lives near the floodplain that resident must demonstrate that they will not build in the floodplain. This Hazard Mitigation Plan is intended to fulfill the CRS planning requirement should the community decide to enter the program.

**e. Stormwater Management Plan**

Tazewell County does not currently have an adopted stormwater management plan, but does apply stormwater management provisions through their subdivision regulations. According to the Tazewell County Subdivision Ordinance, lands subject to flooding, irregular drainage conditions, excessive erosion and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval.

**f. Comprehensive Plan**

Tazewell County adopted a Comprehensive Land Use Plan in 1996 and is currently in the process of updating this plan (estimated completion Fall 2010).

**g. Ordinances**

Tazewell County has adopted several ordinances that are relevant to hazard mitigation, as described in more detail below.

### **Flood Damage Prevention Ordinance (1981)**

The Flood Damage Prevention Ordinance is designed to minimize public and private losses due to flood conditions in specific areas. It requires a development permit be submitted to the County prior to any construction or substantial improvement activities. Permits will only be approved if they meet the provisions of the ordinance, which include development standards that will minimize the potential for flood losses. Standards are established for construction materials, equipment, methods, practices, and uses. Most importantly, establishes the requirements for elevation and floodproofing (non-residential) to BFE.

The ordinance requires the minimum standards of the NFIP. The County's floodplain areas are currently being re-studied as part of the State's Floodplain Mapping Program. It is possible those floodplain areas will be redelineated with updated topography, and that base flood elevations will be recalculated. The mitigation effectiveness of this ordinance is high.

### **Subdivision Ordinance (July 1997)**

The Subdivision Ordinance is designed to regulate all divisions of land for purposes of sale or building development (immediate or future), including all divisions of land involving the dedication of new streets/roads or a change in existing streets/roads. All proposed subdivisions must go through an approval process involving multiple individuals/agencies. Subdivision plats are required for review and must include the location of areas subject to flooding. Lands subject to flooding, irregular drainage conditions, excessive erosion, and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval. Plats are also reviewed by the local permit officer to determine if the property lies within a designated AEC, and specifies what permits are required. Furthermore, all waterfront development must meet setback requirements and impervious surface requirements. The Zoning Department also reviews plats to identify matters of topography and drainage. All subdivisions must include stormwater controls and are subject to the stormwater control ordinance passed in 1998.

Although not designed specifically for hazard mitigation purposes, this ordinance will prevent flood losses in tandem with the Flood Damage Prevention Ordinance. It will also minimize the adverse effects that development can have on stormwater drainage through impervious surface requirements and through sedimentation and erosion control. Through its roadway requirements, the ordinance also provides for adequate ingress and egress to subdivisions by emergency vehicles for fires or severe weather events. The mitigation effectiveness of this ordinance is moderate.

### **Tazewell County State of Emergency Ordinance (2002)**

The purpose of this ordinance is to authorize the proclamation of a State of Emergency and the imposition of prohibitions and restrictions during a declared State of Emergency. This ordinance also establishes the authority and procedures for the County Board to proclaim a State of Emergency, and to impose the following restrictions as described in the ordinance: curfew; evacuation; possession/transportation/transfer of intoxicating liquors, dangerous weapons and substances; access to areas; movements of people in public places; operation of businesses and other places; and other activities or conditions the control of which may be reasonably necessary to maintain order and protect lives or property during the State of Emergency.

The ordinance does not incorporate any long-term mitigation actions, such as temporary moratoria on the reconstruction of structures damaged or destroyed by a disaster event. The mitigation effectiveness of this ordinance is low.

#### **h. Open Space Plans**

Tazewell County does not currently have a separate Open Space Plan.

#### **i. Watershed Protection Plan**

Tazewell County does not currently have a separate Watershed Protection Plan.

### *5. Legal Authority*

Local governments in Illinois have a wide range of tools available to them for implementing mitigation programs, policies and actions. A hazard mitigation program can utilize any or all of the four broad types of government powers granted by the State of Illinois, which are (a) Regulation, (b) Acquisition, (c) Taxation, and (d) Spending. The scope of this local authority is subject to constraints, however, as all of Illinois' political subdivisions must not act without proper delegation from the State. All power is vested in the State and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capabilities assessment will summarize Illinois' enabling legislation which grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

#### **a. Regulation**

##### **(1) General Police Power**

Illinois' local governments have been granted broad regulatory powers in their jurisdictions. Illinois State Statutes bestow the general police power on local governments, allowing them to enact and enforce ordinances which define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), towns, cities and counties may include requirements for hazard mitigation in local ordinances. Local governments may also use

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their ordinance-making power to abate “nuisances,” which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard. Tazewell County has enacted and enforces regulatory ordinances designed to promote the public health, safety and general welfare of its citizenry.

(2) Building Codes and Inspection

Many structural mitigation measures involve constructing and retrofitting homes, businesses and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through building codes. Tazewell County does not have building codes. However, municipalities and counties may adopt codes for their respective areas if approved by the State as providing “adequate minimum standards.” Local regulations cannot be less restrictive than the state code.

Local governments in Illinois are also empowered to carry out building inspections. It empowers cities and counties to create an inspection department, and enumerates their duties and responsibilities, which include enforcing state and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters. Tazewell County has not adopted a building code or established a Building Inspections Department to carry out its building inspections.

**b. Land Use**

Regulatory powers granted by the state to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development. All these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses great power to prevent unsuitable development in hazard-prone areas. Tazewell County has adopted and enforces a land use regulation.

(1) Planning

According to State Statute, local governments in Illinois may create or designate a planning agency. The planning agency may perform a number of duties, including: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties. The importance of the planning powers of local governments is illustrated by the requirement that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted “in accordance with a plan”, the existence of a separate planning document ensures that the government is

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developing regulations and ordinances that are consistent with the overall goals of the community. Tazewell County has established a Planning and Zoning Department. The county adopted a Comprehensive Land Use Plan in 1996.

(2) Zoning

Zoning is the traditional and most common tool available to local governments to control the use of land. Broad enabling authority is granted for municipalities and counties in Illinois to engage in zoning. Counties may also regulate inside municipal jurisdiction at the request of a municipality. The statutory purpose for the grant of power is to promote health, safety, morals, or the general welfare of the community. Land “uses” controlled by zoning include the type of use (e.g., residential, commercial, industrial) as well as minimum specifications for use such as lot size, building height and setbacks, density of population, etc. Local governments are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts. Districts may include general use districts, overlay districts, and special use districts or conditional use districts. Zoning ordinances consist of maps and written text. Tazewell County enforces a countywide zoning ordinance.

(3) Subdivision Regulations

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that subdividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division/sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures. Broad subdivision control enabling authority for municipalities is granted for counties outside of municipalities. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street. The definition of subdivision does not include the division of land into parcels greater than 10 acres where no street right-of-way dedication is involved. Tazewell County adopted a Subdivision Ordinance in July 1997.

(4) Stormwater Regulations

Stormwater regulations are most often used to control runoff and erosion potential which results from small-scale development of less than five acres. A reduction in damage from small-scale development is achieved through requirements such as on-site retention/detention ponds, etc. The State of Illinois encourages local governments to adopt stormwater regulations under land use authorities.

(5) Floodplain Regulation

Illinois State Statutes provide cities and counties the land use authority. In particular, issues such as floodwater control are empowered through 70 ILCS 405/25.

**c. Acquisition**

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find the most effective method for completely “hazard proofing” a particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. Illinois legislation empowers cities, towns, and counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease or eminent domain. Tazewell County proposes to use acquisition as a local mitigation tool.

**d. Taxation**

The power to levy taxes and special assessments is an important tool delegated to local governments by Illinois law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the community. Communities have the power to set preferential tax rates for areas which are more suitable for development in order to discourage development in otherwise hazardous areas. Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood protection works within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development. Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development. Tazewell County does levy property taxes, but does not use any preferential tax districts or special assessments for purposes of guiding growth and development.

**e. Spending**

The fourth major power that has been delegated from the Illinois General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine part of all spending decisions made by the local government, including the adoption annual budgets and a CIP. A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a deference to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent especially in areas where the provision of on-site sewage disposal and water supply are unusually expensive. In addition to formulating a timetable for the provision

of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs. Tazewell County has not adopted a Capital Improvement Plan.

#### *6. Political Willpower*

Some Tazewell County residents are knowledgeable about the potential hazards that their communities face, and in recent years, they have become more familiar with the practices and principles of mitigation. Some flood prone structures have been acquired thereby removing residents from harm's way. It is strongly believed that such tangible and visual changes within the community have created a greater sense of awareness among local residents, and that hazard mitigation is a concept that they are beginning to readily accept and support. Because of this fact, coupled with Tazewell County's history with natural disasters, it is expected that the current and future political climates may be favorable for supporting and advancing future hazard mitigation strategies.

## **City of Pekin**

### *1. Staff and Organizational Capability*

The City of Pekin has a very limited staff and organizational capability to implement hazard mitigation strategies. The City is administered by a council-manager form of government with a seven-person elected City Council. The Council consists of a Mayor and members elected at large to staggered four-year terms. An appointed professional City Manager oversees the day-to-day operations of city government. The City Manager manages the various city departments. More specifically, the City Manager directs and supervises the administration of all city offices, boards, commissions and agencies under the general direction and control of the Board. Responsibilities include:

- Development of the annual budget
- Coordination of public relations programs
- Provision of administrative services to the city
- Administration of equal employment opportunity and affirmative action policies and programs
- Human resource management and payroll
- Risk management
- Facilities management
- A number of delegated programs

The city has a number of professional staff departments to serve the residents of the community and to carry out day-to-day administrative activities. These include the following:

- Administration
- Economic development
- Building/inspection
- Fire Department
- Police Department

There are also 17 Boards and Committees that provide administrative support to the city departments and the City Council. The Administrative Department is responsible for the mitigation, preparedness, response and recovery operations that deal with both natural and man-made disaster events. The department is also responsible for addressing land use planning as well as developing mitigation strategies. The Building/Inspection Department enforces the NFIP requirements and other applicable local codes. The Administrative and Building/Inspection Departments have been involved in the development of this mitigation plan to identify gaps, weaknesses or opportunities for enhancement with existing mitigation programs. For the most part, it was determined that the departments are adequately staffed, trained and funded to accomplish their missions.



## *2. Technical Capability*

The City of Pekin has very limited technical capability to implement hazard mitigation strategies.

### **a. Technical Expertise**

The City of Pekin does not have a full-time planner on staff to administer its hazard mitigation programs. The city has two licensed engineers. In the past, it has also relied on outside contractors/consultants to perform any required technical work where the city does not have the expertise. The city does have a building department.

The city does have a person responsible for Information Technology (IT), which can enhance local government operations and the community's ability to develop and maintain a state-of-the art hazard mitigation program.

### **b. Geographic Information Systems (GIS)**

GIS systems can best be described as a set of tools (hardware, software, and trained staff) used to collect, manage, analyze and display spatially-referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. The city currently has GIS capability to further hazard mitigation goals.

### **c. Internet Access**

The City of Pekin provides its employees with high-speed broadband Internet service. This provides an enormous opportunity for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. Information technology also offers increased economic opportunities, higher living standards, more individual choices, and wider and more meaningful participation in government and public life. Simply put, information technology can make distance – a major factor for city officials and residents - far less important than in the past. Internet access will help further the city's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

## *3. Fiscal Capability*

The City of Pekin has limited fiscal capability to implement hazard mitigation strategies. For Fiscal Year 2011, the city has over \$17 million in general fund expenses. The city receives most of its revenues through State and local sales tax and other local services and through restricted intergovernmental contributions (Federal and State pass through dollars). It is highly unlikely that the City of Pekin could afford to provide the cost share for the existing hazard mitigation grant programs. Considering the current budget deficits at both the State and local government level in Illinois combined with the apparent increased reliance on local accountability by the Federal government, this is a significant and growing concern for the community.

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Under the DMA2K, FEMA has made special accommodations for "small and impoverished communities," that will be eligible for a 90% Federal share, 10% non-Federal cost share for projects funded through the Pre-Disaster Mitigation (PDM) grant program. Unfortunately, according to the current Interim Final Rule for Section 322 of the Act, the City of Pekin will not qualify as a small and impoverished community. The definition is restricted to "communities of 3,000 or fewer individuals that are identified by the State as a rural community."

#### *4. Policy and Program Capability*

This part of the capabilities assessment includes the identification and evaluation of existing plans, policies, practices, programs, or activities that either increase or decrease the community's vulnerability to natural hazards. Positive activities, which decrease hazard vulnerability, should be sustained and enhanced if possible. Negative activities, which increase hazard vulnerability, should be targeted for reconsideration and be thoroughly addressed within Mitigation Strategy for the City of Pekin.

##### **a. Recent Hazard Mitigation Efforts**

During the 2004 plan, the City had undertaken a planning initiative for the riverfront. They used open space for a park-like development at the river's front. They have also worked with the Tri-County Regional Planning Commission on a stormwater project that controls run-off.

Based on steering committee input, no current mitigation projects are underway.

##### **b. CRS Activities**

Communities that regulate development in floodplains are able participate in the NFIP. In return, the NFIP makes federally backed flood insurance policies available for properties in the community. The CRS was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction.

The City of Pekin does not participate in the CRS.

##### **c. Emergency Operations Plans**

The City of Pekin has developed and adopted an Emergency Operations Plan which predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. The Plan describes the City's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster. The plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the city to protect lives and property immediately before, during and immediately following an emergency. There are no foreseeable conflicts between this

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Hazard Mitigation Plan and the City of Pekin's Emergency Operations Plan, primarily because they are each focused on two separate phases of emergency management (mitigation vs. preparedness and response). The Plan does identify the City Council as having the lead role in the long-term reconstruction phase following a disaster – which presents a unique window of opportunity for implementing hazard mitigation strategies. However, no hazard mitigation strategies are specified within the Emergency Operations Plan.

**d. Floodplain Management Plan**

The City of Pekin does not currently have a separate floodplain management plan for NFIP purposes. This Hazard Mitigation Plan is intended to fulfill the CRS planning requirement should the community decide to enter the program.

**e. Stormwater Management Plan**

The City of Pekin does not currently have an adopted stormwater management plan, but does apply stormwater management provisions through their subdivision regulations. According to the City's Subdivision Ordinance, lands subject to flooding, irregular drainage conditions, excessive erosion, and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval.

**f. Comprehensive Plan**

The City developed and adopted a Comprehensive Plan in 1996. The plan provides the future vision for the community regarding growth and development. Hazard mitigation planning is not specifically addressed in the plan.

The City has developed and adopted a riverfront plan (The Tincher Plan, 2000), which specifies how development along the Illinois River will occur. Mitigation techniques are not included in the plan.

**g. Ordinances**

The City of Pekin has adopted several ordinances that are relevant to hazard mitigation, as described in more detail below.

**Flood Damage Prevention Ordinance (FIMA 1981)**

The Flood Damage Prevention Ordinance is designed to minimize public and private losses due to flood conditions in specific areas. It requires a development permit to be submitted to the City prior to any construction or substantial improvement activities. Permits will only be approved if they meet the provisions of the ordinance, which include development standards that will minimize the potential for flood losses. Standards are established for construction materials, equipment, methods, practices and uses. Most

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importantly, the ordinance establishes the requirements for elevation and floodproofing (non-residential) to the base flood elevation.

This ordinance requires the minimum standards of the NFIP. The city's floodplain areas are currently being re-studied as part of the State's Floodplain Mapping Program. It is possible those floodplain areas will be redelineated with updated topography, and that base flood elevations will be recalculated. The mitigation effectiveness of this ordinance is high.

### **Subdivision Ordinance (Amended 2003)**

The Subdivision Ordinance regulates all divisions of land for purposes of sale or building development (immediate or future), including all divisions of land involving the dedication of new streets/roads or a change in existing streets/roads. All proposed subdivisions must go through an approval process involving multiple individuals/agencies. Subdivision plats are required for review and must include the location of areas subject to flooding. Lands subject to flooding, irregular drainage conditions, excessive erosion and other reasons considered unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and the necessary stormwater drainage improvements must be completed before final plat approval. Plats are also reviewed by the local permit officer to determine whether the property lies within a designated Area of Environmental Concern (AEC), and specifies what permits are required. Furthermore, all waterfront development must meet setback and impervious surface requirements. The Public Works Director, City Engineer and Code Enforcement Officer also review plats to identify matters of topography and drainage concern.

Although not designed specifically for hazard mitigation purposes, this ordinance will prevent flood losses in tandem with the Flood Damage Prevention Ordinance. It will also minimize the adverse effects that development can have on stormwater drainage through impervious surface requirements and through sedimentation and erosion control. Through its roadway requirements, the ordinance also provides for adequate ingress and egress to subdivisions by emergency vehicles for fires or severe weather events. The mitigation effectiveness of this ordinance is moderate.

### **City of Pekin State of Emergency Ordinance (2003)**

The purpose of this ordinance is to authorize the proclamation of a State of Emergency and the imposition of prohibitions and restrictions during a State of Emergency. It establishes the authority and procedures for the City Council to proclaim a State of Emergency, and to impose the following restrictions as described in the ordinance: curfew; evacuation; possession/transportation/transfer of intoxicating liquors, dangerous weapons and substances; access to areas; movements of people in public places; operation of businesses and other places; and other activities or conditions the control

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of which may be reasonably necessary to maintain order and protect lives or property during a State of Emergency.

The ordinance does not incorporate any long-term mitigation actions, such as temporary moratoria on the reconstruction of structures damaged or destroyed by a disaster event. The mitigation effectiveness of this ordinance is low.

**h. Open Space Plans**

The City of Pekin does not currently have a separate open space plan.

**i. Watershed Protection Plan**

The City of Pekin does not currently have a separate watershed protection plan.

*5. Legal Authority*

Local governments in Illinois have a wide range of tools available to them for implementing mitigation programs, policies, and actions. A hazard mitigation program can utilize any or all of the four broad types of government powers granted by the State of Illinois, which are (a) regulation, (b) acquisition, (c) taxation, and (d) spending. The scope of this local authority is subject to constraints, however, as Illinois' political subdivisions must not act without proper delegation from the State. All power is vested in the State and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capabilities assessment will summarize Illinois' enabling legislation that grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

**a. Regulation**

(1) General Police Power

Illinois' local governments have been granted broad regulatory powers in their jurisdictions. Illinois State Statutes bestow the general police power on local governments, allowing them to enact and enforce ordinances that define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), towns, cities and counties may include requirements for hazard mitigation in local ordinances. Local governments may also use their ordinance-making power to abate "nuisances," which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard. The City of Pekin has enacted and enforces regulatory ordinances designed to promote the public health, safety and general welfare of its citizenry.

(2) Building Codes and Building Inspection

Many structural mitigation measures involve constructing and retrofitting homes, businesses, and other structures according to standards designed to make the buildings

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more resilient to the impacts of natural hazards. Many of these standards are imposed through building codes, as is the case in the City of Pekin. Municipalities and counties may adopt codes for their respective areas if approved by the State as providing “adequate minimum standards.” Local regulations cannot be less restrictive than the State code.

Local governments in Illinois are also empowered to carry out building inspections. It empowers cities and counties to create an inspection department, and enumerates its duties and responsibilities which include enforcing State and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters. The City of Pekin has adopted a building code and established a Building/ Inspections Department to carry out its building inspections.

**b. Land Use**

Regulatory powers granted by the State to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development. All of these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, and enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses great power to prevent unsuitable development in hazard-prone areas. The City of Pekin has not adopted a land use regulation.

(1) Planning

According to State statutes, local governments in Illinois may create or designate a planning agency. The planning agency may perform a number of duties including: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties. The importance of the planning powers of local governments is illustrated by the requirement that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted “in accordance with a plan,” the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community. The City of Pekin has several departments that deal with planning.

(2) Zoning

Zoning is the traditional and most common tool available to local governments to control the use of land. Broad enabling authority is granted for municipalities and counties in Illinois to engage in zoning. Land “uses” controlled by zoning include the type of use (e.g., residential, commercial, industrial) as well as minimum specifications for use such as lot size, building height and setbacks, density of population, etc. Local governments

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are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts. Districts may include general use districts, overlay districts, and special use districts or conditional use districts. Zoning ordinances consist of maps and written text. The City of Pekin enforces a city wide zoning ordinance.

(3) Subdivision Regulations

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that sub-dividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division or sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street. The definition of subdivision does not include the division of land into parcels greater than 10 acres where no street right-of-way dedication is involved. The City of Pekin has adopted a subdivision ordinance.

(4) Stormwater Regulations

Stormwater regulations are most often used to control runoff and erosion potential which results from small-scale development of less than five acres. A reduction in damage from small-scale development is achieved through requirements such as on-site retention/detention ponds, etc. The State of Illinois encourages local governments to adopt stormwater regulations under land use authorities.

(5) Floodplain Regulation

Illinois State statutes provide cities and counties the land use authority. In particular, issues such as floodwater control are empowered through 70 ILCS 405/25.

**c. Acquisition**

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find the most effective method for completely “hazard proofing” a particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. Illinois legislation empowers cities, towns, and counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease, or eminent domain. The City of Pekin proposes to use acquisition as a local mitigation tool.

**d. Taxation**

The power to levy taxes and special assessments is an important tool delegated to local governments by Illinois law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the community. Communities have the power to set preferential tax rates for areas which are more suitable for development in order to discourage development in otherwise hazardous areas. Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood protection works within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development. Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development. The City of Pekin does levy property taxes. The City also uses the 1) Two Tax Increment Funding District, 2) Enterprise Zones, and 3) Build Illinois Program for purposes of guiding growth and development.

**e. Spending**

The fourth major power that has been delegated from the Illinois General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine part of all spending decisions made by the local government, including the adoption annual budgets and a Capital Improvement Plan (CIP). A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a deference to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent especially in areas where the provision of on-site sewage disposal and water supply are unusually expensive. In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs. The City of Pekin has a Five-Year Capital Improvement Plan and that plan undergoes an annual review.

*6. Political Willpower*

Most city residents are knowledgeable about the potential hazards that their community faces, and in recent years, they have become more familiar with the practices and principles of mitigation. Many flood prone structures have been acquired thereby



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removing residents from harm's way. Such tangible and visual changes within the community have created a greater sense of awareness among local residents, and hazard mitigation is a concept that they are beginning to readily accept and support. Because of this fact, coupled with the City of Pekin's history with natural disasters, it is expected that the current and future political climates are favorable for supporting and advancing future hazard mitigation strategies.

## **City of East Peoria**

### *1. Staff and Organizational Capability*

The City of East Peoria is a Commission based form of government. The five-member Commission consists of four At-Large Members and the Mayor. All members are elected for 4 year terms. Each elected official is responsible various departments which include:

- Accounts and Finance which includes Administration and the City Clerk
- Planning and Community Development
- East Side Center/Department of Tourism
- Fire Department
- Police Department
- Public Work

### *2. Technical Capability*

The City of East Peoria has limited technical capability based on the size, to implement hazard mitigation strategies.

#### **a. Technical Expertise**

The City of East Peoria employs a full time planner and two full time building inspectors. The City has a contract with an engineering firm to provide engineering needs. The City does not currently have a full-time person responsible for Information Technology (IT).

#### **b. Geographic Information Systems**

GIS systems can best be described as a set of tools (hardware, software, and trained staff) used to collect, manage, analyze and display spatially-referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. The City of East Peoria employs full-time GIS coordinators on staff.

#### **c. Internet Access**

The City of East Peoria provides its employees with high-speed broadband Internet service. This provides an enormous opportunity for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. Information technology also offers increased economic opportunities, higher living standards, more individual choices, and wider and more meaningful participation in government and public life. Simply put, information technology can make distance – a major factor for the City of East Peoria officials and residents - far less important than in the past. Internet access will help further the City's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

### *3. Fiscal Capability*

The City of East Peoria has limited fiscal capability to implement hazard mitigation strategies. The City of East Peoria receives most of its revenues through State and local sales tax and other local services and through restricted intergovernmental contributions (Federal and State pass through dollars). It is highly unlikely that the City of East Peoria could afford to provide the cost share for the existing hazard mitigation grant programs. Considering the current budget deficits, at both the State and local government level in Illinois, combined with the apparent increased reliance on local accountability by the Federal government, this is a significant and growing concern for the community.

Under the DMA2K, FEMA has made special accommodations for "small and impoverished communities," that will be eligible for a 90% Federal share, 10% non-Federal cost share for projects funded through the Pre-Disaster Mitigation (PDM) grant program. Unfortunately, according to the current Interim Final Rule for Section 322 of the Act, Peoria County will not qualify as a small and impoverished community. The definition is restricted to "communities of 3,000 or fewer individuals that are identified by the State as a rural community."

### *4. Policy and Program Capability*

This part of the capabilities assessment includes the identification and evaluation of existing plans, policies, practices, programs, or activities that either increase or decrease the community's vulnerability to natural hazards. Positive activities, which decrease hazard vulnerability, should be sustained and enhanced if possible. Negative activities, which increase hazard vulnerability, should be targeted for reconsideration and be thoroughly addressed within Mitigation Strategy for the City of East Peoria. The city has limited capability for policy and programs.

#### **a. Recent Hazard Mitigation Efforts**

The City of East Peoria in conjunction with the United States Corps of Engineers completed the Farm Creek Equalization project with addressed levee concerns within the City

#### **b. CRS Activities**

Communities that regulate development in floodplains are able participate in the NFIP. In return, the NFIP makes Federally-backed flood insurance policies available for properties in the community. The CRS was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction.

The City of East Peoria does not currently participate in the CRS.

**c. Emergency Operations Plans**

The City of East Peoria has developed and adopted an Emergency Operations Plan which predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. The Plan describes the City's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster. The plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the City to protect lives and property immediately before, during and immediately following an emergency. There are no foreseeable conflicts between this Hazard Mitigation Plan and City of East Peoria's Emergency Operations Plan, primarily because they are each focused on two separate phases of emergency management (mitigation vs. preparedness and response). The Plan does identify the City Commission as having the lead role in the long-term reconstruction phase following a disaster – which presents a unique window of opportunity for implementing hazard mitigation strategies. However, no hazard mitigation strategies are specified within the Emergency Operations Plan.

**d. Floodplain Management Plan**

The City of East Peoria has a separate floodplain management plan for NFIP purposes. This Hazard Mitigation Plan is intended to fulfill the CRS planning requirement should the community decide to enter the program.

**e. Stormwater Management Plan**

The City of East Peoria does not currently have an adopted stormwater management plan, but does apply stormwater management provisions through their subdivision regulations. According to the City's Subdivision Ordinance, lands subject to flooding, irregular drainage conditions, excessive erosion, and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval.

**f. Comprehensive Plan**

The City's Comprehensive Plan was reviewed in 2005, with minor revisions in 2010. The plan provides the future vision for the community regarding growth and development. Hazard mitigation planning is not specifically addressed in the plan.

**g. Ordinances**

The City of East Peoria has adopted several ordinances that are relevant to hazard mitigation, as described in more detail below.

### **Zoning Ordinance (Updated in 2009)**

The Zoning Ordinance requires building permits for all structures. It requires a development permit to be submitted to the City prior to any construction or substantial improvement activities. Permits will only be approved if they meet the provisions of the ordinance. Standards are established for construction materials, equipment, methods, practices and uses. The mitigation effectiveness of this ordinance is low.

### **Subdivision Ordinance (Amended 2010)**

The Subdivision Ordinance regulates all divisions of land for purposes of sale or building development (immediate or future), including all divisions of land involving the dedication of new streets/roads or a change in existing streets/roads. All proposed subdivisions must go through an approval process involving multiple individuals/agencies. Subdivision plats are required for review and must include the location of areas subject to flooding. Lands subject to flooding, irregular drainage conditions, excessive erosion and other reasons considered unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and the necessary stormwater drainage improvements must be completed before final plat approval. Plats are also reviewed by the local permit officer to determine whether the property lies within a designated Area of Environmental Concern (AEC), and specifies what permits are required. Furthermore, all waterfront development must meet setback and impervious surface requirements. The Public Works Director, City Engineer and Code Enforcement Officer also review plats to identify matters of topography and drainage concern. Although not designed specifically for hazard mitigation purposes, this ordinance will prevent flood losses in tandem with the Flood Damage Prevention Ordinance. It will also minimize the adverse effects that development can have on stormwater drainage through impervious surface requirements and through sedimentation and erosion control. Through its roadway requirements, the ordinance also provides for adequate ingress and egress to subdivisions by emergency vehicles for fires or severe weather events. The mitigation effectiveness of this ordinance is moderate.

### **The City of East Peoria State of Emergency Ordinance (2003)**

The purpose of this ordinance is to authorize the proclamation of a State of Emergency and the imposition of prohibitions and restrictions during a State of Emergency. It establishes the authority and procedures for the City Commission to proclaim a State of Emergency, and to impose the following restrictions as described in the ordinance: curfew; evacuation; possession/transportation/transfer of intoxicating liquors, dangerous weapons and substances; access to areas; movements of people in public places; operation of businesses and other places; and other activities or conditions the control of which may be reasonably necessary to maintain order and protect lives or property during a State of Emergency.

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The ordinance does not incorporate any long-term mitigation actions, such as temporary moratoria on the reconstruction of structures damaged or destroyed by a disaster event. The mitigation effectiveness of this ordinance is low.

**h. Open Space Plans**

The City of East Peoria does not currently have a separate open space plan; however components are addressed in the Subdivision Plan and the Zoning Ordinances.

**i. Watershed Protection Plan-Steep slope Ordinance as part of zoning ordinance.**

The City of East Peoria shares a tremendous natural resource with surrounding counties, the Illinois River. The City's section of the Illinois River, known as the Peoria Lakes, has been quickly filling with sediment from local tributaries and its watersheds. As native habitats are converted to farmland and urbanized areas, storm water that was once soaked up by native vegetation now runs off into streams at alarming rates causing sheet, gully, and stream bank erosion. TCRPC has been actively working with community members from various sub-watersheds throughout the Tri-County area to develop plans unique to each community which address issues of water quality and erosion.

The City of East Peoria does not have a separate Watershed Protection Plan. However, the City's Steep Slope Ordinance addresses many watershed protection concerns.

*5. Legal Authority*

Local governments in Illinois have a wide range of tools available to them for implementing mitigation programs, policies, and actions. A hazard mitigation program can utilize any or all of the four broad types of government powers granted by the State of Illinois, which are (a) regulation, (b) acquisition, (c) taxation, and (d) spending. The scope of this local authority is subject to constraints, however, as Illinois' political subdivisions must not act without proper delegation from the State. All power is vested in the State and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capabilities assessment will summarize Illinois' enabling legislation that grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

**a. Regulation**

**(1) General Police Power**

Illinois' local governments have been granted broad regulatory powers in their jurisdictions. Illinois State Statutes bestow the general police power on local governments, allowing them to enact and enforce ordinances that define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health

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nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), towns, cities and counties may include requirements for hazard mitigation in local ordinances. Local governments may also use their ordinance-making power to abate “nuisances,” which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard. The City of East Peoria has enacted and enforces regulatory ordinances designed to promote the public health, safety and general welfare of its citizenry.

(2) Building Codes and Building Inspection

Many structural mitigation measures involve constructing and retrofitting homes, businesses, and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through building codes, as is the case in Peoria County. Municipalities and counties may adopt codes for their respective areas if approved by the State as providing “adequate minimum standards.” Local regulations cannot be less restrictive than the State code.

Local governments in Illinois are also empowered to carry out building inspections. It empowers cities and counties to create an inspection department, and enumerates its duties and responsibilities which include enforcing State and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters. The City of East Peoria has adopted a building code and established a Public Works Inspections office to carry out its building inspections.

**b. Land Use**

Regulatory powers granted by the State to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development. All of these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, and enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses great power to prevent unsuitable development in hazard-prone areas. The City of East Peoria has not adopted a land use regulation.

(1) Planning

According to State statutes, local governments in Illinois may create or designate a planning agency. The planning agency may perform a number of duties including: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties. The importance of the planning powers of local governments is illustrated by the requirement that zoning regulations be

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made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted “in accordance with a plan,” the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community. The City of East Peoria has established a Planning and Zoning Office.

(2) Zoning

Zoning is the traditional and most common tool available to local governments to control the use of land. Broad enabling authority is granted for municipalities and counties in Illinois to engage in zoning. Land “uses” controlled by zoning include the type of use (e.g., residential, commercial, industrial), as well, as minimum specifications for use such as lot size, building height and setbacks, density of population, etc. Local governments are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts. Districts may include general use districts, overlay districts, and special use districts or conditional use districts. Zoning ordinances consist of maps and written text. The City of East Peoria enforces a City wide zoning ordinance.

(3) Subdivision Regulations

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that sub-dividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division or sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street. The definition of subdivision does not include the division of land into parcels greater than 10 acres where no street right-of-way dedication is involved. The City of East Peoria has adopted a subdivision ordinance.

(4) Stormwater Regulations

Stormwater regulations are most often used to control runoff and erosion potential which results from small-scale development of less than five acres. A reduction in damage from small-scale development is achieved through requirements such as on-site retention/detention ponds, etc. The State of Illinois encourages local governments to adopt stormwater regulations under land use authorities. The City of East Peoria stormwater management provisions are included in their Subdivision regulations.



(5) Floodplain Regulation

Illinois State statutes provide cities and counties the land use authority. In particular, issues such as floodwater control are empowered through 70 ILCS 405/25.

**c. Acquisition**

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find the most effective method for completely “hazard proofing” a particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. Illinois legislation empowers cities, towns, and counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease, or eminent domain. The City of East Peoria proposes to use acquisition as a local mitigation tool.

**d. Taxation**

The power to levy taxes and special assessments is an important tool delegated to local governments by Illinois law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the community. Communities have the power to set preferential tax rates for areas which are more suitable for development in order to discourage development in otherwise hazardous areas. Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood protection works within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development. Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development. The City of East Peoria does levy property taxes.

**e. Spending**

The fourth major power that has been delegated from the Illinois General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine part of all spending decisions made by the local government, including the adoption annual budgets and a Capital Improvement Plan (CIP). A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a deference to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent, especially in areas where the provision of on-site sewage disposal and water supply are unusually expensive. In addition to formulating a

timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs.

*6. Political Willpower*

Most City residents are knowledgeable about the potential hazards that their community faces, and in recent years, they have become more familiar with the practices and principles of mitigation. Many flood prone structures have been acquired thereby removing residents from harm's way. Such tangible and visual changes within the community have created a greater sense of awareness among local residents, and hazard mitigation is a concept that they are beginning to readily accept and support. Because of this fact, coupled with the City of East Peoria's history with natural disasters, it is expected that the current and future political climates are favorable for supporting and advancing future hazard mitigation strategies.

## **City of Washington**

### *1. Staff and Organizational Capability*

The City of Washington is a home rule municipality governed by an Alderman-City form of government. The legislative body (City Council) consists of two aldermen from each ward elected for a four-year term. Their terms are staggered so that half are elected every two years. The Mayor is elected at large to a four-year term, as are the City Clerk and City Treasurer. The Mayor is the chief executive officer of the City and presides over meetings of the City Council. While not normally having a vote, the Mayor does have authority to veto certain actions of the City Council which may create any liability against the City, or which provides for the expenditure or appropriation of its money, or to sell City property. A mayoral veto may be overridden by a two-thirds vote of the City Council. With the approval of the City Council, the Mayor appoints non-elected City officials.

The eight aldermen of the City Council are elected to serve overlapping four year terms and may be elected for an indefinite number of terms. The City Council formulates policy and enacts local laws, usually in the form of resolutions and ordinances. The City Council is directly responsible to the citizens of Washington.

The City Clerk is the recording officer of the City, elected at large for a four year term. The clerk is responsible for attending all meetings of the City Council and keeping records of the proceedings. All City Council Committees meet on the second Monday of each month.

### *2. Technical Capability*

The City of Washington has limited technical capability to implement hazard mitigation strategies.

#### **a. Technical Expertise**

The City of Washington has limited technical expertise to implement hazard mitigation strategies.

#### **b. Geographic Information Systems**

GIS systems can best be described as a set of tools (hardware, software, and trained staff) used to collect, manage, analyze and display spatially-referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. The City of Washington has access to GIS capability to further hazard mitigation goals.

#### **c. Internet Access**

The City of Washington provides its employees with high-speed broadband Internet service. This provides an enormous opportunity for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. Information technology also offers increased economic

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opportunities, higher living standards, more individual choices, and wider and more meaningful participation in government and public life. Simply put, information technology can make distance – a major factor for the City of Washington officials and residents - far less important than in the past. Internet access will help further the City’s hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

**3. Fiscal Capability**

The City of Washington has limited fiscal capability to implement hazard mitigation strategies. The City receives most of its revenues through State and local sales tax and other local services and through restricted intergovernmental contributions (Federal and State pass through dollars). It is highly unlikely that the City of Washington could afford to provide the cost share for the existing hazard mitigation grant programs. Considering the current budget deficits at both the State and local government level in Illinois combined with the apparent increased reliance on local accountability by the Federal government, this is a significant and growing concern for the community.

Under the DMA2K, FEMA has made special accommodations for "small and impoverished communities," that will be eligible for a 90% Federal share, 10% non-Federal cost share for projects funded through the Pre-Disaster Mitigation (PDM) grant program. Unfortunately, according to the current Interim Final Rule for Section 322 of the Act, the City of Washington will not qualify as a small and impoverished community. The definition is restricted to “communities of 3,000 or fewer individuals that are identified by the State as a rural community.”

**4. Policy and Program Capability**

This part of the capabilities assessment includes the identification and evaluation of existing plans, policies, practices, programs, or activities that either increase or decrease the community’s vulnerability to natural hazards. Positive activities, which decrease hazard vulnerability, should be sustained and enhanced if possible. Negative activities, which increase hazard vulnerability, should be targeted for reconsideration and be thoroughly addressed within Mitigation Strategy for the City of Washington. The city has a planning and development office.

**a. Recent Hazard Mitigation Efforts**

The City of Washington has not completed significant mitigation efforts. These plans will springboard additional efforts.

**b. CRS Activities**

Communities that regulate development in floodplains are able participate in the NFIP. In return, the NFIP makes Federally-backed flood insurance policies available for properties in the community. The CRS was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most

credit points and gives the largest premium reduction; class 10 receives no premium reduction.

The City of Washington does not participate in the CRS.

**c. Emergency Operations Plans**

The City of Washington has developed and adopted an Emergency Operations Plan which predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. The Plan describes the City's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster. The plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the City to protect lives and property immediately before, during and immediately following an emergency.

**d. Floodplain Management Plan**

The City of Washington does not currently have a separate floodplain management plan for NFIP purposes. This Hazard Mitigation Plan is intended to fulfill the CRS planning requirement should the community decide to enter the program.

**e. Stormwater Management Plan**

In 1999, the USEPA enacted their Phase II Regulations regarding Storm water Management. These rules required that communities, including the City of Washington, comply with the regulations by March of 2003. The majority of the requirements revolve around satisfying the six minimum control measures:

1. Public Education/Outreach
2. Public Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Storm water Controls
5. Post Construction Storm water Management
6. Pollution Prevention/Good Housekeeping

In mid-2001, a group of Central Illinois communities (East Peoria, Morton, Washington, Bartonville, and Pekin) got together and began working to meet the requirements together. Satisfying the six minimum control measures was very similar for all five communities, resulting in a significant "economy in scale savings" by working together. A Letter of Intent was submitted to the IEPA.

**f. Comprehensive Plan**

The City of Washington developed and adopted a Comprehensive Plan in 2001. The plan provides the future vision for the community regarding growth and development. Hazard mitigation planning is not specifically addressed in the plan.

**g. Ordinances**

The City of Washington has adopted several ordinances that are relevant to hazard mitigation.

**Zoning Ordinance**

The Zoning Ordinance requires building permits for all structures. It requires a development permit to be submitted to the Village prior to any construction or substantial improvement activities. Permits will only be approved if they meet the provisions of the ordinance. Standards are established for construction materials, equipment, methods, practices and uses. The mitigation effectiveness of this ordinance is low.

**Subdivision Ordinance (Amended 2010)**

The Subdivision Ordinance regulates all divisions of land for purposes of sale or building development (immediate or future), including all divisions of land involving the dedication of new streets/roads or a change in existing streets/roads. All proposed subdivisions must go through an approval process involving multiple individuals/agencies. Subdivision plats are required for review and must include the location of areas subject to flooding. Lands subject to flooding, irregular drainage conditions, excessive erosion and other reasons considered unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and the necessary stormwater drainage improvements must be completed before final plat approval. Plats are also reviewed by the local permit officer to determine whether the property lies within a designated Area of Environmental Concern (AEC), and specifies what permits are required. Furthermore, all waterfront development must meet setback and impervious surface requirements. The Public Works Director, City Engineer and Code Enforcement Officer also review plats to identify matters of topography and drainage concern. Although not designed specifically for hazard mitigation purposes, this ordinance will prevent flood losses in tandem with the Flood Damage Prevention Ordinance. It will also minimize the adverse effects that development can have on stormwater drainage through impervious surface requirements and through sedimentation and erosion control. Through its roadway requirements, the ordinance also provides for adequate ingress and egress to subdivisions by emergency vehicles for fires or severe weather events. The mitigation effectiveness of this ordinance is moderate.

**City of Washington State of Emergency Ordinance (2003)**

The purpose of this ordinance is to authorize the proclamation of a State of Emergency and the imposition of prohibitions and restrictions during a State of Emergency. It establishes the authority and procedures for the City of Washington' City Council to proclaim a State of Emergency, and to impose the following restrictions as described in the ordinance: curfew; evacuation; possession/transportation/transfer of intoxicating

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liquors, dangerous weapons and substances; access to areas; movements of people in public places; operation of businesses and other places; and other activities or conditions the control of which may be reasonably necessary to maintain order and protect lives or property during a State of Emergency.

The ordinance does not incorporate any long-term mitigation actions, such as temporary moratoria on the reconstruction of structures damaged or destroyed by a disaster event. The mitigation effectiveness of this ordinance is low.

**h. Open Space Plans**

The City of Washington does not currently have a separate open space plan.

**i. Watershed Protection Plan**

The City of Washington does not currently have a separate watershed protection plan.

*5. Legal Authority*

Local governments in Illinois have a wide range of tools available to them for implementing mitigation programs, policies, and actions. A hazard mitigation program can utilize any or all of the four broad types of government powers granted by the State of Illinois, which are (a) regulation, (b) acquisition, (c) taxation, and (d) spending. The scope of this local authority is subject to constraints, however, as Illinois' political subdivisions must not act without proper delegation from the State. All power is vested in the State and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capabilities assessment will summarize Illinois' enabling legislation that grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

**a. Regulation**

**(1) General Police Power**

Illinois' local governments have been granted broad regulatory powers in their jurisdictions. Illinois State Statutes bestow the general police power on local governments, allowing them to enact and enforce ordinances that define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), towns, cities and counties may include requirements for hazard mitigation in local ordinances. Local governments may also use their ordinance-making power to abate "nuisances," which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard. The City of Washington has enacted and enforces regulatory ordinances designed to promote the public health, safety and general welfare of its citizenry.

(2) Building Codes and Building Inspection

Many structural mitigation measures involve constructing and retrofitting homes, businesses, and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through building codes, as is the case in the City of Washington. Municipalities and counties may adopt codes for their respective areas if approved by the State as providing “adequate minimum standards.” Local regulations cannot be less restrictive than the State code.

Local governments in Illinois are also empowered to carry out building inspections. It empowers cities and counties to create an inspection department, and enumerates its duties and responsibilities which include enforcing State and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters. The City of Washington has adopted a building code and established a Planning and Development office to carry out its building inspections.

**b. Land Use**

Regulatory powers granted by the State to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development. All of these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, and enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses great power to prevent unsuitable development in hazard-prone areas. The City of Washington has adopted a land use regulation.

(1) Planning

According to State statutes, local governments in Illinois may create or designate a planning agency. The planning agency may perform a number of duties including: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties. The importance of the planning powers of local governments is illustrated by the requirement that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted “in accordance with a plan,” the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community. The City of Washington has established a Planning and Development Office.



(2) Zoning

Zoning is the traditional and most common tool available to local governments to control the use of land. Broad enabling authority is granted for municipalities and counties in Illinois to engage in zoning. Land “uses” controlled by zoning include the type of use (e.g., residential, commercial, industrial) as well as minimum specifications for use such as lot size, building height and setbacks, density of population, etc. Local governments are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts. Districts may include general use districts, overlay districts, and special use districts or conditional use districts. Zoning ordinances consist of maps and written text. The City of Washington enforces a City wide zoning ordinance.

(3) Subdivision Regulations

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that sub-dividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division or sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street. The definition of subdivision does not include the division of land into parcels greater than 10 acres where no street right-of-way dedication is involved. The City of Washington has adopted a subdivision ordinance.

(4) Stormwater Regulations

Stormwater regulations are most often used to control runoff and erosion potential which results from small-scale development of less than five acres. A reduction in damage from small-scale development is achieved through requirements such as on-site retention/detention ponds, etc. The State of Illinois encourages local governments to adopt stormwater regulations under land use authorities.

(5) Floodplain Regulation

Illinois State statutes provide cities and counties the land use authority. In particular, issues such as floodwater control are empowered through 70 ILCS 405/25.

**c. Acquisition**

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find the most effective method for completely “hazard proofing” a

particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. Illinois legislation empowers cities, towns, and counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease, or eminent domain. The City of Washington proposes to use acquisition as a local mitigation tool.

**d. Taxation**

The power to levy taxes and special assessments is an important tool delegated to local governments by Illinois law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the community. Communities have the power to set preferential tax rates for areas which are more suitable for development in order to discourage development in otherwise hazardous areas. Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood protection works within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development. Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development. The City of Washington does levy property taxes.

**e. Spending**

The fourth major power that has been delegated from the Illinois General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine part of all spending decisions made by the local government, including the adoption annual budgets and a Capital Improvement Plan (CIP). A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a deference to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent especially in areas where the provision of on-site sewage disposal and water supply are unusually expensive. In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs.

*6. Political Willpower*

Most City residents are knowledgeable about the potential hazards that their community faces, and in recent years, they have become more familiar with the practices and principles of mitigation. Many flood prone structures have been acquired thereby removing residents from harm's way. Such tangible and visual changes within the community have created a greater sense of awareness among local residents, and hazard mitigation is a concept that they are beginning to readily accept and support. Because of this fact, coupled with the City of Washington's history with natural disasters, it is expected that the current and future political climates are favorable for supporting and advancing future hazard mitigation strategies.

## **Woodford County**

### *1. Staff and Organizational Capability*

Woodford County has very limited staff and organizational capability to implement hazard mitigation strategies. Woodford County is governed by a 15-member County Board. The Board has a peer-elected Chairperson and bears the responsibility of serving the people and improving the quality of life in the county. The County is divided into three (3) districts and each one has five Board members. The business of the County Board is conducted through the department system. Each of the county departments is responsible for oversight and budgetary control of its assigned areas. The department heads report their activities to the full Board every month.

The County Board manages the various County departments. More specifically, the County Board directs and supervises the administration of all county offices, boards, commissions and agencies under the general direction and control of the Board. Responsibilities include:

- Development of the annual budget
- Coordination of public relations programs
- Provision of administrative services
- Administration of equal employment opportunity and affirmative action policies and programs
- Human resource Management and Payroll
- Risk Management
- Facilities Management
- A number of delegated programs

Woodford County has a number of professional staff departments to serve the residents of the County and to carry out day-to-day administrative activities. These include the following:

- Sheriff's Department
- Health Department
- Zoning Department
- Administration
- Probation Department

The County also has various Committees, Boards, Commissions and Offices which provide administrative support to the County Board including the Regional Office of Education, Veteran's Assistance Commission, Emergency Services and Disaster Agency (ESDA) and Board of Review.

The ESDA and the Zoning Department are responsible for the mitigation, preparedness, response and recovery operations that deal with both natural and man-made disaster events. The Zoning Department maintains a full-time Administrator who is also

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responsible for addressing land use planning, as well as, developing mitigation strategies. The department also enforces the NFIP requirements and other applicable local codes.

The Administrative Department is responsible for the oversight and management of the County's budget and fiscal programs, including the administration of State and Federal grants.

Of the above-listed County departments, the ESDA and the Zoning Department have been assigned specifically delegated responsibilities to carry out mitigation activities or hazard control tasks. The ESDA Office and the Zoning Department have been involved in the development of this mitigation plan in order to identify gaps, weaknesses or opportunities for enhancement with existing mitigation programs. It was determined that the departments need adequate staff, training and funding to accomplish their missions.

## *2. Technical Capability*

Woodford County has very limited technical capability to implement hazard mitigation strategies.

### **a. Technical Expertise**

Woodford County does have a full-time Zoning Administrator on staff to administer the County's hazard mitigation programs. The County does have a licensed engineer to provide related technical expertise. The county does not have a building department.

Woodford County currently does not have a person responsible for IT which can enhance local government operations and the County's ability to develop and maintain a state-of-the art hazard mitigation program.

### **b. Geographic Information Systems**

GIS systems can best be described as a set of tools (hardware, software, and people) used to collect, manage, analyze and display spatially-referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. Woodford County does not currently have GIS capability to further hazard mitigation goals, but is in the process of instituting it at this time.

### **c. Internet Access**

Woodford County does provide its employees with high-speed broadband Internet service. Internet access provides an enormous opportunity for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. Information technology also offers increased economic opportunities, higher living standards, more individual choices, and wider and more meaningful participation in government and public life. Simply put, information technology can make distance – a major factor for Woodford County officials and residents - far less important than it used to be. It is believed that Internet access will

help further the County's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

### *3. Fiscal Capability*

Woodford County has very limited fiscal capability to implement hazard mitigation strategies. The County receives most of its revenues through taxes and through restricted intergovernmental contributions (Federal and State pass-through dollars). It is highly unlikely that Woodford County could afford to provide the local match for the existing hazard mitigation grant programs. Considering the current budget deficits at both the State and local government level, in Illinois, combined with the apparent increased reliance on local accountability by the Federal government, this is a significant and growing concern for Woodford County.

Under the Disaster Mitigation Act of 2000, FEMA has made special accommodations for "small and impoverished communities," that will be eligible for a 90% Federal share, 10% non-Federal cost share for projects funded through the Pre-Disaster Mitigation (PDM) grant program. Unfortunately, according to the current Interim Final Rule for Section 322 of the Act, Woodford County will not qualify as a small and impoverished community. The definition is restricted to "communities of 3,000 or fewer individuals that are identified by the State as a rural community."

### *4. Policy and Program Capability*

This part of the capabilities assessment includes the identification and evaluation of existing plans, policies, practices, programs, or activities that either increase or decrease the community's vulnerability to natural hazards. Positive activities, which decrease hazard vulnerability, should be sustained and enhanced if possible. Negative activities, which increase hazard vulnerability, should be targeted for reconsideration and be thoroughly addressed within Mitigation Strategy for Woodford County. Currently Woodford County does not undertake activities that significantly decrease hazard vulnerability.

#### **a. Recent Hazard Mitigation Efforts**

Woodford County has not undertaken any specific hazard mitigation efforts in the past although numerous meetings and conversations about mitigation initiatives have transpired in the recent past.

#### **b. Community Rating System Activities**

Communities that regulate development in floodplains are able participate in the NFIP. In return, the NFIP makes federally-backed flood insurance policies available for properties in the community. The CRS was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction.

Woodford County does not participate in the Community Rating System.

**c. Emergency Operations Plan**

Woodford County has developed and adopted a LEOP dated 1992, with revisions, which predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. For the most part, the Plan describes the County's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster. The Plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the County to protect lives and property immediately before, during and immediately following an emergency. There are no foreseeable conflicts between this Hazard Mitigation Plan and Woodford County's LEOP, primarily because they are each focused on two separate phases of emergency management (mitigation vs. preparedness and response). The Plan does identify the County Board as having lead role in the long-term reconstruction phase following a disaster – which presents a unique window of opportunity for implementing hazard mitigation strategies. However, no hazard mitigation strategies are specified within the LEOP.

**d. Floodplain Management Plan**

Woodford County does not currently have a separate floodplain management plan for purposes of the NFIP's CRS. This Hazard Mitigation Plan is intended to fulfill the CRS planning requirement should the community decide to enter the program.

**e. Stormwater Management Plan**

Woodford County does not currently have an adopted stormwater management plan, but does apply stormwater management provisions through their subdivision regulations. According to the County Subdivision Ordinance, lands subject to flooding, irregular drainage conditions, excessive erosion and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval.

**f. Comprehensive Plan**

Woodford County has a Comprehensive Plan that was last updated in 2003.

**g. Ordinances**

Woodford County has adopted several ordinances that are relevant to hazard mitigation, as described in more detail below.

### **Flood Damage Prevention Ordinance - December 1995**

The Flood Damage Prevention Ordinance is designed to minimize public and private losses due to flood conditions in specific areas. It requires a development permit be submitted to the County prior to any construction or substantial improvement activities. Permits will only be approved if they meet the provisions of the ordinance, which include development standards that will minimize the potential for flood losses. Standards are established for construction materials, equipment, methods, practices and uses. Most importantly, establishes the requirements for elevation (2' above determined base flood elevations for each site) and floodproofing (non-residential) to BFE. It should also be noted that Woodford County instituted some elevation and set-back requirements after the flood of February 1984.

The ordinance requires the minimum standards of the NFIP. The County's floodplain areas are currently being re-studied as part of the State's Floodplain Mapping Program. It is possible those floodplain areas will be re-delineated with updated topography, and that base flood elevations will be recalculated. The mitigation effectiveness of this ordinance is high.

### **Subdivision Ordinance - October 1997**

The Subdivision Ordinance is designed to regulate all divisions of land for purposes of sale or building development (immediate or future), including all divisions of land involving the dedication of new streets/roads or a change in existing streets/roads. All proposed subdivisions must go through an approval process involving multiple individuals/agencies. Subdivision plats are required for review and must include the location of areas subject to flooding. Lands subject to flooding, irregular drainage conditions, excessive erosion and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval. Plats are also reviewed by the local permit officer to determine if the property lies within a designated AEC, and what permits are required. Furthermore, all waterfront development must meet setback requirements and impervious surface requirements. Plats are also reviewed by the Health Department, soil and water, townships, county engineers, zoning department, Tri-County Regional Planning Commission, and municipalities if within 1.5 miles of corporate limits to identify matters of topography and drainage.

Although not designed specifically for hazard mitigation purposes, this ordinance will prevent flood losses in tandem with the Flood Damage Prevention Ordinance. It will also minimize the adverse effects that development can have on stormwater drainage through impervious surface requirements and through sedimentation and erosion control. Through its roadway requirements, the ordinance also provides for adequate ingress and egress to subdivisions by emergency vehicles for fires or severe weather events. The mitigation effectiveness of this ordinance is moderate.



## **Woodford County State of Emergency Ordinance – 1992**

The purpose of this Ordinance is to authorize the proclamation of a State of Emergency and the imposition of prohibitions and restrictions during a State of Emergency. This ordinance also establishes the authority and procedures for the County Board to proclaim a State of Emergency, and to impose the following restrictions as described in the ordinance: curfew; evacuation; possession/transportation/transfer of intoxicating liquors, dangerous weapons and substances; access to areas; movements of people in public places; operation of businesses and other places; and other activities or conditions the control of which may be reasonably necessary to maintain order and protect lives or property during the State of Emergency.

The ordinance does not incorporate any long-term mitigation actions, such as temporary moratoria on the reconstruction of structures damaged or destroyed by a disaster event. The mitigation effectiveness of this ordinance is low.

### **h. Open Space Plans**

Woodford County does not currently have a separate Open Space Plan but is addressed in various ordinances.

### **i. Watershed Protection Plan**

Woodford County does not currently have a separate Watershed Protection Plan.

## *5. Legal Authority*

Local governments in Illinois have a wide range of tools available to them for implementing mitigation programs, policies and actions. A hazard mitigation program can utilize any or all of the four broad types of government powers granted by the State of Illinois, which are (a) Regulation, (b) Acquisition, (c) Taxation, and (d) Spending. The scope of this local authority is subject to constraints, however, as all of Illinois' political subdivisions must not act without proper delegation from the State. All power is vested in the State and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capabilities assessment will summarize Illinois' enabling legislation which grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

### **a. Regulation**

#### **(1) General Police Powers**

Illinois' local governments have been granted broad regulatory powers in their jurisdictions. Illinois State Statutes bestow the general police power on local governments, allowing them to enact and enforce ordinances that define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), towns, cities and counties may include

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requirements for hazard mitigation in local ordinances. Local governments may also use their ordinance-making power to abate “nuisances,” which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard. Woodford County has enacted and enforces regulatory ordinances designed to promote the public health, safety and general welfare of its citizenry.

(2) Building Codes and Building Inspection

Many structural mitigation measures involve constructing and retrofitting homes, businesses and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through building codes. Woodford County does not have building codes. However, municipalities and counties may adopt codes for their respective areas if approved by the State as providing “adequate minimum standards.” Local regulations cannot be less restrictive than the state code.

Local governments in Illinois are also empowered to carry out building inspections. It empowers cities and counties to create an inspection department, and enumerates their duties and responsibilities, which include enforcing state and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters. Woodford County has not adopted a building code or established a Building Inspections Department to carry out its building inspections.

**b. Land Use**

Regulatory powers granted by the state to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development. All these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses great power to prevent unsuitable development in hazard-prone areas. Woodford County does have a comprehensive land use plan dated January 1997; this plan is currently being updated in 2010.

(1) Planning

According to State Statute, local governments in Illinois may create or designate a planning agency. The planning agency may perform a number of duties, including: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties (citation). The importance of the planning powers of local governments is illustrated by the requirement that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted “in accordance with a plan,”

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the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community. Woodford County has a Building and Zoning Department and relies on Tri-County Regional Planning Commission for guidelines and assistance in planning.

(2) Zoning

Zoning is the traditional and most common tool available to local governments to control the use of land. Broad enabling authority is granted for municipalities and counties in Illinois to engage in zoning. Counties may also regulate inside municipal jurisdiction at the request of a municipality. The statutory purpose for the grant of power is to promote health, safety, morals, or the general welfare of the community. Land “uses” controlled by zoning include the type of use (e.g., residential, commercial, industrial) as well as minimum specifications for use such as lot size, building height and setbacks, density of population, etc. Local governments are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts. Districts may include general use districts, overlay districts, and special use districts or conditional use districts. Zoning ordinances consist of maps and written text. Woodford County enforces a countywide zoning ordinance revised in November 2009.

(3) Subdivision Regulations

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that sub-dividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division/sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures. Broad subdivision control enabling authority for municipalities is granted for counties outside of municipalities. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street. The definition of subdivision does not include the division of land into parcels greater than 5 acres where no street right-of-way dedication is involved. Woodford County has adopted a Subdivision Ordinance.

(4) Stormwater Regulations

Stormwater regulations are most often used to control runoff and erosion potential which results from small-scale development of less than five acres. A reduction in damage from small-scale development is achieved through requirements such as on-site retention/detention ponds, etc. The State of Illinois encourages local governments to adopt stormwater regulations under land use authorities.

(5) Floodplain Regulation

Illinois State Statutes provide cities and counties the land use authority. In particular, issues such as floodwater control are empowered through 70 ILCS 405/25.

**c. Acquisition**

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find the most effective method for completely “hazard proofing” a particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. Illinois legislation empowers cities, towns, counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease or eminent domain. Woodford County proposes to use acquisition as a local mitigation tool.

**d. Taxation**

The power to levy taxes and special assessments is an important tool delegated to local governments by Illinois law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the community. Communities have the power to set preferential tax rates for areas which are more suitable for development in order to discourage development in otherwise hazardous areas. Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood protection works within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development. Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development. Woodford County does levy property taxes, but does not use any preferential tax districts or special assessments for purposes of guiding growth and development.

**e. Spending**

The fourth major power that has been delegated from the Illinois General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine part of all spending decisions made by the local government, including the adoption annual budgets and a CIP. A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a deference to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent especially in areas where the provision of on-site sewage disposal and water

supply are unusually expensive. In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs. Woodford County has not adopted a CIP.

*6. Political Willpower*

Some Woodford County residents are somewhat knowledgeable about the potential hazards that their community faces, and in recent years, they have become more familiar with the practices and principles of mitigation. Some flood prone structures have been acquired thereby removing residents from harm's way. It is strongly believed that such tangible and visual changes within the community have created a greater sense of awareness among local residents, and that hazard mitigation is a concept that they are beginning to readily accept and support. Because of this fact, coupled with Woodford County's history with natural disasters, it is expected that the current and future political climates may be favorable for supporting and advancing future hazard mitigation.

## **Village of Roanoke**

### *1. Staff and Organizational Capability*

The Village of Roanoke has a very limited staff and organizational capability to implement hazard mitigation strategies. The Village is administered by a Board of Trustees with a seven-person Board. The Board consists of a President and six members elected at large to staggered four year terms. Responsibilities include:

- Development of the annual budget
- Coordination of public relations programs
- Provision of administrative services to the Village
- Administration of equal employment opportunity and affirmative action policies and programs
- Human resource management and payroll
- Risk management
- Facilities management
- A number of delegated programs

The Village has a number of services which it provides to the residents of the community. These include the following:

- Volunteer fire department
- Police protection provided by Woodford County Sheriff's Department
- EMT services
- Street repair and maintenance
- Waste removal
- Snowplowing

The Village of Roanoke is currently in the process of revamping its eight-person Community Improvement Advisory Board. This process will expand the Advisory Boards current functions and better define its responsibilities. This Advisory Board provides support to the Village Board of Trustees.

The Administrative Department is responsible for the mitigation, preparedness, response and recovery operations that deal with both natural and man-made disaster events. The department is also responsible for addressing land use planning as well as developing mitigation strategies.

The Zoning Department enforces the NFIP requirements and other applicable local codes.

## *2. Technical Capability*

The Village of Roanoke has very limited technical capability to implement hazard mitigation strategies.

### **a. Technical Expertise**

The Village of Roanoke does not have a full-time planner on staff to administer its hazard mitigation programs. The Village utilizes the Tri-County Regional Planning Commission for its hazard mitigation needs and a part-time engineering firm (MOHR) is employed for its engineering needs.

### **b. Geographic Information Systems**

GIS systems can best be described as a set of tools (hardware, software, and trained staff) used to collect, manage, analyze and display spatially-referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. The Village currently utilizes the Woodford County GIS service for their GIS needs.

### **c. Internet Access**

The Village of Roanoke provides its employees with high-speed broadband Internet service. This provides an enormous opportunity for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. Information technology also offers increased economic opportunities, higher living standards, more individual choices, and wider and more meaningful participation in government and public life. Simply put, information technology can make distance – a major factor for Village officials and residents - far less important than in the past. Internet access will help further the Village's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

## *3. Fiscal Capability*

The Village of Roanoke has limited fiscal capability to implement hazard mitigation strategies. The Village receives most of its revenues through State and local sales tax and other local services and through restricted intergovernmental contributions (Federal and State pass through dollars). It is highly unlikely that the Village of Roanoke could afford to provide the cost share for the existing hazard mitigation grant programs. Considering the current budget deficits at both the State and local government level in Illinois combined with the apparent increased reliance on local accountability by the Federal government, this is a significant and growing concern for the community. The Village budgeted \$10,000 for the 2009-10 Fiscal years and has budgeted \$15,000 for the 2010-11 fiscal years for debris removal in Panther Creek. Funding has also been earmarked for the establishment of a new community well.

Under the DMA2K, FEMA has made special accommodations for "small and impoverished communities," that will be eligible for a 90% Federal share, 10% non-

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Federal cost share for projects funded through the Pre-Disaster Mitigation (PDM) grant program. Unfortunately, according to the current Interim Final Rule for Section 322 of the Act, the Village of Roanoke will not qualify as a small and impoverished community. The definition is restricted to “communities of 3,000 or fewer individuals that are identified by the State as a rural community.”

*4. Policy and Program Capability*

This part of the capabilities assessment includes the identification and evaluation of existing plans, policies, practices, programs, or activities that either increase or decrease the community’s vulnerability to natural hazards. Positive activities, which decrease hazard vulnerability, should be sustained and enhanced if possible. Negative activities, which increase hazard vulnerability, should be targeted for reconsideration and be thoroughly addressed within Mitigation Strategy for the Village of Roanoke.

The Village of Roanoke is currently addressing debris removal from the Panther Creek. This process has dramatically decreased the amount of flooding over the last several years.

**a. Recent Hazard Mitigation Efforts**

The Village of Roanoke is currently addressing debris removal from the Panther Creek. This process has dramatically decreased the amount of flooding over the last several years.

The Village of Roanoke has an Emergency Management Agency coordinator that was created to combine all Emergency Preparedness Programs including Civil Defense. By state law the Emergency Management Agency is a required County Department. The purpose of Emergency Management Agency is to mitigate potential hazards, plan for, coordinate, respond to and aid in recovery from all disaster situations whether natural or man-made.

**b. CRS Activities**

Communities that regulate development in floodplains are able participate in the NFIP. In return, the NFIP makes Federally-backed flood insurance policies available for properties in the community. The CRS was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction.

The Village of Roanoke does not participate in the CRS.

**c. Emergency Operations Plans**

The Village of Roanoke has developed and adopted an Emergency Operations Plan which predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. The Plan describes the



Village's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster. The plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the Village to protect lives and property immediately before, during and immediately following an emergency. There are no foreseeable conflicts between this Hazard Mitigation Plan and the Village of Roanoke's Emergency Operations Plan, primarily because they are each focused on two separate phases of emergency management (mitigation vs. preparedness and response). The Plan does identify the Village Board as having the lead role in the long-term reconstruction phase following a disaster – which presents a unique window of opportunity for implementing hazard mitigation strategies. However, no hazard mitigation strategies are specified within the Emergency Operations Plan.

**d. Floodplain Management Plan**

The Village of Roanoke does not currently have a separate floodplain management plan for NFIP purposes. This Hazard Mitigation Plan is intended to fulfill the CRS planning requirement should the community decide to enter the program.

**e. Stormwater Management Plan**

The Village of Roanoke does not currently have an adopted stormwater management plan, but does apply stormwater management provisions through their subdivision regulations. According to the Village's Subdivision Ordinance, lands subject to flooding, irregular drainage conditions, excessive erosion, and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval.

**f. Comprehensive Plan**

The Village developed and adopted a Comprehensive Plan which was last updated in 2003. The plan provides the future vision for the community regarding growth and development. Hazard mitigation planning is not specifically addressed in the plan.

**g. Ordinances**

The Village of Roanoke has adopted several ordinances that are relevant to hazard mitigation, as described in more detail below.

**Zoning Ordinance (Updated 6/2010)**

The Zoning Ordinance requires building permits for all structures. It requires a development permit to be submitted to the Village prior to any construction or substantial improvement activities. Permits will only be approved if they meet the provisions of the ordinance. Standards are established for construction materials,

equipment, methods, practices and uses. The mitigation effectiveness of this ordinance is low.

### **Subdivision Ordinance (Amended 2003)**

The Subdivision Ordinance regulates all divisions of land for purposes of sale or building development (immediate or future), including all divisions of land involving the dedication of new streets/roads or a change in existing streets/roads. All proposed subdivisions must go through an approval process involving multiple individuals/agencies. Subdivision plats are required for review and must include the location of areas subject to flooding. Lands subject to flooding, irregular drainage conditions, excessive erosion and other reasons considered unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and the necessary stormwater drainage improvements must be completed before final plat approval. Plats are also reviewed by the local permit officer to determine whether the property lies within a designated Area of Environmental Concern (AEC), and specifies what permits are required. Furthermore, all waterfront development must meet setback and impervious surface requirements. The Public Works Director, Village Engineer and Code Enforcement Officer also review plats to identify matters of topography and drainage concern. Although not designed specifically for hazard mitigation purposes, this ordinance will prevent flood losses in tandem with the Flood Damage Prevention Ordinance. It will also minimize the adverse effects that development can have on stormwater drainage through impervious surface requirements and through sedimentation and erosion control. Through its roadway requirements, the ordinance also provides for adequate ingress and egress to subdivisions by emergency vehicles for fires or severe weather events. The mitigation effectiveness of this ordinance is moderate.

### **Village of Roanoke State of Emergency Ordinance (2003)**

The purpose of this ordinance is to authorize the proclamation of a State of Emergency and the imposition of prohibitions and restrictions during a State of Emergency. It establishes the authority and procedures for the Village Board to proclaim a State of Emergency, and to impose the following restrictions as described in the ordinance: curfew; evacuation; possession/transportation/transfer of intoxicating liquors, dangerous weapons and substances; access to areas; movements of people in public places; operation of businesses and other places; and other activities or conditions the control of which may be reasonably necessary to maintain order and protect lives or property during a State of Emergency.

The ordinance does not incorporate any long-term mitigation actions, such as temporary moratoria on the reconstruction of structures damaged or destroyed by a disaster event. The mitigation effectiveness of this ordinance is low.

**h. Open Space Plans**

The Village of Roanoke does not currently have a separate open space plan.

**i. Watershed Protection Plan**

The Village of Roanoke does not currently have a separate watershed protection plan.

*5. Legal Authority*

Local governments in Illinois have a wide range of tools available to them for implementing mitigation programs, policies, and actions. A hazard mitigation program can utilize any or all of the four broad types of government powers granted by the State of Illinois, which are (a) regulation, (b) acquisition, (c) taxation, and (d) spending. The scope of this local authority is subject to constraints, however, as Illinois' political subdivisions must not act without proper delegation from the State. All power is vested in the State and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capabilities assessment will summarize Illinois' enabling legislation that grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

**a. Regulation**

**(1) General Police Power**

Illinois' local governments have been granted broad regulatory powers in their jurisdictions. Illinois State Statutes bestow the general police power on local governments, allowing them to enact and enforce ordinances that define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), towns, cities and counties may include requirements for hazard mitigation in local ordinances. Local governments may also use their ordinance-making power to abate "nuisances," which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard. The Village of Roanoke has enacted and enforces regulatory ordinances designed to promote the public health, safety and general welfare of its citizenry.

**(2) Building Codes and Building Inspection**

Many structural mitigation measures involve constructing and retrofitting homes, businesses, and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through building codes, as is the case in the Village of Roanoke. Municipalities and counties may adopt codes for their respective areas if approved by the State as providing "adequate minimum standards." Local regulations cannot be less restrictive than the State code.

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Local governments in Illinois are also empowered to carry out building inspections. It empowers cities and counties to create an inspection department, and enumerates its duties and responsibilities which include enforcing State and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters. The Village of Roanoke has adopted a building code and established a Building/ Inspections Department to carry out its building inspections.

**b. Land Use**

Regulatory powers granted by the State to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development. All of these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, and enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses great power to prevent unsuitable development in hazard-prone areas. The Village of Roanoke has not adopted a land use regulation.

(1) Planning

According to State statutes, local governments in Illinois may create or designate a planning agency. The planning agency may perform a number of duties including: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties. The importance of the planning powers of local governments is illustrated by the requirement that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted “in accordance with a plan,” the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community. The Village of Roanoke has a building and zoning office that provides planning expertise.

(2) Zoning

Zoning is the traditional and most common tool available to local governments to control the use of land. Broad enabling authority is granted for municipalities and counties in Illinois to engage in zoning. Land “uses” controlled by zoning include the type of use (e.g., residential, commercial, industrial) as well as minimum specifications for use such as lot size, building height and setbacks, density of population, etc. Local governments are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts. Districts may include general use districts, overlay districts, and special use districts or conditional use districts. Zoning ordinances

consist of maps and written text. The Village of Roanoke enforces a Village wide zoning ordinance.

(3) Subdivision Regulations

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that sub-dividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division or sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street. The definition of subdivision does not include the division of land into parcels greater than 10 acres where no street right-of-way dedication is involved. The Village of Roanoke has adopted a subdivision ordinance.

(4) Stormwater Regulations

Stormwater regulations are most often used to control runoff and erosion potential which results from small-scale development of less than five acres. A reduction in damage from small-scale development is achieved through requirements such as on-site retention/detention ponds, etc. The State of Illinois encourages local governments to adopt stormwater regulations under land use authorities.

(5) Floodplain Regulation

Illinois State statutes provide cities and counties the land use authority. In particular, issues such as floodwater control are empowered through 70 ILCS 405/25.

**c. Acquisition**

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find the most effective method for completely “hazard proofing” a particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. Illinois legislation empowers cities, towns, and counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease, or eminent domain. The Village of Roanoke proposes to use acquisition as a local mitigation tool.

**d. Taxation**

The power to levy taxes and special assessments is an important tool delegated to local governments by Illinois law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the community. Communities have the power to set preferential tax rates for areas which are more suitable for development in order to discourage development in otherwise hazardous areas. Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood protection works within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development. Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development. The Village of Roanoke does levy property taxes. The Village also uses the 1) Two Tax Increment Funding District, 2) Enterprise Zones, and 3) Build Illinois Program for purposes of guiding growth and development.

**e. Spending**

The fourth major power that has been delegated from the Illinois General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine part of all spending decisions made by the local government, including the adoption annual budgets and a Capital Improvement Plan (CIP). A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a deference to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent especially in areas where the provision of on-site sewage disposal and water supply are unusually expensive. In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs. The Village of Roanoke has a Five-Year Capital Improvement Plan and that plan undergoes an annual review.

*6. Political Willpower*

Most Village residents are knowledgeable about the potential hazards that their community faces, and in recent years, they have become more familiar with the practices and principles of mitigation. Many flood prone structures have been acquired

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thereby removing residents from harm's way. Such tangible and visual changes within the community have created a greater sense of awareness among local residents, and hazard mitigation is a concept that they are beginning to readily accept and support. Because of this fact, coupled with the Village of Roanoke's history with natural disasters, it is expected that the current and future political climates are favorable for supporting and advancing future hazard mitigation strategies.

## **SECTION VII - MITIGATION STRATEGY**

The Mitigation Advisory Committee attended a workshop on February 4, 2004, to discuss the results of the hazard identification and risk assessments, review mitigation goals and objectives based on the priority areas and hazard types, discuss community strengths and weaknesses, and begin developing the mitigation strategy.

During the 2010 update various forms of communication were utilized to review and update the mitigation strategies. The February 8, 2010 meeting agenda included a review of the current mitigation strategies, where the committee decided to alter the overarching goals and combine several of the individual goals. During this meeting the localities also reported on the status of the 2004 mitigation strategies. The April 6 and 7, 2010 meetings focused on reviewing, updating and developing new jurisdiction specific mitigation strategies. Ranking criteria developed during the 2004 plan was utilized.

This section of the Hazard Mitigation Plan describes the development of a Mitigation Strategy. It is a process of this four-step process:

1. Setting mitigation goals
2. Considering mitigation alternatives
3. Developing objectives and implementation approaches
4. Deriving a mitigation action plan

This Mitigation Strategy also serves a second purpose for Peoria County, which is a participant in the NFIP's CRS. The county has 138 NFIP-insured properties, which are on FEMA's Repetitive Loss list. As a result, Peoria County is required to prepare a CRS Plan, which addresses these repetitive loss structures.

This plan was structured to meet CRS Plan requirements. At the end of Section VII, a draft Repetitive Loss Plan is presented in order to fulfill CRS planning requirements for Peoria County.

### **Setting Mitigation Goals**

The Hazard Mitigation Planning process followed by the MAC is a typical problem-solving methodology:

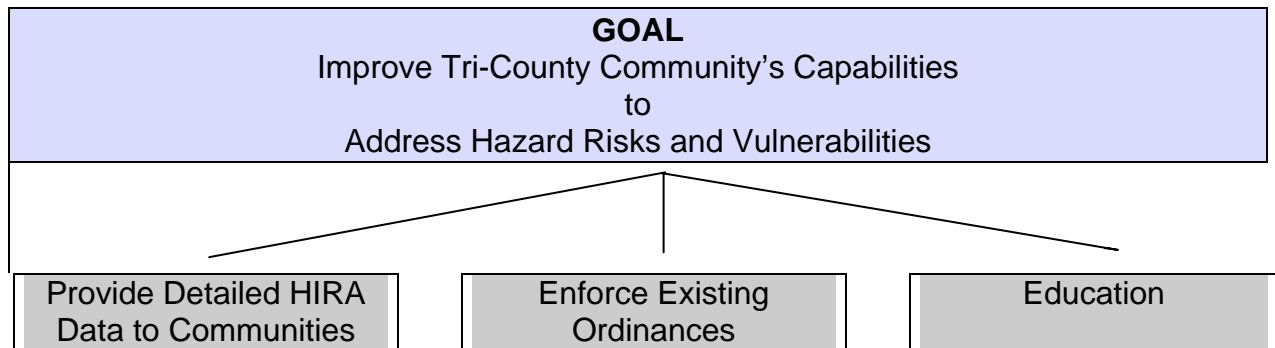
1. Describe the problem (Hazard Identification)
2. Estimate the impacts the problem could cause (Vulnerability Assessment)
3. Assess what safeguards already exist that could/should lessen those impacts (Capability Assessment)
4. Using this information, determine if action is required (Determine Acceptable Risk), and if so, what is the most appropriate action (Develop an Action Plan)



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When a community decides that certain risks are unacceptable and that certain mitigation actions may be achievable, the development of Goals and Objectives takes place. Goals and Objectives help to describe what should occur, using increasingly narrow descriptors. Initially, broad-based Goals are developed, which are long-term and general statements. Goals are accomplished by meeting Objectives which are activities that are specific and achievable in a finite time period. In most cases there is a third level, called Recommended Actions (or Implementation), which are very detailed and specific ways of achieving the Objectives.

When developing the Goals and Objectives for this plan, the MAC was provided with the model below as an example of this relationship.



The MAC discussed Goals and Objectives for this plan at two points in the planning process. First, early in the planning process, the MAC established general Goals and Objectives to set the initial tone and direction for the overall plan. Then, after the problem solving (described above) took place, the Goals and Objectives were revisited to confirm that the data collection process supported them. Lastly, Recommended Actions (or Implementation) were developed as a logical extension of the plan's objectives. Most of these actions are dynamic and can change. These actions have been utilized to develop a Mitigation Action Plan for the Tri-County Area and it is contained as a part of the overall all-hazards mitigation plan.

Each city and county in the Tri-County area used the results of the data collection efforts to develop goals and prioritize their actions. The priorities will differ from jurisdiction to jurisdiction. Overall, for the entire planning area, protecting new and existing development from the effects of hazards is the top priority because it can be achieved on an individual community-by-community basis but at the same time be integrated into an overarching plan goal. For each jurisdiction, additional priorities were developed based on past damages, existing exposure to risk, other community goals, and weaknesses identified by the local government capability assessments.

Following the final public meeting held on March 24, 2004, the following goals for the Tri-County area were accepted by the Mitigation Advisory Committee. The goals and

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the associated objectives form the basis for the development of a mitigation action plan and specific mitigation projects to be considered for the Tri-County area. The Mitigation Action Plan, located at the end of this section, contains the recommended mitigation projects. As discussed above, these were updated during meetings in February and April 2010.

**2010 Update**

As discussed above, the committee members decided to combine several of the goals in the 2004 plan. The 2004, Goals 1 & 2 and 5 & 6 were combined together. The new 2010 overarching goal and 4 updated goals are summarized below.

Overarching Goal:	“To develop and maintain a disaster resistant community that is less vulnerable to the economic and physical devastation associated with natural hazard events.”
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Goal 1	Enhance the safety of residents and businesses by protecting new and existing development from the effects of <u>natural</u> hazards. Protect new and existing public and private infrastructure and critical facilities from the effects of these <u>natural</u> hazards.
Goal 2	Increase the local floodplain management activities and participation in the NFIP.
Goal 3	Ensure hazard awareness and risk reduction principles are institutionalized into the Tri-County communities’ daily activities, processes, and functions by policy documents and initiatives incorporating it into policy documents and initiatives.
Goal 4	Enhance community-wide understanding and awareness of community hazards by publicizing mitigation activities to reduce vulnerability.

**General Observations — Strengths**

- The Tri-County area has several policies that have hazard mitigation elements or effects such as development and building code regulations, floodplain ordinances, zoning ordinances, stormwater management programs and local hazard mitigation plans in Peoria and Peoria County. Building code regulations, such as the freeboard and local enforcement, have helped to ensure that new development is built to accepted safety standards for development overall.
- Much of the language used for flood hazard mitigation is already present in some of the Tri-County area communities’ existing comprehensive plans and local flood

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hazard mitigation plans. These concepts involve floodplain management and the preservation of open space and natural areas.

Over the next few years, the Tri-County area communities will continue to have opportunities to experience new development within its jurisdictions as structures are built to newer codes and standards that help to reduce damage from natural hazards.

### **General Observations — Weaknesses**

- While the Tri-County area jurisdictions enforce their floodplain ordinances, many current ordinances are out-of-date and need to be revised. The jurisdictions could offer an even greater degree of protection if they adopted cumulative substantial damage and substantial improvement determinations/requirements. Much of the older development lies in the most potentially hazardous areas along the major water bodies. Some of these areas are occupied by heavy industrial facilities that use potentially hazardous materials.
- Evacuation remains an issue, particularly as the cities and surrounding localities and counties continue to grow in population. The Tri-County area cities and counties must remain vigilant in coordinating with the State of Illinois, as well as, regional and other local communities. During the presentation of findings for the hazard identification and risk assessment workshop, the Mitigation Advisory Committee (MAC) was asked to provide their preliminary input and ideas. The MAC then considered ranges of alternatives based on their comments and suggestions.
- The Tri-County area had a highly successful Project Impact program that was very active in promoting the concepts of disaster resistance and preparedness. This program and since dissolved.
- Spatial data creation and maintenance should continue to be a focus for the planning commission and individual localities.

The MAC reviewed the STAPLE/E criteria to rank the mitigation alternatives. The MAC utilized the STAPLE/E process, whenever possible, tempered by the preliminary comments below:

1. Top priorities for the area were public safety, public education, and reducing or eliminating potential economic impacts of disasters.
2. Alternatives should consider the impacts on the jurisdictions as a whole.
3. Alternatives must not conflict with other community programs or priorities.
4. Community Rating System (CRS) and floodplain management policies and activities should be a priority.

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5. Experiences from disasters should be built upon and integrated into day-to-day administrative and regulatory activities.
6. The success of past mitigation projects should be used as a base for alternatives.
7. Outreach and other efforts should be focused on FEMA's Repetitive Loss properties.

**Prioritizing Actions**

The MAC used the STAPLE/E Criteria (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) to select and prioritize the most appropriate mitigation actions for the Tri-County area communities. This process was used to help ensure that the most equitable and feasible actions would be undertaken based on jurisdiction's capabilities.

Actions were ranked High, Medium, and Low based on the STAPLE/E criteria; each of the considerations was assessed to determine if they were favorable or less favorable for the jurisdiction. Actions with the most favorable considerations were ranked higher than those with less favorable conditions. The STAPLE/E criteria was used to group the actions into broad categories and the final rankings were decided by the local expert judgment of the steering committee based on what would realistically work for their communities. Table VII-1 below provides information regarding the review and selection criteria for alternatives.

The FEMA Benefit-Cost Analysis was not completed on the proposed actions presented in this plan. Mitigation actions with a high priority ranking were determined to be the most cost effective and most well-suited for each of the jurisdictions' needs. A more detailed benefit-cost review will need to be completed for specific projects prior to the application for or obligation of funding, as appropriate.

Table VII- 1: STAPLE/E review and selection criteria for alternatives.

<b>Social</b>
<ul style="list-style-type: none"><li>• Is the proposed action socially acceptable to the community(s)?</li><li>• Are there equity issues involved that would mean that one segment of the community are treated unfairly?</li><li>• Will the action cause social disruption?</li></ul>
<b>Technical</b>
<ul style="list-style-type: none"><li>• Will the proposed action work?</li><li>• Will it create more problems than it solves?</li><li>• Does it solve a problem or only a symptom?</li><li>• Is it the most useful action in light of other community(s) goals?</li></ul>

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**Administrative**

- Can the community(s) implement the action?
- Is there someone to coordinate and lead the effort?
- Is there sufficient funding, staff, and technical support available?
- Are there ongoing administrative requirements that need to be met?

**Political**

- Is the action politically acceptable?
- Is there public support both to implement and to maintain the project?

**Legal**

- Is the community(s) authorized to implement the proposed action? Is there a clear legal basis or precedent for this activity?
- Are there legal side effects? Could the activity be construed as a taking?
- Is the proposed action allowed by the comprehensive plan, or must the comprehensive plan be amended to allow the proposed action?
- Will the community(s) be liable for action or lack of action?
- Will the activity be challenged?

**Economic**

- What are the costs and benefits of this action?
- Do the benefits exceed the costs?
- Are initial, maintenance, and administrative costs taken into account?
- Has funding been secured for the proposed action? If not, what are the potential funding sources (public, non-profit, and private)?
- How will this action affect the fiscal capability of the community(s)?
- What burden will this action place on the tax base or local economy?
- What are the budget and revenue effects of this activity?
- Does the action contribute to other community goals, such as capital improvements or economic development?
- What benefits will the action provide?

**Environmental**

- How will the action affect the environment?
- Will the action need environmental regulatory approvals?
- Will it meet local and state regulatory requirements?
- Are endangered or threatened species likely to be affected?

During the presentation of findings meeting on February 4, 2004, the MAC reviewed and commented on the draft Plan's HIRA. Discussions held during the meeting resulted in the generation of a range of potential mitigation goals and actions to address the hazards. The master grouping of alternatives the MAC chose from is included in the

next section. These actions were then compiled into a master list for the MAC to rank the goals on a scale of 1 to 6 and the actions on a scale of 1 to 10. Ranking was done in order of relative priority based on the STAPLE/E criteria and the potential goal/action's ability to reduce vulnerability to natural hazards.

During the April 6 and 7, 2010 meetings, the MAC evaluated and re-prioritized the current actions as well as developed new actions. The STAPLE/E criteria were used to prioritize actions. During the individual jurisdictional meetings each jurisdiction used the seven criteria to prioritize the actions as **High**, **Moderate**, and **Low** based on the criteria mentioned above. Meeting minutes can be found in the Planning section of this report.

## **Considering Mitigation Alternatives**

### *General Multi-Hazard Mitigation Alternatives*

The mitigation alternatives selected should be linked to the Tri-County area's goals and objectives, and must address each jurisdiction's hazard risks and vulnerability outlined in the plan's Hazard Identification and Risk Assessment. The following is a list of potential mitigation measures, not specific to one hazard, which can benefit a community's overall hazard reduction efforts.

#### (1) Comprehensive Plans

Comprehensive plans address how and where a community should grow by guiding the rate, intensity, form, and quality of physical development. These plans address land use, economic development, transportation, recreation, environmental protection, the provision of infrastructure, and other municipal functions. Comprehensive plans help to guide other local measures such as capital improvement programs, zoning ordinances, subdivision ordinances and other community policies and programs. By integrating hazard considerations into the plan, mitigation would become integrated with community functions and, could therefore, be an institutionalized part of a jurisdiction's planning efforts.

Density and development patterns should reflect the Tri-County area communities' ability to protect their jurisdictions, the environment, and the ability to evacuate the area. Development management tools should be incorporated into the local policies that address location, density, and use of land, with a particular emphasis on development within high-risk areas. Efforts should be made to keep people and property out of high-hazard areas, whenever possible. Particularly hazardous areas could be used for recreational uses, open space, or wildlife refuges.

#### (2) Capital Budget Plans

Capital budget plans typically (also known as capital improvement plans) provide for the future and ongoing provision of public facilities and infrastructure. These plans can be

vital tools in keeping new development out of high-hazard areas by limiting the availability of public infrastructure. Public facilities can often be relocated to less hazardous areas in the aftermath of a disaster. Public utilities can also be relocated, or they can be upgraded or floodproofed. Power and telephone lines can be buried underground. In order to maximize the gravity flow area of wastewater treatment plants, the facilities are often located at the lowest elevation in the community. If this point lies within a floodplain, consideration may be given to relocating or floodproofing such facilities. New locations for critical facilities should not be in hazard-prone areas, or in areas where their function may be impaired by a given hazard event (i.e., where water can flood the access roads). Critical facilities should be designed and/or retrofitted in order to remain functional and safe before, during, and after a hazard event. Careful consideration should be given to adopting regulations which prohibit locating new critical infrastructure in identified high hazard areas.

### (3) Zoning

Zoning is by far the most common land-use control technique used by local governments. While a useful tool for regulating and restricting undesirable land uses, zoning has a somewhat more limited benefit when it comes to mitigation. Zoning is most effective on new development rather than existing development, which does little to address the pre-existing development in hazardous areas. Communities with a large amount of undeveloped land will benefit much more than older, more established communities. Even for new development, the issuance of variances, special use permits, rezoning, and the failure to enforce existing codes, however, will weaken zoning's ability to prevent certain types of building practices.

### (4) Building Codes

Building codes regulate the design, construction, and maintenance of construction within most communities. These regulations prescribe standards and requirements for occupancy, maintenance, operation, construction, use, and appearance of buildings. Building codes are an effective way to ensure that new and extensive re-development projects are built to resist natural hazards. In Illinois, communities are required by law to adopt and enforce the Uniform Statewide Building Code, which has provisions for wind, water, and seismicity. Stricter building codes for high hazard areas from other areas of the country should be reviewed and considered for adoption.

### (5) Public Outreach and Education Programs

Educating the public about what actions they can take to protect themselves and their property from the effects of natural hazards can be an effective means for reducing losses. These types of programs could target public officials, citizens, businesses, or the local construction trade. The program could cover preparedness, recovery, mitigation, and general hazard awareness information. The information could be presented in a variety of ways, from workshops, brochures, advertisements, or local media. Potential outreach and education topics include:

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- Code awareness training
- Sheltering and evacuation
- Flood insurance
- School information (primary, secondary, colleges, and universities)
- New homeowner/resident information
- Emergency preparedness for families, businesses, and tourists
- Driver safety in disasters
- Special needs outreach
- Hazard mitigation for homeowners (Including manufactured homes and trailers), renters, and businesses

(6) Vegetative Maintenance

Vegetative maintenance is the pruning and maintenance of trees, bushes, and other vegetation that could increase threats to power lines during storms, or could act as fuels during wildfires. This could be applied in limited areas that have a significant vulnerability to these hazards, such as an easement or along the urban-wildland interface.

(7) Vegetative Planting and Treatment

Vegetative planting and treatments can help to capture and filter runoff and can reduce landslides. Perennial vegetation includes grass, trees, and shrubs, which cover the soil, reduce water pollution, slow the rate of runoff, increase filtration, and prevent erosion. This type of land treatment includes maintaining trees, shrubs, and the vegetative cover, terracing (a raised bank of earth with vertical sloping sides and a flat top to reduce surface runoff), stabilizing slopes, grass filter strips, contour plowing, and strip farming (the growing of crops in rows along a contour). Other potential options include vegetated swales, infiltration ditches, fiber or geo-textile erosion protection mats and permeable paving blocks.

*Hazard-Specific Alternatives*

The following is a list of potential mitigation measures that tend to apply when applied to a specific hazard.

(1) Flood

Flood mitigation measures can be classified as structural or non-structural. In simple terms, structural mitigation attempts to eliminate the possibility of flooding at a particular location. Non-structural mitigation removes the potentially effected people or property from the potentially flooded area. The following is a list of potential flood mitigation measures.



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(a) Floodplain Management Ordinances

Floodplain management ordinances are weakened by development pressures, a lack of suitable sites outside of the floodplain, community desires to be near the water, inability to effectively monitor floodplain management activities, or by land-use planning policies that are encouraging development into floodplain areas. Plans or policies that place more properties at risk also reduce the storage capacity and functions of the natural floodplains. Degradation of the floodplain in this way increases flood depths and affects the reliability of Flood Insurance Rate Maps (FIRMs). Structures built in floodplains, particularly those that do not utilize a freeboard (that exceeds the minimum BFE), are consequently even more vulnerable to damage by floods.

(b) Acquisition

Acquisition involves the purchasing of a property that is cleared and permanently held as open space. Acquisition permanently moves people and property out of harm's way, increases floodplain capacities, recreation areas, and open space, and can help to preserve wetlands, forests, estuaries and other natural habitats. Participation in Federally-funded grant programs requires voluntary participation by the owner. Acquisition programs can be expensive to undertake, and the property will no longer accrue taxes for the community and must be maintained, but it is by far the most effective and permanent mitigation technique. Acquisition is most effective when targeting repetitive loss structures, extremely vulnerable structures, or other high-hazard areas. For Severe Repetitive Loss (SRL) properties, property owners who decline offers of mitigation assistance can be subject to increases to their insurance premium rates.

(c) Elevation

Elevation is the raising of a structure above the BFE. Elevation is often the best alternative for structures that must be built or remain in flood prone areas, and is less costly than acquisition or relocation. However, elevating a structure can increase its vulnerability to high winds and earthquakes. This technique can be cost-prohibitive or unsuitable for some types of buildings.

(d) Relocation

Relocation involves moving a building or facility to a less hazardous area, on either the same parcel or another parcel. This measure also moves people and property out of harm's way, and is a very effective measure overall. This technique can be cost-prohibitive or unsuitable for some types of buildings.

(e) Stormwater Management Plans

New development that increases the amount of impervious surfaces affects the land's ability to absorb the water and can intensify the volume of peak flow runoff. Without efficient stormwater management, runoff could cause flooding, erosion, and water

quality problems. Stormwater management plans should incorporate both structural and nonstructural measures in order to be most effective. Structural measures include retention and detention facilities that minimize the increase of runoff due to impervious surfaces and new development. Retention facilities allow stormwater to seep into the groundwater. Detention systems accumulate water during peak runoff periods that will be released at off-peak times. Nonstructural measures include establishing impervious surface limit policies and maintenance programs for existing drainage systems.

(f) Dry Floodproofing

Dry floodproofing involves making all areas below the flood protection level watertight by strengthening walls, sealing openings, using waterproof compounds, or applying plastic sheeting on the walls. This method is not recommended for residential structures, but may work well for new construction, retrofitting, or repairing a non-residential structure. Due to pressure exerted on walls and floors by floodwater, dry floodproofing is effective on depths less than two to three feet. Floodproofing of basements is not recommended.

(g) Wet Floodproofing

Opposite of dry floodproofing, wet floodproofing lets the floodwater actually enter a structure. This technique is effective in areas with deeper flood depths, as it minimizes the potential for exterior pressure build-up. This method may not be used for basements under new construction, substantial improvements, or substantially damaged structures.

(h) Storm Drainage Systems

Mitigation efforts include the installation, re-routing, or increasing the capacity of storm drainage systems. Examples include the separation of storm and sanitary sewers, addition or increase in size of drainage or retention ponds, drainage easements, or creeks and streams.

(i) Drainage Easements

Easements can be granted enabling regulated public use of privately owned land for temporary water retention and drainage areas.

(j) Structural Flood Control Measures

Water can be channeled away from people and property with structural control measures such as levees, dams, or floodwalls. These measures may also increase drainage and absorption capacities. These structural control measures may also increase BFEs and could create a false sense of security.

(k) Basement Backflow Prevention

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Tri-County area communities should encourage the use of check valves, sump pumps, and backflow prevention devices in homes and buildings if the infrastructure allows such uses.

(2) Wind

Proper engineering and design of a structure can increase a structure's ability to withstand the lateral and uplift forces of wind. Building techniques that provide a continuous load path from the roof of the structure to the foundation are generally recommended.

(a) Windproofing

Windproofing is the modification of the design and construction of a building to resist damages from wind events, and can help to protect the building's occupants from broken glass and debris. Windproofing involves the consideration of aerodynamics, materials, and the use of external features such as storm shutters. These modifications could be integrated into the design and construction of a new structure or applied to reinforce an existing structure. Anchoring the structures to their foundations can protect manufactured homes, which tend to be vulnerable to the effects of extreme wind events. Mobile homes should be tied down to their pads in order to prevent them from being destroyed. Public facilities, critical infrastructure, and public infrastructure (such as signage and traffic signals) should all be windproofed in vulnerable areas. However, windproofing is not a viable mitigation technique to protect against tornadoes.

(b) Community Shelters/Safe Rooms

Community shelters and concrete safe rooms can offer protection and reduce the risk to life. Locations for these shelters or safe rooms are usually in concrete buildings such as shopping malls or schools. Communities lacking basements and other protection nearby should consider developing tornado shelters.

(c) Burying Power Lines

Buried power lines can offer uninterrupted power during and after severe wind events and storms. Burying power lines can significantly enhance a community's ability to recover in the aftermath of a disaster. Buried power lines are typically more expensive to maintain and are more vulnerable to flooding. Encouraging back-up power resources in areas where burial is not feasible will enable the continuity of basic operations (e.g., security, refrigeration, heat, etc.) for businesses and facilities when there is a loss of power.

## **Developing Objectives and Implementation Approaches**

### **GOALS, OBJECTIVES AND IMPLEMENTATION**

Through a series of workshops in 2004, the following goals and objectives for the Tri-County area were accepted or modified by the MAC. Several meetings for the 2010 update discussed these goals and objectives and made modifications to them as described in this section and in the planning section.

The goals and objectives form the basis for the development of a mitigation action plan and specific mitigation projects to be considered for the Tri-County area. The process of 1) setting goals, 2) developing objectives, and 3) deriving mitigation action items, and 4) implementing recommended mitigation activities comprises a mitigation strategy. Therefore, the development of goals and objectives leads to the development of a mitigation action plan that is ultimately finalized as the Tri-County area's Mitigation Strategy.

### **Overarching Tri-County Area Goal**

***“To develop and maintain a disaster resistant community that is less vulnerable to the economic and physical devastation associated with natural hazard events.”***

This overarching goal is intended to represent the vision of the Tri-County communities' future as it relates to natural hazards, safety, and economic prosperity. Community officials should consider the vision and goals that follow before making community policies, public investment programs, economic development programs, or community development decisions for their communities. Following each Goal Statement is a future oriented vision in italics of what the Tri-County communities will look like when these goals are accomplished.

**Goal 1 - Enhance the safety of residents and businesses by protecting new and existing development from the effects of natural hazards. Protect new and existing public and private infrastructure and critical facilities from the effects of these natural hazards.**

***Future Vision:*** *The Tri-County jurisdictions recognize that safe and economically sustainable communities must protect the life and property of citizens, businesses, and the day-to-day functions of the jurisdiction itself. As resources have allowed, repetitive loss properties have been targeted for mitigation studies and efforts, as they are also extremely vulnerable to the impacts of hazard events.*

*The Tri-County communities have improved their ability to respond, recover, and provide continuity of services in the aftermath of a hazardous event. Public facilities*

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*and critical facilities continue to be evaluated for their ability to withstand a variety of hazards and are retrofitted as resources have become available. Additionally, signs, hydrants, and other forms of public property are retrofitted as resources allow.*

*Table VII-2 provides information on residential, commercial, critical facility and infrastructure-related mitigation strategies, implementation of those strategies, and timeframes for implementation.*

Table VII- 2. Mitigation Objectives and Implementation for Residents, Businesses and Infrastructure.

<b>OBJECTIVE</b>	<b>IMPLEMENTATION</b>	<b>2004 – 2010</b>	<b>2010 – 2015</b>	<b>Post-Disaster</b>
1.1 Investigate homes and trailers to evaluate their resistance to wind and flood hazards.	Local building departments work with the MAC to identify properties and obtain grant funds for a study. Included in this analysis will be an assessment of the most cost-beneficial mitigation alternatives for the at-risk properties.	X	X	
	In order to finance this initiative, the MAC annually submits a PDM program grant application to the Illinois Emergency Management Agency until funding is secured.	X		
1.2 Target FEMA's Repetitive Loss Properties throughout the Tri-County area for potential mitigation projects.	The MAC, planning departments, and local emergency management agencies will develop a potential mitigation project list for targeting FEMA's Repetitive Loss Properties.	X	X	X
	In order to finance this initiative, the MAC submits an annual PDM program grant application to the Illinois Emergency Management Agency until all properties are mitigated.	X	X	
1.3 Distribute 100 NOAA weather radios to residents that are most vulnerable to wind events, at no charge.	Local emergency management agencies will identify funding sources, obtain radios and distribute them to residents.	X		
1.4 Develop a detailed building inventory for all structures in the tri-County area, in a GIS-based format, which catalogues information regarding assets such as value of structure, contents, age, location (latitude and longitude), etc. (2004 obj. 2.1)	In order to finance this initiative, the MAC annually submits a Pre-Disaster Mitigation (PDM) program grant application to the Illinois Emergency Management Agency and FEMA to develop a detailed building inventory for the Tri-County area until funding is secured.	X	X	X
1.5 Investigate all primary and secondary	Local school boards in the Tri-County area work with the MAC to undertake this study.	X		

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<b>OBJECTIVE</b>	<b>IMPLEMENTATION</b>	<b>2004 – 2010</b>	<b>2010 – 2015</b>	<b>Post-Disaster</b>
schools to evaluate their resistance to all natural hazards. (2004 2.2)	In order to finance this initiative, the MAC annually submits a PDM program grant application to the Illinois Emergency Management Agency, and/or to the Illinois Department of Education to obtain School Preparedness Grants from the Department of Homeland Security until funding is secured.	<b>X</b>	<b>X</b>	
1.6 Replace glass in public safety buildings in the Tri-County area communities with impact resistant glass. (2004 obj. 2.3)	Local emergency management agencies and fire departments annually apply for PDM program funds to the Illinois Emergency Management Agency until funding is secured.	<b>X</b>	<b>X</b>	
1.7 Investigate all critical community facilities to evaluate their resistance to wind and flood hazards. (2004 obj. 2.4)	Local facilities management offices/agencies and local emergency management agencies work with the MAC to undertake a future study. In order to finance this initiative, the MAC annually submits a PDM program grant application to the Illinois Emergency Management Agency until funding is secured.	<b>X</b>		<b>X</b>
1.8 Label all public hydrants in the Tri-County area to assist in street identification in the event of wide spread destruction. (2004 obj. 2.5)	Local fire and public works departments/agencies identify funding opportunities. Annually seek funding for this initiative through Department of Homeland Security grants until the grant is awarded.	<b>X</b>		
1.9 Develop a sign retrofitting or new sign program to decrease their vulnerability to wind hazards. (2004 obj. 2.6)	To reduce costs, local public works departments/agencies within the Tri-County area begin to implement upgraded signs while performing periodic maintenance. In the post-disaster environment, all damaged or destroyed signs are replaced with the upgraded design.	<b>X</b>		<b>X</b>
1.10 Initiate discussions with private utility companies to discuss incorporating mitigation measures into new and pre-existing development and repairs for infrastructure. (2004 obj. 2.7)	Local public works departments/agencies and emergency management agencies work with the MAC and area Chambers of Commerce to begin dialogue with private utility companies about incorporating mitigation as infrastructure is laid, maintained, or repaired. Specific approaches to infrastructure protection will be developed by the MAC and may include windproofing, floodproofing, etc.	<b>X</b>	<b>X</b>	<b>X</b>
1.11 Strengthen and enforce inspection and maintenance programs for private infrastructure facilities.(2004 obj. 2.8)	The Tri-County jurisdictions form a task force to develop a set of “best practices” and evaluate potential “reward” programs for compliance.	<b>X</b>	<b>X</b>	<b>X</b>

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<b>OBJECTIVE</b>	<b>IMPLEMENTATION</b>	<b>2004 – 2010</b>	<b>2010 – 2015</b>	<b>Post-Disaster</b>
1.12 Adjust the timing, location, and design of public infrastructure (e.g., water, sewer, roads) to limit damage from hazards. (2004 obj. 2.9)	Local public facilities offices/agencies and emergency management agencies work with the MAC to review best practices alternatives in vulnerable areas.	X	X	X
1.13 Hazard-proof new community facilities to minimize damages. (2004 obj. 2.10)	Local facilities management offices/departments and emergency management agencies work with the MAC to discuss mitigation alternatives to incorporate into all new public facilities.	X	X	
	Additionally, the MAC works to develop a strategy to assure that mitigation measures will be incorporated into all public facilities and infrastructure that must be repaired or replaced following a disaster.	X	X	X
1.14 Support Tri-County area public works initiatives to improve storm water infrastructure as part of the required NPDES Phase III improvements. (2004 obj.2.11)	The MAC, in conjunction with local public works offices/departments annually seeks alternative funds for Phase III implementation of infrastructure improvements where required in the Tri-County area until requirements for applicable communities are achieved.	X	X	

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**Goal 2 – Increase the Tri-County area communities’ floodplain management activities and participation in the National Flood Insurance Program.**

**Future Vision:** *The Tri-County communities are incorporating a range of techniques to reduce exposure and increase awareness to protect their jurisdictions from flood hazards. Additionally, all NFIP-participating communities have updated and adopted their amended floodplain ordinances. High-risk properties such as FEMA’s Repetitive Loss Properties are routinely targeted for outreach and education opportunities and the property owners are aware of potential mitigation options that are available to reduce future damages from flooding. All Tri-County communities are participating in the Community Rating System, which provides discounts on annual insurance premiums to citizens and businesses throughout the community. To assist the cities and counties in their efforts and to assure local consistency with statewide goals and initiatives, the Illinois Department of Natural Resources and the Illinois Emergency Management Agency representatives have been working with the Tri-County communities to evaluate other opportunities and best practices for floodplain management, training, and mitigation funding opportunities. Table VII-3 provides information on floodplain management strategies, implementation of those strategies, and timeframes for implementation.*

Table VII- 3. Floodplain Management Objectives and Implementation.

<b>OBJECTIVE</b>	<b>IMPLEMENTATION</b>	<b>2004-2010</b>	<b>2010-2015</b>	<b>Post-Disaster</b>
2.1 Revise the Tri-County communities’ floodplain ordinances that are outdated.	The MAC, in conjunction with the Illinois Department of Natural Resources, evaluates and makes recommendations concerning outdated floodplain ordinances.	X	X	
2.2 Evaluate the floodplain manager’s roles and responsibilities in each Tri-County jurisdiction.	The MAC evaluates and reaches consensus on the identification of responsibilities and duties of the person to be designated as the floodplain manager in each Tri-County community. Requirements should include achieving Certified Floodplain Manager status within one year of hiring. The recommendations are forwarded to the appropriate community decision-makers.	X	X	
2.3 Target FEMA’s Repetitive Loss Properties for educational outreach and mitigation activities.	The MAC and local government communications departments/offices work with the State NFIP Coordinator at the Illinois Department of Natural Resources and the Illinois Emergency Management Agency to conduct outreach activities that illustrate flood proofing options and describe available grant funding for acquisition and/or relocation.	X	X	X
	The MAC requests grant assistance to fund this initiative from both the Illinois Department of Natural Resources and the Illinois Emergency Management Agency.	X	X	



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<b>OBJECTIVE</b>	<b>IMPLEMENTATION</b>	<b>2004-2010</b>	<b>2010-2015</b>	<b>Post-Disaster</b>
2.4 Increase education opportunities for the Tri-County communities' employees, MAC representatives, and public officials regarding natural hazard mitigation, floodplain management, floodplain regulations, and enforcement.	The MAC and local government communications departments/offices work with the State NFIP Coordinator at the Illinois Department of Natural Resources and the Illinois Emergency Management Agency to develop outreach activities.	<b>X</b>	<b>X</b>	
	The MAC obtains and makes available annual schedules of "free" classes for community employees and public officials at the Illinois Emergency Management Agency, the Illinois Department of Natural Resources and FEMA's Emergency Management Institute (EMI) related to natural hazard mitigation and floodplain management. Employees who attend training will provide workshops for other city and county employees upon their return to the workplace.	<b>X</b>	<b>X</b>	
2.5 Evaluate the potential costs versus benefits of implementing a freeboard requirement for all new and substantially improved or damaged structures in the 100-year floodplain.	Tri-County communities' engineering departments work with the State NFIP Coordinator at the Illinois Department of Natural Resources to evaluate costs and benefits of a freeboard ordinance.	<b>X</b>	<b>X</b>	
2.6 Submit applications by non-participating Tri-County communities for participation in the NFIP's CRS program that can offer up to 45% flood insurance premium discounts to residents and businesses.	The MAC and local government planning departments work with the State NFIP Coordinator at the Illinois Department of Natural Resources to submit CRS applications.	<b>X</b>	<b>X</b>	
2.7 Coordinate with other hazard mitigation efforts of State Agencies (Illinois Department of Natural Resources, Illinois Emergency Management Agency and Illinois Environmental Protection Agency) and with other local governments.	The MAC meets annually with the Illinois State Agencies that have a role in mitigation to discuss, strategize, develop and implement statewide hazard mitigation initiatives.	<b>X</b>	<b>X</b>	<b>X</b>

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**Goal 3 - Ensure hazard awareness and risk reduction principles are institutionalized into the Tri-County communities' daily activities, processes, and functions by incorporating it into policy documents and initiatives.**

***Future Vision:** The Tri-County communities have demonstrated their commitment to this effort by recognizing the Mitigation Advisory Committee (MAC) as an official working group and requiring annual updates and periodic status reports from the committee. The concepts of the natural benefits of floodplains, watershed areas, and open spaces have been tied into existing statewide and local programs. Additionally, a special recovery task force has been created which works with city and county departments and agencies to ensure that mitigation principles will be considered in the aftermath of a disaster and to ensure that mitigation principles will be incorporated within their respective emergency management and recovery plans and policies. The Tri-County communities' numerous successes and ongoing efforts will be promoted and publicized at the state, regional, and local levels. Table VII-4 provides information on potential strategies to institutionalize mitigation in the Tri-County jurisdictions, implementation of those strategies, and timeframes for implementation.*

Table VII- 4. Objectives and Implementation to Institutionalize Mitigation.

<b>OBJECTIVE</b>	<b>IMPLEMENTATION</b>	<b>2004-2010</b>	<b>2010-2015</b>	<b>Post-Disaster</b>
3.1 Work with the local government public works departments to identify locations and identify potential mitigation measures to protect flood-prone structures.	Tri-County area public works departments and the MAC undertake a future study to evaluate flooding issues.	<b>X</b>	<b>X</b>	
	In order to finance this initiative, the MAC annually submits a PDM program grant application to the Illinois Emergency Management Agency until funding is secured.	<b>X</b>		
3.2 Develop a public education program or tie into pre-existing State programs that will help to reduce "environmentally unfriendly practices" that may adversely affect the watershed.	The MAC works with local environmental groups and the State NFIP Coordinator at the Illinois Department of Natural Resources to develop projects that incorporate and promote these concepts.	<b>X</b>	<b>X</b>	
3.3 Obtain official recognition of the MAC by the Tri-County communities in order to help institutionalize and develop an ongoing mitigation program.	City Councils, Village Boards and County Commissions appoint the MAC as an official working group. At a minimum, representatives from departments and agencies that have roles in emergency management, recovery, the environment and regulatory or development functions should be included.	<b>X</b>	<b>X</b>	

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<b>OBJECTIVE</b>	<b>IMPLEMENTATION</b>	<b>2004-2010</b>	<b>2010-2015</b>	<b>Post-Disaster</b>
3.4 The MAC works with city and county departments and agencies to assure that mitigation principles will be incorporated within their respective emergency management and recovery plans.	Local emergency management agencies and the MAC request assistance from the Illinois Emergency Management Agency to evaluate capabilities and resources.	X	X	
	Local emergency management agencies work with the MAC and the Illinois Emergency Management Agency to discuss both pre- and post-disaster mitigation and recovery issues.	X	X	
3.5 Develop recommendations for revenue sources for mitigation, planning, and projects.	The MAC submits recommendations annually to the Tri-County communities regarding the status of current mitigation projects and the plan, programmatic problems, and an inventory of new potential mitigation projects and unmet needs. As the economy begins to improve, the Tri-County communities begin evaluating internal funding resources.	X	X	
	The MAC aggressively pursues and seeks out public and private grants to support mitigation activities every year. These activities include multiple- objective initiatives, such as environmental grants, preparedness grants, sustainability grants, blight reduction grants, etc. The MAC is prepared to pursue special appropriations and grants that are available in the aftermath of a disaster.	X	X	X
3.6 Reduce hazard impacts using methods that also achieve the preservation of natural areas, water quality, and open space.	The Illinois Environmental Protection Agency and the Illinois Department of Natural Resources work with the MAC to discuss inter-linkages and outreach between agriculture and the natural resource community including the No Adverse Impact (NAI) initiative currently being promoted by the Association of State Floodplain Managers (ASFPM).	X	X	

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<b>OBJECTIVE</b>	<b>IMPLEMENTATION</b>	<b>2004-2010</b>	<b>2010-2015</b>	<b>Post-Disaster</b>
3.7 Establish a program to publicize and celebrate successes that ties into the Tri-County communities' promotion of former Project Impact initiatives.	The MAC works with the local government communications departments and police departments to discuss ideas and develop publicity materials that include natural hazard considerations.	<b>X</b>		
	The MAC works with local/regional Councils of Government, the Illinois Department of Natural Resources, the Illinois Environmental Protection Agency, the Illinois Emergency Management Agency and others to distribute news releases summarizing recent successes and ongoing disaster-reduction activities.	<b>X</b>		

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**Goal 4 - Enhance community-wide understanding and awareness of community hazards by publicizing mitigation activities to reduce vulnerability.**

***Future Vision:** As a result of the Tri-County communities' consistent outreach efforts, citizens, businesses, visitors, local officials, and other stakeholders are more aware of potential community hazards and vulnerable locations. Stakeholders seeking information about hazards and hazard-reduction techniques are able to easily find resources to help them. The Tri-County communities are effectively utilizing their hazard information centers as one of the many methods of public outreach. Additionally, the jurisdictions have successfully collaborated with the local government economic development departments to create and distribute outreach materials aimed specifically at the business community. Tri-County communities are collaborating with the Homebuilders Association of Illinois to develop a series of mitigation workshops and post-disaster media campaigns.*

Table VII-5 provides information on outreach and education strategies, strategies to enhance a community's awareness and understanding of hazards, implementation of those strategies, and timeframes for implementation.

Table VII- 5. Objectives and Implementation to Enhance the Hazard Understanding, Awareness, Outreach and Education.

OBJECTIVE	IMPLEMENTATION	2004-2010	2010-2015	Post-Disaster
4.1 Increase outreach and educational opportunities to residents, businesses, tourists, and community officials about hazards.	The MAC coordinates with the local government communications departments to develop awareness and prevention brochures for new residents, as well as, evacuation information. The MAC also works with local government communications departments to air seasonal weather awareness shorts on local television stations and for local hotel cable networks.	X	X	
4.2 Develop a series of seasonal mitigation workshops with the Homebuilders Association of Illinois, which focus on homeowners and contractors.	Local government inspection departments/offices and the MAC work with the Homebuilders Association of Illinois to develop and sponsor/assist with periodic workshops. Homeowners would be taught topics including relatively inexpensive or simple mitigation techniques, while contractors and tradesmen would be taught about the latest hazard resistant techniques, materials, and other more advanced concepts.	X	X	X

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<b>OBJECTIVE</b>	<b>IMPLEMENTATION</b>	<b>2004-2010</b>	<b>2010-2015</b>	<b>Post-Disaster</b>
	In a post-disaster environment, the Homebuilders Association of Illinois supports the Tri-County jurisdiction's rebuilding efforts by working with the media to discuss how to find pre-screened, legitimate and approved contractors that can assist homeowners and businesses with their recovery efforts and recovery and reconstruction techniques.		<b>X</b>	<b>X</b>
4.3 Identify and target an outreach program to industrial facilities (particularly hazardous facilities) to discuss hazards and mitigation alternatives.	The MAC, local emergency planning committees (LEPC's) and local government communications departments/offices work with the State NFIP Coordinator at the Illinois Department of Natural Resources and Illinois Emergency Management Agency to develop outreach activities.		<b>X</b>	<b>X</b>
4.4 Partner with Parent Teacher Associations and local schools to develop an annual children's and teacher's educational program which focuses on teaching children and adults about hazard seasons, effects, and mitigation opportunities.	Local school boards work with the MAC to research and implement a local program.	<b>X</b>	<b>X</b>	
4.5 Coordinate with all Tri-County communities to develop and promote seasonal educational materials and programs regarding the risks of hazards and various methods of hazard mitigation (e.g., websites, pamphlets, lectures, radio and television ads, billboards, newspapers).	The MAC, local emergency management agencies and local government communications departments/offices work with the local emergency management coordinators to supplement the area's pre-existing outreach program.	<b>X</b>	<b>X</b>	<b>X</b>
4.6 Work with the Tri-County communities' economic development departments and MAC to develop materials for businesses on general preparedness and mitigation alternatives. (2004 obj. 6.1)	Local government economic development departments work with the MAC to develop outreach materials.	<b>X</b>	<b>X</b>	

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<b>OBJECTIVE</b>	<b>IMPLEMENTATION</b>	<b>2004-2010</b>	<b>2010-2015</b>	<b>Post-Disaster</b>
4.7 Develop "hazard information centers" on the Tri-County communities websites and in public libraries where individuals can find hazard and mitigation information. (2004 obj. 6.2)	Tri-County communities local government communications departments/offices and the MAC work together to develop hazard information centers in both electronic and printed formats. In order to finance this initiative, the MAC submits an annual PDM program grant application to the Illinois Emergency Management Agency until funding is secured.	<b>X</b>		

## **Deriving a Mitigation Action Plan**

### *Mitigation Actions*

In formulating a mitigation strategy, a wide range of activities were considered in order to help achieve the goals of the jurisdictions and to lessen the vulnerability of the Tri-County area to the effects of natural hazards. The Mitigation Action Plan is comprised of proactive mitigation actions designed to reduce or eliminate future losses from natural hazards in the participating jurisdictions.

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The mitigation actions proposed for the Tri-County area to undertake are listed in the Table VII-6. Each has been designed to achieve the goals and objectives identified in this multi-jurisdictional all-hazards mitigation plan. Each proposed action includes:

- The appropriate category for the mitigation technique
- The hazard it is designed to mitigate
- The objective(s) it is intended to help achieve
- Some general background information
- The priority level for its implementation (high, moderate or low)
- Potential funding sources, if applicable
- The agency/person assigned responsibility for carrying out the strategy
- A target completion date

Again, it is important to note that the majority of the mitigation actions are short-term, specific measures to be undertaken by the Tri-County area communities. It is expected that 1) this component of the Plan will be the most dynamic; 2) it will be used as the primary indicator to measure the Plan's progress over time, and 3) it will be routinely updated and/or revised through future planning efforts.

When formulating a Mitigation Action Plan a wide range of activities should be considered to help achieve the goals of communities and to lessen the vulnerability of the participating jurisdictions to the effects of natural hazards. In general, all of these activities fall into one of the following broad categories of mitigation techniques.



*Available Mitigation Techniques*

(1) Prevention

Preventative activities are intended to keep hazard problems from getting worse. They are particularly effective in reducing a community's future vulnerability, especially in areas where development has not occurred or capital improvements have not been substantial. Examples of preventative activities include:

- Planning and Zoning
- Open space preservation
- Floodplain regulations
- Storm water management
- Drainage system maintenance
- Capital improvements programming
- Shoreline / riverine / fault zone setbacks

(2) Property Protection

Property protection measures protect existing structures by modifying the building to withstand hazardous events, or removing structures from hazardous locations. Examples include:

- Acquisition
- Relocation
- Building elevation
- Critical facilities protection
- Retrofitting (i.e., windproofing, floodproofing, seismic design standards, etc.)
- Insurance
- Safe rooms

(3) Natural Resource Protection

Natural resource protection activities reduce the impact of natural hazards by preserving or restoring natural areas and their mitigation functions. Such areas include floodplains, wetlands and dunes. Parks, recreation or conservation agencies and organizations often implement these measures. Examples include:

- Floodplain protection
- Riparian buffers
- Fuel Breaks
- Erosion and sediment control
- Wetland preservation and restoration
- Habitat preservation
- Slope stabilization

(4) Structural Projects

Structural mitigation projects are intended to lessen the impact of a hazard by modifying the environmental natural progression of the hazard event. They are usually designed by engineers and managed or maintained by public works staff. Examples include:

- Reservoirs
- Levees / dikes / floodwalls / seawalls
- Diversions / Detention / Retention
- Channel modification
- Storm sewers
- Wind retrofitting
- Utility protection/upgrades

(5) Emergency Services

Although not typically considered a “mitigation technique,” emergency service measures do minimize the impact of a hazard event on people and property. These commonly are actions taken immediately prior to, during, or in response to a hazard event. Examples include:

- Warning systems
- Evacuation planning and management
- Sandbagging for flood protection
- Installing shutters for wind protection

(6) Public Information and Awareness

Public Information and awareness activities are used to advise residents, business owners, potential property buyers, and visitors about hazards, hazardous areas, and mitigation techniques they can use to protect themselves and their property. Examples of measures to educate and inform the public include:

- Outreach projects
- Speaker series / demonstration events
- Hazard map information
- Real estate disclosure
- Library materials
- School children education
- Hazard expositions
- Websites

### **Tri-County Area Mitigation Action Plan**

The mitigation action items listed below have been developed specifically from the goals and objectives for the Tri-County *All Hazards Mitigation Plan*. These action items are designed to foster the development of community derived mitigation actions and projects, which will be considered for inclusion in the final plan following a thorough review by the Tri-County MAC and other interested local officials and citizens. They will also serve as a catalyst for further public participation in the development of this local all hazards mitigation plan. Additional action items developed for the Tri-County area will need to tie directly back to specific goals and objectives which either 1) currently exist in the draft plan, or 2) have been subsequently added to the draft plan.

These action items have been derived specifically from the plan's draft goals and objectives, and as such, each one is referenced in Objective(s) Addressed.

#### *Prioritized Project List*

The below mitigation actions can be divided into two broad categories in order of priority. The first are projects that institutionalize mitigation principles and thinking within the Tri-County area jurisdiction's organization. Although these are not traditional "brick and mortar"-type projects, these projects will help to establish the sound foundation for a mitigation program to be institutionalized within the area. The second category of projects is more traditional in nature. It is anticipated that the implementation and subsequent success of these projects will facilitate the goal of bringing mitigation principles to the forefront of community thinking.

During the 2010 update, seven actions were agreed upon as significant actions for all participating jurisdictions. These include:

- Formal Recognition of MAC
- Update of the 2010 HMP
- Repetitive -Loss Properties
- NFIP Education
- Universal Siren Protocol for Tri-County
- Increase GIS capabilities (creation & maintenance) locally or through TCRPC
- Hazard Education

Table VII-6 explains and provides background information for the actions, funding sources, target dates, objectives addressed, hazards, and action responsibility. The ranking in this table provides a general ranking of actions the Tri-County, as a whole. Table VII-7 summarizes the action ranking for each of the participating jurisdictions. The MAC members representing each of the localities have been tentatively assigned responsibility. As these projects come to fruition this will be expanded and detailed during yearly meetings.

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Table VII- 6. Tri-County Prioritized Mitigation Actions

Priority	Action Number	Action Title	Category	Hazard	Objective(s) Addressed	Funding Sources	Responsibility Assigned to	2004 Target Date	2010 Target Date	Background	Reporting on 2004 Actions	
											Project Status Narrative	Project Status
High	1	Target FEMA's Repetitive Loss Properties throughout the Tri-County area for potential mitigation projects.	Property Protection	Flood	1.2 2.3	FEMA PDM FEMA HMGP FEMA FMA	MAC	6/1/2008	Continuous	Currently, over 40,000 of the four million properties insured under the National Flood Insurance Program have been identified by FEMA as repetitive loss properties. The known repetitive loss properties are those that have sustained flood damage and received flood insurance claim payments on multiple occasions. The City of Peoria and Peoria County have the largest number of repetitive loss properties in the Tri-County area. Both jurisdictions have participated in acquisition programs in the past to remove these properties from vulnerable areas. However, funding for additional is not always available. There are currently 236 repetitive loss acquisition activities properties identified by FEMA in the Tri-County area.	Completed by Woodford County and Peoria County	Completed & In Progress
High	2	Distribute 100 NOAA weather radios to residents that are most vulnerable to wind events. Determine which facilities currently have radios and feasibility of hard-wiring. Further instigate StormReady programs.	Emergency Services	Wind	1.30	FEMA IEMA	MAC Local EM Agencies	1/5/2005	1/5/2011	The Tri-County area is located in a geographic region of the United States which is very susceptible to tornado activity. During the May 2003 tornado outbreak, nine persons died and millions of dollars in property damage was sustained when three confirmed tornadoes touched down in the area. Early warning for residents can save lives in future events.	Several areas received a grant to distribute the radios.	Completed & In Progress
High	3	Target FEMA's Repetitive Loss Properties for educational outreach and mitigation activities.	Public Information & Awareness	Flood	2.30	FEMA IEMA IDNR	MAC Local Gov't	10/31/2004	Continuous	FEMA is currently conducting a specific attitudinal study to determine why repetitive loss property owners accept or decline assistance offers. Information gained as a result of the study will help to more effectively implement existing mitigation programs. Tri-County owners of repetitive loss properties should be engaged by representatives from local governmental jurisdictions so they may better understand the advantages of removing themselves and their property from harm's way. FEMA, the Illinois Emergency Management Agency, the National Weather Service and other agencies provide informational brochures and pamphlets on property protection measures at no cost to local governments.	Peoria County has an outreach program.	Completed & In Progress
High	4	Obtain official recognition of the Mitigation Advisory Committee by the Tri-County communities in order to help institutionalize and develop an ongoing mitigation program.	Public Information & Awareness	All	3.30	N/A	MAC, TCRPC	6/1/2004	10/1/2010	After the passage of the Disaster Mitigation Act of 2000 (DMA2K), local governments are required to develop and to adopt all hazards mitigation plans to be eligible for certain types of future disaster assistance including funds for mitigation activities. Nationwide, many communities have formed committees, councils or citizen groups to assist in developing and implementing plans. In the case of multijurisdictional plans, "mitigation advisory committees" are often formed and are comprised of local officials and residents from the participating jurisdictions. One way to assure the effectiveness of such committees is to bestow official status to them.	Has not been initiated.	Not Started
High	5	Universal siren protocol for Tri-County area. Coordinate among all agencies to ensure rapid and comprehensive dissemination of necessary information and of response operations.	Public Information and Awareness	All	4.50	Local government annual budgets for information technology	MAC		12/1/2010	Currently a variety of agencies and public officials respond separately to natural hazards. Coordination of these various agencies will increase the likelihood of appropriate preparations. The agencies and officials could include Fire Chief, IDOT, Sheriff's Department, Ambulance, County Road and Bridge, Electric Company, school districts, IEMA and the Red Cross. As part of this coordination effort, the MAC can produce and distribute family and traveler emergency preparedness information.	New in 2010	

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Priority	Action Number	Action Title	Category	Hazard	Objective(s) Addressed	Funding Sources	Responsibility Assigned to	2004 Target Date	2010 Target Date	Background	Reporting on 2004 Actions	
											Project Status Narrative	Project Status
High	6	Examine the feasibility of designating schools and other public buildings as heating centers and emergency shelters. This includes determining safety of current shelters, long and short term shelter needs and retro-fitting existing facilities.	Emergency Services	All	3.50	Tri-County County road and bridge departments, the respective jurisdictions and their school districts.	Tri-County Emergency Managers, school districts.		Continuous	In addition to serving faculty, staff and students, schools can serve the broader community. During periods of severe winter weather, schools can serve as safe locations from extreme cold, snow and wind. The Tri-County jurisdictions, through membership in the MAC, can discuss with respective school districts how to overcome the difficulties involved in keeping schools open during such weather conditions. They can also discuss the feasibility of designating schools as heating centers and emergency shelters. In addition, the ten jurisdictions can examine the feasibility of designating county buildings, churches and other public buildings as heating centers and emergency shelters.	New in 2010	
High	7	Develop educational materials, both web-based and in paper form, that can be used to inform the tri-County citizenry about the benefits of the National Flood Insurance Program and how it is administered locally.	Public Information and Awareness	Flood	2.4 3.7 4.41 4.5 4.7	FEMA, IEMA	MAC and Tri-County local floodplain managers		Continuous	The National Flood Insurance Program (NFIP) was established by Congress in 1968 to provide affordable insurance protection against floods. In exchange for the availability of flood insurance for its citizens, local governments must adopt a flood prevention ordinance and regulate all new development and substantial improvements in the identified Special Flood Hazard Area. Since employee turnover in local governments can be high, experience shows that knowledge about the NFIP is often minimal in participating communities. Educational programs for both citizens and local officials have demonstrated that the continuity of NFIP knowledge can be maintained and enhanced in participating communities.	New in 2010	
High	8	Update the 2010 Tri-County Regional Planning Commission Natural Hazards Mitigation Plan	Prevention	All	All	FEMA, IEMA	MAC and Tri-County local floodplain managers		Continuous, 2015	Mitigation Plans form the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288), as amended by the Disaster Mitigation Act of 2000, provides the legal basis for State, local, and Indian Tribal governments to undertake a risk-based approach to reducing risks from natural hazards through mitigation planning. The local jurisdiction is required by 44 CFR §201.6(d)(3) to review and revise its plan, and resubmit it for approval within 5 years in order to continue to be eligible for mitigation project grant funding. The first Hazard Mitigation Plan for the Tri-County area was developed in 2004. It needs to be updated in 2010 per the 5-year update requirement. Mitigation is commonly defined as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. Hazard mitigation focuses attention and resources on community policies and actions that will produce successive benefits over time. A mitigation plan states the aspirations, goals and specific courses of action that a community intends to follow to reduce vulnerability and exposure to future hazard events. These plans are formulated through a systematic process centered on the participation of citizens, businesses, public officials, and other community stakeholders. A local mitigation plan is the physical representation of a jurisdiction's commitment to reduce risks from natural hazards.	New in 2010	
Moderate	9	Locate and Label all public hydrants in the Tri-County area to assist in street identification in the event of widespread destruction.	Emergency Services	All	1.70	DHS	Local Fire Depts. Public Works Depts.	6/1/2005	Continuous	Immediately following a disaster event, emergency services personnel are responding to critical needs in affected areas. Many times, street signs are submerged by floodwaters or blown away by high winds. Quick response coupled with accurate logistical information can be imperative when saving lives and performing recovery operations.	City of Peoria and City of Chillicothe has completed. Peoria County has completed some areas and working on others. Maintenance & updating is a key issue. MAC commented that this action should be changed to have them located instead of just labeled.	

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Priority	Action Number	Action Title	Category	Hazard	Objective(s) Addressed	Funding Sources	Responsibility Assigned to	2004 Target Date	2010 Target Date	Background	Reporting on 2004 Actions	
											Project Status Narrative	Project Status
Moderate	10	Revise the Tri-County communities' floodplain ordinances that are outdated, continued compliance with NFIP, evaluate feasibility of joining CRS and/or increasing rating score.	Prevention	Flood	2.10	N/A	Local floodplain managers	6/1/2005	To coincide with adoption of FEMA DFIRMS	The two city and three county floodplain ordinances currently limit the definition of "substantial damage" and "substantial improvement" to one-time damage repairs or improvements. Communities can reduce flood damage by counting improvement and repair projects cumulatively, so that buildings will be brought into compliance with flood protection standards earlier in their life cycle. This will require the Tri-County jurisdictions to maintain a permit history so when cumulative repairs or improvements equal 50% of the building value, the building must be brought up to current codes for floodplain development.	Peoria County has updated this.	Completed & In Progress
Moderate	11	Partner with Parent Teacher Associations and local schools to develop an annual children's and teacher's educational program which focuses on teaching children and adults about hazard seasons, effects, and mitigation opportunities.	Public Information & Awareness	All	4.40	FEMA IEMA IDNR IL Dept of Education	MAC Local School Boards PTAs	1/5/2005	5/5/2011	Most children have little experience with natural disasters given the frequency of such events. Nonetheless, children seem to be drawn to the power and grandeur of nature. Their innate curiosity provides a perfect opportunity to instill valuable lessons about natural hazards. Each year, schoolteachers prepare annual curriculums. Those months just prior to the start of a school year provide an opportunity to collaborate with teachers on curriculum development, thereby assuring that the values of learning about natural hazards are included in the classroom environment.	Schools have developed crisis plans in place. Need to educate the adults. Components of this action need to be tied into Action #9.	Completed & In Progress
Moderate	12	Develop "hazard information centers" on the Tri-County communities websites and in public libraries where individuals can find hazard and mitigation information.	Public Information & Awareness	All	4.70	Local government annual budgets	Local IT Depts.	12/31/2004	Continuous	As the Internet continues to become "the information super highway", more local governments around the country are using it as a primary means of official communication with community residents through the development and administration of websites. Today, many residents pay their water and power bills online, register to vote and even obtain driver's licenses over the Internet. Use of local government websites to educate community residents about natural hazards and mitigation opportunities is growing nationwide.	Peoria County does have some flood related information on their websites.	Completed & In Progress
Moderate	13	Evaluate critical facilities and shelters to determine their resistance to all hazards. Examine and make recommendations as to ways in which the facilities can be strengthened or hardened.	Emergency Services, Property Protection, Public Information & Awareness, Prevention	All	1.1 1.5 1.7 1.11 1.13 2.10 3.2	FEMA, IEMA, Code Plus Grant Program	MAC, local facilities management agencies and local emergency management agencies		6/2012	Landslide and Land Subsidence: One police station, three emergency services, 24 schools and several communication centers have been located in or near undermined land and mine subsidence areas. Five schools and two airports are located in landslide areas in TCRPC. Peoria County is interested in hardening facilities to be wind and/or seismic resistant.	New in 2010	
Low	14	Contact NRCS regarding opportunities for technical assistance and financial assistance for drought preparedness and response.	Public Information & Awareness	Drought	4.50	NRCS	MAC, Tri-County Emergency Managers		4/2011	Contact Natural Resources Conservation Service regarding opportunities for technical assistance and financial assistance for drought preparedness and response.	New in 2010	
Low	15	Pursue potential grants from the Illinois Department of Natural Resources for wildfire mitigation plans	Natural Resource Protection	Wildfire	4.1 4.7	Illinois Department of Natural Resources, USDA	MAC		Continuous	Less than 10 percent of Illinois forest landowners have a written management plan on file with the Department of Natural Resources, yet they own 82 percent of the forestland in Illinois. The key to any successful forestry program is a formalized, written forest management plan. A forest management plan is a document prepared by a forester or qualified natural resource specialist to guide and direct the use and management of property. The plan should describe goals and objectives, along with the current conditions of the property, and culminate with a detailed, chronological outline of management activities.	New in 2010	

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Priority	Action Number	Action Title	Category	Hazard	Objective(s) Addressed	Funding Sources	Responsibility Assigned to	2004 Target Date	2010 Target Date	Background	Reporting on 2004 Actions	
											Project Status Narrative	Project Status
Low	16	Pursue the U.S. Dept of Agri. Hazardous Fuels Reduction Project assistance programs, Publicize these programs and utilize existing wildfire maps to prioritize project areas in the Tri-County area.	Prevention, Natural Resource Protection, Public Information & Awareness	Wildfire	3.2 3.6 4.1 4.7	USDA through the American Recovery and Reinvestment Act	MAC		TBD	The program of work provides funding for three, four-member crews (12 crew members total) to conduct hazardous fuel reduction and ecosystem improvement projects on State Forests and State Park lands. Additionally, funds can be used to develop fire management plans for all State Parks and to fund wildfire mitigation projects in up to five communities to reduce the danger of wildland fires.	New in 2010	
Low	17	Pursue the utilization of emergency management mitigation measures to address hazards in the Tri-County area, including hazard mapping (GIS); critical facility and infrastructure mapping (GIS) and hardening. Continued HAZUS-MH analysis by TCRPC.	Prevention and Public Information & Awareness	Earthquake	4.1 4.7	IDOT, Federal Highway Administration	Tri-County Emergency Managers and road and bridge departments		6/2012	Seismic maps of earthquake hazards can be assembled utilizing data available from the U.S. Geologic Survey and the Illinois State Geologic Survey. These maps can be used to determine where infrastructure and infrastructure corridors are threatened by earthquake hazards. Locations where there is the need/potential for hardening of critical lifeline systems, i.e., critical public services such as utilities, roads, and bridges to meet "Seismic Design Guidelines and Standards for Lifelines," or equivalent standards, can substantially reduce earthquake impacts. IDOT and the Tri-County road and bridge departments can review construction plans for all bridges at risk to determine their susceptibility to collapse. Problem bridges can be retrofitted.	New in 2010	
Low	18	Utilize the media and schools for public information promulgation about seismic risks.	Public Information & Education	Earthquake	1.5 4.4	FEMA NWS IDNR	Tri-County Emergency Managers		Continuous	Information regarding seismic risk in the Tri-County jurisdictions is available from the USGS and the Illinois State Geological Survey. This information includes mapping of risk zones, and descriptions of potential impacts of earthquake events. The Tri-County Emergency Managers can provide schools and the media with this information and request their assistance in disseminating it to the community.	New in 2010	
High	-	<i>Develop recommendations for revenue sources for mitigation, planning, and projects.</i>	<i>Prevention</i>	<i>All</i>	3.50	<i>FEMA IEMA IDNR</i>	<i>MAC</i>	<i>Continuous</i>		<i>Each year, many states suffer the impacts of floods, tornadoes, winter storms, earthquakes and hurricanes. Those states which have undertaken mitigation planning and projects for several years often seem to have a competitive advantage over communities that are just beginning to embark on mitigation activities. Many communities who have experienced the benefits (returns) of 1) lessened or eliminated damages, 2) decreases in emergency service calls, and 3) increased awareness by the general public as to the dangers of natural hazards have developed local funding sources to support mitigation. Nonetheless, they also continue to seek funding support from outside sources to supplement burgeoning local programs. In addition, not all hazard events will receive disaster declarations by the State or Federal government, limiting the amount of post-disaster assistance for local governments for certain events.</i>	<i>MAC ELIMATED THIS ACTION FOR 2010 Elements have been incorporated into other actions</i>	
Moderate	-	<i>Develop a sign retrofitting or new sign program to decrease their vulnerability to wind hazards.</i>	<i>Emergency Services</i>	<i>Wind</i>	1.80	<i>Local government CI Funds</i>	<i>Local Public Works Depts.</i>	<i>Continuous</i>		<i>Windstorms and tornadoes cause considerable damage to regulatory and warning signs within the Tri-County communities. Following disaster events, local emergency personnel may not be able to quickly direct volunteer personnel to locations where assistance is needed because signage has been destroyed. Also, local residents may be unaware of actions to take and places to avoid where warning signs have provided guidance in the past.</i>	<i>MAC ELIMATED THIS ACTION FOR 2010 Elements have been incorporated into other actions</i>	
Moderate	-	<i>Increase outreach and educational opportunities to residents, businesses, tourists, and community officials about hazards.</i>	<i>Public Information &amp; Awareness</i>	<i>All</i>	4.10	<i>FEMA IEMA IDNR</i>	<i>MAC Local EM Agencies</i>	<i>Continuous</i>		<i>Public Information and awareness activities are used to advise residents, business owners, potential property buyers, and visitors about hazards, hazardous areas, and mitigation techniques they can use to protect themselves and their property.</i>	<i>MAC ELIMATED THIS ACTION FOR 2010 Elements have been incorporated into other actions</i>	

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Table VII- 7. Jurisdiction-specific ranking of mitigation actions.

Action Number	Action Title	Hazard	Peoria County	City of Chillicothe	Village of Peoria Heights	City of Peoria	Tazewell County	City of Pekin	City of East Peoria	City of Washington	Woodford County	Village of Roanoke
1	Target FEMA's Rep Loss, properties, and critical facilities located in the floodplain throughout the Tri-County area for potential mitigation projects.	Flood	H	H	H	H	H	H	H	H	H	H
2	Distribute 100 NOAA weather radios to residents that are most vulnerable to wind events. Determine which facilities currently have radios and feasibility of hard-wiring. Further instigate Storm Ready programs.	All	M	H	L	H	M	M	M	M	H	L
3	Target FEMA's Rep Loss as well as participants in the NFIP for educational outreach and mitigation activities.	Flood	H	H	H	H	H	H	H	H	H	H
4	Obtain official recognition of the Mitigation Advisory Committee by the Tri-County communities in order to help institutionalize and develop an ongoing mitigation program.	All	H	H	H	H	H	H	H	H	H	H
5	Universal siren protocol for Tri-County area. Coordinate among all agencies to ensure rapid and comprehensive dissemination of necessary information and of response operations.	All	M	M	M	M	M	M	M	M	M	M
6	Examine the feasibility of designating schools and other public buildings as heating centers and emergency shelters. This includes determining safety of current shelters, long& short term shelter needs and retro-fitting existing facilities.	All	M	M	M	M	M	M	M	M	M	M
7	Develop educational materials, both web-based and in paper form, that can be used to inform the Tri-County citizenry about the benefits of the National Flood Insurance Program and how it is administered locally.	Flood	M	M	M	M	M	M	M	M	M	M
8	Update the 2010 Tri-County Regional Planning Commission Natural Hazards Mitigation Plan	All	H	H	H	H	H	H	H	H	H	H
9	Location and label all public hydrants in the Tri-County area to assist in street identification in the event of widespread destruction.	All	L	L		M	L				L	
10	Revise the Tri-County communities' floodplain ordinances that are outdated, continued compliance with NFIP, evaluate	Flood	H	L	L	M	H	H	L	H	H	L



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Action Number	Action Title	Hazard	Peoria County	City of Chillicothe	Village of Peoria Heights	City of Peoria	Tazewell County	City of Pekin	City of East Peoria	City of Washington	Woodford County	Village of Roanoke
	feasibility of joining CRS and/or increasing rating score.											
11	Partner with Parent Teacher Associations and local schools to develop an annual children's and teacher's educational program which focuses on teaching children and adults about hazard seasons, effects, and mitigation opportunities.	All	H	M	M	M						
12	Develop "hazard information centers" on the Tri-County communities websites and in public libraries where individuals can find hazard and mitigation information.	All	H	M	M	M	M	M	M	M	M	M
13	Evaluate all critical facilities and shelters to determine their resistance to all hazards. This study will examine all critical facilities within the Tri-County jurisdictions and make recommendations as to ways in which the facilities can be strengthened or hardened.	All	H	M	M	M	H	M	M	M	M	H
14	Contact Natural Resources Conservation Service regarding opportunities for technical assistance and financial assistance for drought preparedness and response.	Drought	L				L			L	L	L
15	Pursue potential grants from the Illinois Department of Natural Resources for wildfire mitigation plans	Wildfire	L				L			L		
16	Pursue the U.S. Department of Agriculture's Hazardous Fuels Reduction Project assistance programs, Publicize these programs and utilize existing wildfire maps to prioritize project areas in the Tri-County area. Assist local residents in priority areas to reduce wildfire hazards.	Wildfire	L				L			L		
17	Pursue the utilization of emergency management mitigation measures to address hazards in the Tri-County area, including hazard mapping (GIS); critical facility and infrastructure mapping (GIS) and hardening. Continued HAZUS-MH analysis by TCRPC.	All	H	H	H	H	H	H	H	H	H	H
18	Utilize the media and schools for public information promulgation about seismic risks.	Earthquake	L				L			L		

## **Peoria County Repetitive Loss Plan**

### *Background from 2004 HMP*

A Repetitive Loss Property, as defined by the Federal Emergency Management Agency (FEMA), is a property insured under the National Flood Insurance Program (NFIP) that has filed two or more claims in excess of \$1,000 each, within a ten (10) year period. Nationwide, repetitive loss properties constitute two percent (2%) of all NFIP insured properties. However, they are responsible for forty percent (40%) of all NFIP claims. Mitigation for repetitive loss properties is a high priority for FEMA. It is also a high priority for the *All Hazards Mitigation Plan*. It is the highest mitigation priority for Peoria County, where the majority of repetitive loss properties are located in the Tri-County area.

There are one hundred and thirty-eight (138) repetitive loss properties in Peoria County. A majority of these properties are located in the northern part of the county along the Illinois River and in the Kickapoo valley. However, other repetitive loss properties are located throughout Peoria County. Although Peoria County does have a GIS-based database showing the locations of structures within the county, no detailed information such as type or elevation of the structures is available.

Prior to the recent economic downturn, nationwide, Peoria County had an institutionalized acquisition program in the Planning and Zoning Department for over 17 years. One full-time equivalent employee, at the Planner level, was designated and funded by the County to administer the program. Recent budget cuts have eliminated the Planner position, and as a result, the program is currently inactive.

### *Repetitive Loss Plan*

Peoria County will make application for the next funding cycle of the Pre-Disaster Mitigation (PDM) Program through the Illinois Emergency Management Agency (IEMA) to obtain funds to purchase repetitive loss properties and re-establish its inactive acquisition program.

Working with FEMA Region V, Peoria County will obtain addresses, etc. from FEMA's Community Information System (CIS) database and incorporate the information into the County's GIS database, while observing the requirements of the Privacy Act.

Funding for a Planner position, to administer the repetitive loss acquisition program, will be necessary as part of the grant for the County's long-time program to be reactivated.

Then, Peoria County will institutionalize a repetitive loss acquisition program within the County's Planning and Zoning Department to include:

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- Training of department personnel, by FEMA Region V, concerning, but not limited to, acquisition grant program rules, regulations, requirements, reporting (including submission of AW-501s) and close-out procedures,
- Development and distribution of public information brochures about repetitive loss, acquisition, relocation, etc. which target the owners of repetitive loss structures,
- “Open Houses” to be conducted for repetitive loss owners which describe the County’s acquisition program to be funded by PDM, and
- Informing owners of the movement in Congress to 1) deny future disaster assistance, and 2) implement actuarial rates for repetitive loss properties that have been offered a mitigation buy-out and refused.

Once the funding mechanism is in place, Peoria County will undertake the repetitive loss acquisition program until 1) all repetitive loss properties have been purchased, or 2) all owners of repetitive loss have been made acquisition offers and refused assistance which will be confirmed in written form.

## SECTION VIII — PLAN MAINTENANCE PROCEDURES

The long-term success of the Tri-County area's mitigation plan depends in large part on routine monitoring, evaluating, and updating of the plan so that it will remain a valid tool for the communities to use. The first step in ensuring that the plan's activities will be implemented is to obtain official recognition of the MAC as proposed in the mitigation strategies for each of the jurisdictions.

### Plan Adoption, Implementation and Maintenance

#### *Formal Plan Adoption*

*(Note: this is written as if the adoptions have already occurred)*

Ten local governments in central Illinois have participated in this planning process and formally adopted this plan by resolution of their governing Board. Those local governments include:

- Peoria County
  - City of Chillicothe
  - Village of Peoria Heights
  - City of Peoria
- Tazewell County
  - City of Pekin
  - City of East Peoria
  - City of Washington
- Woodford County
  - Village of Roanoke

The adoption process itself took several months, as significant coordination (with assistance from the MAC and TCRPC) was necessary in order to 1) get the plan reviewed and adoption on the appropriate meeting agendas in each jurisdiction, 2) produce and provide copies in official meeting packets, 3) facilitate the actual adoption, 4) collect the adoption resolutions, and 5) incorporate the adopted resolutions into the final Hazard Mitigation Plan.

Appendix X contains a sample resolution as well as the adopted resolutions by the participating jurisdictions. **TCRPC TO ADD AFTER ADOPTION**

The Tri-County area appreciates the willingness that both Illinois Department of Emergency Management (IEMA) and Federal Emergency Management Agency (FEMA) Region V demonstrated by reviewing this plan concurrently and providing comments for revision prior to the adoption process. Not having done so would clearly have added more months to the adoption process.

### *Implementation*

Upon adoption, the plan faces the biggest test: **implementation**. Implementation implies two concepts: action and priority.

While this plan puts forth many worthwhile and “High” priority recommendations, the decision of which action to undertake first will be the primary issue that the Tri-County area communities face. Fortunately, there are two factors that will help make that decision workable. First, there are high priority items for each participating community, so each can pursue an action simultaneously and the Plan’s (number) recommendations will begin to be addressed. Second, funding is always an important and critical issue. Therefore, pursuing low or no-cost high-priority recommendations will be stressed.

An example of a low cost high priority recommendation would be to pursue the education efforts necessary for elected officials and the general public as they relate to participation in the National Flood Insurance Program (NFIP). Some communities need to strengthen their commitment to the NFIP by amending local floodplain ordinances.

Another example would be to pursue the regional goal of increasing education opportunities for the Tri-County communities’ employees, MAC representatives, and public officials regarding natural hazard mitigation, floodplain management, floodplain regulations, and enforcement. These initial efforts will lead to long-standing changes in vulnerability and can be initiated at very little cost, while promoting public education through their relative “visibility” in the community.

Another important implementation approach that is highly effective, but low-cost, is to take steps to incorporate the recommendations, and equally important, the underlying principles of this Hazard Mitigation Plan into other community plans and mechanisms, such as:

- Comprehensive Planning
- Capital Improvement Budgeting
- Economic Development Goals and Incentives

This plan will be incorporated into other planning mechanisms, some mentioned above, through each of the MAC members coordination with their local government bodies. It is the responsibility of the MAC to keep their local governments aware of the information in the hazard mitigation plan and how the information in the plan can assist other planning efforts. The bi-annual review of this plan by each locality and annual review by the MAC will keep the steering committee members active in plan development and how it relates to concurrent efforts. The TCRPC often supports the localities with some of their plan development; they will also play a role in assuring the information presented in this plan is used and expanded on, when appropriate, in existing planning mechanisms.

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Mitigation is most successful when it is incorporated within the day-to-day functions and priorities of government and development. This integration is accomplished by a constant effort to network and to identify and highlight the multi-objective, “win-win” benefits to each program, the communities and their constituents. ***This effort will be achieved through the actions of monitoring agendas, attending meetings, sending memos, and promoting safe, sustainable communities.***

Simultaneous to these efforts, it will be important to constantly monitor funding opportunities that can be utilized to implement some of the higher cost recommended actions. This will include creating and maintaining a repository of ideas on how any required local match or participation requirement can be met. Then, when funding does become available, the Tri-County area communities will be in a position to take advantage of an opportunity. Funding opportunities that can be monitored include special pre- and post-disaster funds, special district budgeted funds, state or federal ear-marked funds, and grant programs, including those that can serve or support multi-objective applications.

With adoption of this plan, the TCRPC area communities commit to:

- Pursuing the implementation of the high priority, low/no-cost Recommended Actions.
- Keeping the concept of mitigation in the forefront of community decision-making by identifying and stressing the recommendations of the Hazard Mitigation Plan when other community goals, plans and activities are discussed and decided upon.
- Maintaining a constant monitoring of multi-objective, cost-share opportunities to assist the participating communities in implementing the recommended actions of this plan for which no current funding or support exists.

### *Maintenance*

Plan maintenance requires an ongoing effort to monitor and evaluate the implementation of the plan, and to update the plan as progress, roadblocks, or changing circumstances are recognized.

This monitoring and updating will take place through:

1. A semi-annual review by each jurisdiction
2. An annual review through the Mitigation Advisory Committee
3. And, a 5-year written update to be submitted to the state and FEMA Region V, unless disaster or other circumstances (e.g., changing regulations) lead to a different time frame.

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When each community convenes for a review, they will coordinate with each of the other jurisdictions that participated in the planning process – or that has joined the planning group since the inception of the planning process – to update and revise the plan. ***Public notice will be given and public participation will be invited, at a minimum, through available web-postings and press releases to the local media outlets, primarily newspapers and radio stations.***

Section IX further highlights how the 2010 update was handled and guidelines for the 2015 update, as agreed upon by the MAC.

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

- Lessened vulnerability as a result of implementing recommended actions
- Increased vulnerability as a result of failed or ineffective mitigation actions, and/or
- Increased vulnerability as a result of new development (and/or annexation).

The updating of the plan will be by written changes and submissions, as the Tri-County area communities and MAC deem appropriate and necessary.

**SECTION X — APPENDICES**



**Tri-County Regional Planning Commission  
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Sample Resolution

**SAMPLE RESOLUTION TO ADOPT THE HEART OF ILLINOIS NATURAL  
HAZARDS MITIGATION PLAN**

**RESOLUTION ADOPTING A NATURAL HAZARDS MITIGATION PLAN FOR  
THE COUNTY OF PEORIA, COUNTY OF WOODFORD, COUNTY OF  
TAZEWELL, CITY OF PEORIA, CITY OF PEKIN**

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive certain federal assistance, and

WHEREAS, Heart of Illinois Project Impact's Disaster Mitigation Advisory Committee ("MAC") comprised of the directors of the Emergency Services and Disaster Agencies of the respective county or city municipality, and contributing citizens, members of the business community and non-profit organizations working with the regional leadership was convened in order to study the City's/County's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on the City/County; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the City/County; and

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WHEREAS, the efforts of the MAC members and the region's consulting firm have resulted in the development of a Natural Hazards Mitigation Plan for the Cities of Peoria and Pekin, and the unincorporated areas in the Counties of Woodford, Tazewell, and Peoria.

NOW THEREFORE, BE IT RESOLVED by the Council of the county of Peoria, county of Tazewell, county of Woodford, city of Peoria, and city of Pekin in the state of Illinois, that the Natural Hazards Mitigation Plan dated xxxxxxxxx is hereby approved and adopted for the unincorporated parts of the counties of Peoria, Tazewell, and Woodford, as well as the cities of Peoria, and Pekin in the state of Illinois. A copy of the plan is attached to this resolution.

ADOPTED by the county of Peoria, county of Tazewell, county of Woodford, city of Peoria, and city of Pekin in the state of Illinois this \_\_\_\_ day of \_\_\_\_\_, 2004.

APPROVED:

\_\_\_\_\_  
Mayor/County Board Chair

ATTEST:

\_\_\_\_\_  
Clerk of the Council or Board

**Hazard Histories**

**Tri-County Regional Planning Commission  
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HIRA Category	Date	Event Type	Event Description	Affected Communities	# of Injuries	# of Deaths	Affected Infrastructure	Data Source	Affected Homes	Affected Businesses	Power Disruption	Es. Damage \$	Flood Height (Peoria)
Drought	No events in Tri-County recorded in NCDC												
Earthquake	No events in Tri-County recorded in NCDC												
Extreme Heat	7/26-27/1997	Excessive Heat	A brief heat wave hit Central Illinois persisting for a little less than 48 hours from July 26th to July 27th. Temperatures ranged from 95 to 100 degrees both days with heat index values ranging from 105 to 115 degrees. There were numerous reports of heat related injuries in most area hospitals. Also, there were numerous reports of roads buckling due to the high temperatures.	Peoria County, Tazewell County, Woodford County	several	0	Buckling roads	NCDC Storm Events Website					
	6/26-28/1998	Excessive Heat	High temperatures on June 26th and 27th climbed into the middle and upper 90s. This combined with the high humidity values produced heat indices of 105 to 110 degrees at times. Several heat related illnesses were reported in area hospitals due to the heat. One death was reported in Peoria and was confirmed to be heat related on June 27th. Also, several highways in the area had sections of roadway buckle due to the excessive heat.	Peoria County, Tazewell County, Woodford County	several	1	Buckling roads	NCDC Storm Events Website					
	7/20-26/1999	Excessive Heat	The excessive heat wave began on the 20th of July and continued for most of the area through the 26th. Temperatures were in the lower to middle 90s with heat index values in the 105 to 110 degree range each day. In West Peoria (Peoria County), one heat-related death was reported on the 24th.	Peoria County, Tazewell County, Woodford County	0	1		NCDC Storm Events Website					
	7/28-31/1999	Excessive Heat	The heat returned to Central Illinois after a two day break. Temperatures rose into the lower to middle 90s again with heat index values in the 105 to 110 degree range. By the 30th a cold front began to move through the area, so the heat advisory was cancelled for northern sections of the area, but the excessive heat persisted in the rest of Central Illinois through the 31st	Peoria County, Tazewell County, Woodford County	0	0		NCDC Storm Events Website					
	7/22/2005	Excessive Heat	A period of excessive heat and humidity developed across all of central and southeast Illinois from July 22nd through the 25th. Daytime high temperatures ranged from the middle 90s to around 100 degrees daily, with overnight low temperatures only falling into the middle and upper 70s. The high humidity values pushed afternoon and early evening heat indices into the 105 to 115 degree range. The heat wave resulted in one direct fatality. An elderly woman was found dead in Springfield in her mobile home with malfunctioning air conditioning.	Peoria County, Tazewell County, Woodford County		1		NCDC Storm Events Website					
	7/30/2006	Excessive Heat	An extended period of heat and humidity occurred across central and southeast Illinois from July 30th to August 2nd. Afternoon high temperatures ranged from 94 to 100 degrees most afternoons, with afternoon heat indices ranging from 105 to 110. Overnight lows only fell into the mid 70s. A 39 year old male from Mapleton (Peoria County) suffered a heart attack and died in his mobile home. The death was attributed to the heat. However, the home was not air conditioned and he was taking a medication that prevented him from sweating.	Peoria County, Tazewell County, Woodford County		1		NCDC Storm Events Website					
Flood	4/1-6/1933	Flood	Kickapoo Creek: many flooded basements, minor damage.	City of Peoria			12 bridges, 600 yards of gravel washed away	City of Peoria HVA 1983	20				
	5/18/1933	Flood	Illinois River: 2 manholes blew open, CILCO basement flooded but still provided power, minor damage.	Peoria County, City of Peoria, Tazewell County, City of Pekin, Woodford County			Rte. 29 closed, Rock Is. Tracks under water	City of Peoria HVA 1983					25.3 feet
	5/3/1935	Flood	Kickapoo Creek: 500 feet of Rock Island road bed under water, minor damage.	City of Peoria			Rte. 29 closed, Rock Is.	City of Peoria HVA 1983	6				

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HIRA Category	Date	Event Type	Event Description	Affected Communities	# of Injuries	# of Deaths	Affected Infrastructure	Data Source	Affected Homes	Affected Businesses	Power Disruption	Es. Damage \$	Flood Height (Peoria)
							Tracks under water						
	1/24/1938	Flood	Illinois River: minor damage.	City of Peoria			Trains	City of Peoria HVA 1983	6				
	6/25/1938	Flood	Storm caused flash flooding, serious damage.	City of Peoria			Streets closed, 4 railways shut down	City of Peoria HVA 1983		Many stores flooded	>1000 homes lost power	\$250,000	
	5/24/1943	Flood	Illinois River crested at 28.82 feet (highest in history); closed Century Distilling, RG LeTourneau, Keystone, Bemis Bag, Caterpillar; worse in East Peoria; major damage; National Guard called to help.	Peoria County, City of Peoria, Tazewell County, City of Pekin, Woodford County			Streetcars Rtes. 29 & 24 train depot P&PU railroad	City of Peoria HVA 1983	several	several			28.8 feet
	4/27/1944	Flood	Illinois River crested at 23.8 feet.	Peoria County, City of Peoria, Tazewell County, City of Pekin, Woodford County				City of Peoria HVA 1983					23.8 feet
	4/29/1950	Flood	Illinois River crested at 25.0 feet.	Peoria County, City of Peoria, Tazewell County, City of Pekin, Woodford County				City of Peoria HVA 1983					25 feet
	7/22-28/1951	Flood	Kickapoo Creek: Bartonville roundhouse and switchyard flooded, bus station flooded; large crop land acreage ruined; major damage.	Peoria County, City of Peoria			Rt. 8 closed; RR tracks, covered bridge washed out on County Road between Hanna City & Glasford	City of Peoria HVA 1983	several	Bartonville stores flooded	Power out in Hanna City; phones out in Elmwood	\$1,000,000	
	3/30/1960	Flood	Kickapoo Creek: Farmington Road closed	City of Peoria			Road closed	City of Peoria HVA 1983	3			\$100,000	
	8/18-19/1960	Flood	Kickapoo Creek: 2 children drowned in 2 days playing in flooded creek	City of Peoria				City of Peoria HVA 1983					
	3/20/1962	Flood	50 mph winds on river loosened 24 barges from moorings and blew them into Franklin Street bridge damaging steel sections and walkway; boathouse collapsed; 700 foot dock swept away; 4-8 foot waves on river.	City of Peoria			RR tracks twisted	City of Peoria HVA 1983				\$310,000	23.7 feet
	1/1/1965	Flood	Kickapoo Creek: 41 basements flooded; 4.44 inches of rain in 27 hours; minor damage.	City of Peoria				City of Peoria HVA 1983	41				
	Spring 1970	Flood	Illinois River: trains placed on RR bridges to weigh them down; animal shelter evacuated; over 100 homes in Rome were surrounded by water, Bemis Bag Co. closed; river crested at 25.9 feet on May 19; serious damage.	Peoria County, City of Peoria, Tazewell County, City of Pekin, Woodford County				City of Peoria HVA 1983	200+	1			25.9 feet
	1/3-5/1971	Flood	Illinois river crested at 20.8; fear of ice flows but river dropped 3 feet; minor damage.	City of Peoria				City of Peoria HVA 1983					20.8 feet



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HIRA Category	Date	Event Type	Event Description	Affected Communities	# of Injuries	# of Deaths	Affected Infrastructure	Data Source	Affected Homes	Affected Businesses	Power Disruption	Es. Damage \$	Flood Height (Peoria)
	4/26-28/1973	Flood	Illinois river crested at 25.9 feet; Sears parking deck, Greater Peoria Sanitary District forced to close resulting in release of 35 million gallons of untreated raw sewage; minor damage in Peoria City. Parts of stated declared Federal Disaster Area.	Peoria County, City of Peoria, Tazewell County, City of Pekin, Woodford County				City of Peoria HVA 1983		2		\$3,000,000	25.9 feet
	6/22-23/1974	Flood	Kickapoo Creek: Worst flood in Edwards history; sewer backup; above average flood; major damage.	Peoria County, City of Peoria			1 state route and 3 county roads closed	City of Peoria HVA 1983	100s	1	12,000 w/out power, 25,000 w/out phone		
	3/8/1976	Flood	Illinois River crested at 23.6 feet; 4,000-5,000 sandbags given out; minor damage.	Peoria County, City of Peoria, Tazewell County, City of Pekin, Woodford County				City of Peoria HVA 1983					23.6
	March/April 1979	Flood	The Illinois river crested at 28.7 feet in Peoria (second highest ever); 22.5 foot breakoff point; flood lasted 23 days (longest in county history following coldest & snowiest winter in county history). Efforts to contain river hampered by harsh weather and wind created 6 foot waves on the river at one point; major damage. Federal Disaster Area declared March 15.	Peoria County, City of Peoria, Tazewell County, City of Pekin, Woodford County			Coast Guard closed river; multiple roads closed (including Franklin St. bridge)	City of Peoria HVA 1983	1269	Keystone, Peoria Animal Shelter, Bemis		\$50,000,000 (in Illinois)	28.7
	3/1/1982	Flood	The Illinois river crested at 27.1 feet in Peoria; 7,400 sandbags given out; average flood.	Peoria County, City of Peoria				City of Peoria HVA 1983	50				27.1
	3/22/1982	Flood	The Illinois river crested at 27.1 feet. Major housing damage. Federal disaster assistance provided.	Peoria County, City of Peoria, Tazewell County, City of Pekin, Woodford County				Woodford Co. HIRA Packet	67			\$60,000 - \$180,000	
	8/24/1982	Flood	Flash flood; 2.2 inches of rain in 1 hour; minimal damage	City of Peoria			Flooded intersection	City of Peoria HVA 1983					
	12/9/1982	Flood	The Illinois river crested at 27.4 feet 30,000 sandbags given out; above-average flood. Federal Disaster Area declared.	Peoria County, City of Peoria, Tazewell County, City of Pekin, Woodford County			Old Rte 29 to Rome closed	City of Peoria HVA 1983, Woodford Co. HIRA Packet	100s	Peoria Animal Shelter & River station closed		\$100,000,000 (in Illinois)	27.4
	4/17/1983	Flood	The Illinois river crested at 25.7 feet in Peoria.	Peoria County, City of Peoria, Tazewell County, City of Pekin, Woodford County				City of Peoria HVA 1983					25.7
	March 1985	Flood	The Illinois river crested at 28.4 feet. Federal Disaster declared for all 3 counties.	Peoria County, City of Peoria, Tazewell County, City of Pekin, Woodford County			Many roads closed	Woodford Co. HIRA Packet	600+	100s		\$1.4M (Peoria); \$1.381M (Tazewell); \$1.297M (Woodford)	28.4
	7/24/1993	Flood	Major flood: Federal Disaster declared. Flood locations available along with building and crop damage estimates.	Peoria County, Tazewell County, Woodford County				Peoria Co. Packet					

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HIRA Category	Date	Event Type	Event Description	Affected Communities	# of Injuries	# of Deaths	Affected Infrastructure	Data Source	Affected Homes	Affected Businesses	Power Disruption	Es. Damage \$	Flood Height (Peoria)
	8/23/1993	Flood	Flash Flood.	Tazewell County, Peoria County			Street flooding occurred	NCDC Storm Events Website					
	5/14-31/1995	Flood	2 reported injuries.	Peoria County, Woodford County				NCDC Storm Events Website					
	6/1-15/1995	Flood	No description.	Peoria County, Woodford County				NCDC Storm Events Website					
	6/6/1996	Flood	Flash flood in Mossville. Several homes sustained minor flood damage when 3-4 inches of rain fell in a short amount of time. Route 29 was flooded for a while. The flooding uprooted numerous trees which were strewn over Route 6. No injuries reported and no damage estimate available.	Peoria County			Route 29 was flooded. Route 6 had trees strewn across it.	NCDC Storm Events Website	several				
	2/21/1997 - 3/6/1997	Storm	The area received 2 day totals of 3 to 4.5 inches of rain, which fell on frozen grounds. Numerous tributaries of the Illinois River flooded and in response, the Illinois River began to rise. It rose over flood stage in Havana on the 21st, on the 22nd in Henry and Peoria, and on the 23rd in Beardstown. Another storm system moved through on the 26th and produced 1 to 2 inches of rain over the Illinois River basin. The river crested at Henry on the 2nd, Peoria on the 3rd, Havana on the 4th, and at Beardstown on the 6th. A few homes in Henry were inundated by flood waters and a few buildings on the east side of Sparland were damaged. It took over two weeks to a month for the river to fall below flood stage. The result was the 6th worst flood in history at Peoria and the 7th worst flood in history at Henry. Several homes just south of Spring Bay were flooded as well as several homes in Liverpool. No damage estimate was available.	Tazewell County, Peoria County, Woodford County				NCDC Storm Events Website	several				
	5/7/1998	Flood	Rte. 8 water across road; Edwards: Powdermill Road and Layne Road flooded; Pottstown: water up to bridge and RR tracks.	Peoria County			Several roads flooded	Peoria Co. Packet					
	5/18/2001	Flood	Flash flood: Heavy rain fell across much of the county, resulting in numerous reports of flooded roads, with the most extensive flooding occurring in Pekin, Delavan and Tremont. In Tremont, Route 9 was covered with flowing flood waters.	Tazewell County, City of Pekin			Route 9 was flooded	NCDC Storm Events Website					
	6/6/2001	Flood	Flash flood: Pekin reported several roads/bridges that crossed a local drainage ditch closed due to flooding. A few adjacent city roads were also closed due to high water.	Tazewell County, City of Pekin			Several roads closed due to flooding	NCDC Storm Events Website					
	7/21/2001	Flood	Flash flood: A rainfall report of nearly 5 inches was received from along Illinois Route 89. A section of the highway, from Cazenovia to Low Point, was flooded for a period of time.	Woodford County			Several roads flooded	NCDC Storm Events Website					
	5/11/2002	Flood	Flash flood that briefly flooded several roads near Hanna City	Peoria County			Several roads flooded	NCDC Storm Events Website					
	5/11/2002	Flood	Flash flood: Several roads and basements in the Deer Ridge Subdivision were flooded due to between 3 and 4 inches of rain in a short amount of time.	Tazewell County				NCDC Storm Events Website					
	5/11-13/2002	Flood	Over 4 inches of rain fell in a short amount of time. Several creeks went out of their banks. Even though the rain had ended much earlier in the day, numerous roads remained flooded for a time. Runoff continued to cause flood problems in Woodford County, especially in the Eureka and Roanoke areas. Two families had to be evacuated from their homes due to rising waters.	Woodford County			Several roads flooded	NCDC Storm Events Website					

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HIRA Category	Date	Event Type	Event Description	Affected Communities	# of Injuries	# of Deaths	Affected Infrastructure	Data Source	Affected Homes	Affected Businesses	Power Disruption	Es. Damage \$	Flood Height (Peoria)
	5/12-31/2002	Flood	After several rounds of precipitation over Central Illinois during the first couple weeks of May, area rivers rose above flood stage at most locations. The following rivers were in flood during May: Spoon River, Illinois River, Mackinaw River, Sangamon River, Embarras River and the Little Wabash. Not too many homes were affected despite record or near record crests on many of the rivers in Central Illinois. Since the 1993 floods, many levies were built or existing ones were extended to prevent widespread flooding. The Mechanicsburg (Sangamon Co.) water treatment plant was inundated on the 13th by the Sangamon River. Also, several homes in the Riverton and Rochester areas were flooded due to the Sangamon River.	Peoria County, Tazewell County, Woodford County		1	Numerous roads flooded; damage to several bridges	NCDC Storm Events Website; Woodford Co. HIRA Packet	several	several			
	6/26/2002	Flood	Flash flood: Almost 5 inches of rain fell in Minonk in a short amount of time. It caused numerous streets and basements in town to be flooded. No injuries reported.	Woodford County			Several roads flooded	NCDC Storm Events Website	several	several			
	9/13/2008	Flood	Panther Creek rose out of its banks and flooded Main Street and Mill Street in Roanoke...with 1.5 feet of water coming into the American Legion. Numerous other homes and businesses around Roanoke had water in their basements. Several homes were flooded in Spring Bay, prompting boat evacuations.	Woodford County			Roads flooded	NCDC Storm Events Website	several	several		145000	
<b>High Wind/Thunderstorm (Severe Storms)</b>	5/5/1933	Thunderstorm	Weather Bureau reported 33 mph wind, but with 8-mile wide strip with stronger winds; roofs blown off, walls blown down, major damage. 4 reported injuries.	City of Peoria				City of Peoria HVA 1983	several	20			
	6/28/1935	Thunderstorm	6 fires started by lightning, streets flooded, serious damage.	City of Peoria				City of Peoria HVA 1983					
	7/6/1939	Storm	Kickapoo Creek flooded 100's of basements, 60 mph winds took roofs off several buildings, boats thrown at yacht club, dock torn from moorings, dairy barn near Mt. Hawley Airport leveled.	City of Peoria			Streets washed out	City of Peoria HVA 1983	100s				
	7/28/1943	Hail Storm	60 mph wind for 3 minutes; crop loss estimated at \$1 million; thousands of windows broken - 5,000 in schools, 7,000 in homes; homes/small buildings leveled; major damage. 20 reported injuries.	City of Peoria				City of Peoria HVA 1983	100s	many	All power, most phones out	\$1,000,000	
	7/2/1953	High Wind	High winds caused average damage at Heart of Illinois Fair	City of Peoria				City of Peoria HVA 1983			Scattered outages		
	7/5/1953	Storm	2 storms (afternoon & evening): wind gusts to 96 mph; sustained 65 mph for 5 minutes; injury at Heart of Illinois Fair, damage to roof of Sacred Heart Church and White School, many planes damaged at airport; 3.5 inches of rain, some hail; major damage. 3 serious injuries reported.	City of Peoria			2 RR tracks washed out; 4 highways blocked by downed wires	City of Peoria HVA 1983			Most power out 2-5 days, 800 phones out	\$1,500,000	
	9/14/1955	Thunderstorm	Lightning caused 21 separate fires, mostly to homes and to the Spaulding Institute. 1 reported injury.	City of Peoria				City of Peoria HVA 1983	20		Most power out, 350 phones out	\$10,700	
	3/14/1957	High Wind	Bartonville: 250 foot length of roof ripped off CECO Steel Products warehouse; average damage	City of Peoria				City of Peoria HVA 1983			Power & phone lines out		
	5/13/1957	Hail Storm	Magnitude: 0.75 in.	Peoria County				NCDC Storm Events Website					
	5/15/1960	Hail Storm	Magnitude: 1.25 in.	Peoria County				NCDC Storm Events Website					
6/4/1960	Hail Storm	Magnitude: 1.00 in.	Peoria County				NCDC Storm Events Website						

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HIRA Category	Date	Event Type	Event Description	Affected Communities	# of Injuries	# of Deaths	Affected Infrastructure	Data Source	Affected Homes	Affected Businesses	Power Disruption	Es. Damage \$	Flood Height (Peoria)
	9/2/1961	Hail Storm	Magnitude: 1.75 in.	Peoria County				NCDC Storm Events Website					
	3/20/1962	Flood	50 mph winds on river loosened 24 barges from moorings and blew them into Franklin Street bridge damaging steel sections and walkway; boathouse collapsed; 700 foot dock swept away; 4-8 foot waves on river	City of Peoria			RR tracks twisted	City of Peoria HVA 1983				\$310,000	
	6/10/1963	Hail Storm	Magnitude: 1.00 in.	Tazewell County				NCDC Storm Events Website					
	4/6/1964	Hail Storm	Magnitude: 0.75 in.	Tazewell County				NCDC Storm Events Website					
	4/21/1964	High Wind	Several homes under construction leveled in Wardcliffe Hamilton Park subdivision; CILCO lost high voltage power line	City of Peoria				City of Peoria HVA 1983	18		High voltage line down; 40 phones out		
	7/14/1964	Hail Storm	Magnitude: 0.75 in.	Peoria County				NCDC Storm Events Website					
	11/20/1964	High Wind	35 mph winds gusting to 70 mph; garbage container blew into gas pipe causing gas leak; average damage. 6 injuries reported.	City of Peoria				City of Peoria HVA 1983			CILCO & IL Bell down		
	6/10/1967	Hail Storm	Magnitude: 0.75 in.	Tazewell County				NCDC Storm Events Website					
	7/18/1967	Thunder-storm	Fires started by lightning; destroyed 3 buildings and threatened Allied Chemical. 1 reported injury.	City of Peoria				City of Peoria HVA 1983				\$100,000	
	5/15/1968	Hail Storm	Magnitude: 1.75 in.	Tazewell County				NCDC Storm Events Website					
	5/13/1970	Hail Storm	Magnitude: 1.00 in.	Tazewell County				NCDC Storm Events Website					
	8/14/1971	Hail Storm	Magnitude: 1.75 in.	Peoria County				NCDC Storm Events Website					
	6/9/1972	Hail Storm	Magnitude: 1.75 in.	Tazewell County				NCDC Storm Events Website					
	12/4/1973	High Wind	Winds destroyed machine shed in Princeville; tree limbs down all over; tornado in Stark County; minor damage	Peoria County, City of Peoria				City of Peoria HVA 1983			Scattered wires down	\$4,000	
	4/3/1974	Hail Storm	Magnitude: 0.75 in.	Woodford County				NCDC Storm Events Website					
	5/10 - 6/30/1974	Severe Storms	Numerous severe storms and flooding occurred during this period. These storms damaged 2 bridges in Woodford County beyond repair which cost around \$143K to replace. Presidential Disaster declared in all 3 counties.	Peoria County, Tazewell County, Woodford County			Winkler and Staab-Hoffer bridges damaged beyond repair	Woodford County HIRA Packet				\$143,000 (in Woodford County)	

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HIRA Category	Date	Event Type	Event Description	Affected Communities	# of Injuries	# of Deaths	Affected Infrastructure	Data Source	Affected Homes	Affected Businesses	Power Disruption	Es. Damage \$	Flood Height (Peoria)
	6/14/1974	Hail Storm	Magnitude: 0.75 in.(Woodford) 1.00 in.(Peoria); 1.75 in.(Tazewell)	Peoria County, Tazewell County, Woodford County				NCDC Storm Events Website					
	6/19/1974	High Wind	A Cessna flipped while trying to land at the Greater Peoria Airport; roof of Union Stockyards blew off, wind affected Peoria, Mossville, Elmwood, Princeville, Farmington, and was worse in Tazewell County (F0) and Woodford County (F2)	Tazewell County, Peoria County, City of Peoria, Woodford County				City of Peoria HVA 1983, NCDC Storm Events Website			12,000 without power		
	6/21/1974	Hail Storm	Magnitude: 0.75 in.	Woodford County				NCDC Storm Events Website					
	7/10/1974	Hail Storm	Magnitude: 1.50 in.; 1.75 in.	Woodford County				NCDC Storm Events Website					
	5/19/1975	Hail Storm	Magnitude: 0.75 in.	Peoria County				NCDC Storm Events Website					
	5/30/1975	Hail Storm	Magnitude: 1.00 in.	Tazewell County				NCDC Storm Events Website					
	6/13/1975	Hail Storm	Magnitude: 0.75 in., 1.75 in.(Peoria); 2.00 (Woodford)	Peoria County, Woodford County				NCDC Storm Events Website					
	6/14/1975	Hail Storm	Magnitude: 0.75 in.	Peoria County				NCDC Storm Events Website					
	6/20/1975	Hail Storm	Magnitude: 0.75 in.; 1.00 in.	Tazewell County				NCDC Storm Events Website					
	8/18/1975	Hail Storm	Magnitude: 1.75 in.	Tazewell County				NCDC Storm Events Website					
	3/26/1976	Thunder-storm	50 mph winds, hail and 0.38 inches of rain. The storm uprooted trees, ripped sides off a garage, broke windows, billboards; above-average damage	Peoria County, City of Peoria				City of Peoria HVA 1983			Jet City & Bartonsvill e CILCO substations knocked out, 5,000 homes w/out power		
	3/28/1977	High Wind	50 mph winds blew down billboards, utility poles; damage to United Facilities Warehouse; average damage	City of Peoria			Fallen trees and poles in streets	City of Peoria HVA 1983			200 homes w/out power		
	5/5/1977	Hail Storm	Magnitude: 0.75 in.(Woodford); 1.50 in., 1.75 in.(Peoria)	Peoria County, Woodford County				NCDC Storm Events Website					
	5/28/1978	Hail Storm	Magnitude: 1.25 in.	Tazewell County				NCDC Storm Events Website					
	6/25/1978	Hail Storm	Magnitude: 1.50 in.	Peoria County				NCDC Storm Events Website					
	7/26/1978	Hail Storm	Magnitude: 1.75 in., 2.00 in.(Tazewell); 2.00 in (Woodford)	Tazewell County, Woodford County				NCDC Storm Events Website					

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HIRA Category	Date	Event Type	Event Description	Affected Communities	# of Injuries	# of Deaths	Affected Infrastructure	Data Source	Affected Homes	Affected Businesses	Power Disruption	Es. Damage \$	Flood Height (Peoria)
	6/2/1980	Hail Storm	Flash flood created by hailstorm; 1,500 acres of farmland under water; most damage to roads; worse in Tazewell County. State Disaster Area declared.	Tazewell County, City of Peoria, Peoria County			Franklin St. bridge closed, many streets flooded	City of Peoria HVA 1983			Hospital lost power briefly	\$200,000	
	4/10/1981	Hail Storm	Magnitude: 1.75 in., 2.75 in.	Peoria County				NCDC Storm Events Website					
	4/2/1982	Hail Storm	Magnitude: 1.75 in.	Peoria County				NCDC Storm Events Website					
	4/3/1982	High Wind	62 mph gust of wind; minor damage	City of Peoria				City of Peoria HVA 1983			8,000 homes w/out power		
	5/26/1982	Hail Storm	Magnitude: 1.00 in.	Peoria County				NCDC Storm Events Website					
	7/13/1982	Hail Storm	Magnitude: 1.75 in.	Tazewell County				NCDC Storm Events Website					
	11/1/1982	Hail Storm	Magnitude: 1.75 in.	Peoria County				NCDC Storm Events Website					
	8/18/1983	Hail Storm	Magnitude: 1.00 in.	Peoria County				NCDC Storm Events Website					
	3/27-28/1985	Hail Storm	Magnitude: 1.50 in.; 1.75 in.	Tazewell County				NCDC Storm Events Website					
	6/23/1985	Hail Storm	Magnitude: 1.75 in.	Tazewell County				NCDC Storm Events Website					
	6/30/1985	Hail Storm	Magnitude: 1.00 in.	Peoria County				NCDC Storm Events Website					
	7/2/1985	Hail Storm	Magnitude: 1.75 in.	Peoria County				NCDC Storm Events Website					
	5/11/1987	Hail Storm	Magnitude: 1.00 in.	Peoria County				NCDC Storm Events Website					
	5/21/1987	Hail Storm	Magnitude: 1.25 in.	Woodford County				NCDC Storm Events Website					
	5/31/1987	Hail Storm	Magnitude: 0.75 in.	Woodford County				NCDC Storm Events Website					
	4/4/1988	Hail Storm	Magnitude: 1.75 in.	Woodford County				NCDC Storm Events Website					
	3/17/1989	Hail Storm	Magnitude: 0.75 in.	Tazewell County				NCDC Storm Events Website					
	7/9/1990	Hail Storm	Magnitude: 2.75 in.	Peoria County				NCDC Storm Events					

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								Website					
	8/29/1990	Hail Storm	Magnitude: 0.75 in.; 1.75 in.	Peoria County				NCDC Storm Events Website					
	5/17/1991	Hail Storm	Magnitude: 2.00 in.	Woodford County				NCDC Storm Events Website					
	6/13/1991	Hail Storm	Magnitude: 1.75 in.	Woodford County				NCDC Storm Events Website					
	6/15/1991	Hail Storm	Magnitude: 1.75 in.	Tazewell County				NCDC Storm Events Website					
	10/23/1991	Hail Storm	Magnitude: 1.75 in.(Tazewell); 1.00 in.(Woodford)	Tazewell County				NCDC Storm Events Website					
	12/8/1991	Hail Storm	Magnitude: 1.00 in. (Peoria); 2.75 in. (Tazewell)	Peoria County, Tazewell County				NCDC Storm Events Website					
	4/15/1992	Hail Storm	Magnitude: 0.75 in., 1.50 in.	Woodford County				NCDC Storm Events Website					
	6/26/1994	Hail Storm	Magnitude: 0.75 in.	Peoria County				NCDC Storm Events Website					
	7/20/1994	High Wind	A 30-square-foot brick facade of a building collapsed near downtown Peoria. 1 injury reported.	City of Peoria				NCDC Storm Events Website				\$5,000	
	5/13/1995	Hail Storm	A tornado briefly touched down 2 SW of Congerville damaging one home and five outbuildings. The roof of a mobile home was blown off and several trees and power poles were blown over. No one was injured and no damage estimate was available. Magnitude: 0.75 in., 1.75 in.	Woodford County				NCDC Storm Events Website	several				
	2/27/1996	Hail Storm	Magnitude: 0.75 in.	Peoria County				NCDC Storm Events Website					
	3/25/1996	High Wind	Strong gradient winds caused minor damage across Central Illinois. The winds blew down numerous power lines, tore off the roof of a building in Rushville, and metal sheathing and insulation from the roof of a mobile home was blown off in Bloomington. 1 death reported.	Peoria County, Tazewell County, Woodford County				NCDC Storm Events Website	several	several	Downed power lines	n/a	
	4/14/1996	Hail Storm	Magnitude: 1.00 in.	Woodford County									
	4/18/1996	Hail Storm	Magnitude: 1.75 in.	Peoria County				NCDC Storm Events Website					
	4/19/1996	Hail Storm	Magnitude: 0.75 in.	Woodford County									

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	10/30/1996	High Wind	High winds associated with a strong area of low pressure caused damage in numerous counties throughout Central Illinois. Sustained winds averaged 30 to 40 mph with gusts to near 65 mph in some areas. Most of the damage was to trees, tree limbs, and power lines. In Peoria, 3 busstop benches were blown over. One tree in Peoria Heights fell onto an unoccupied car causing major damage. In Pekin, one tree fell onto a house causing damage to one bedroom. In Roanoke (Woodford County), the roof of a large storage building was blown off which damaged a small storage shed and a few trees when the roof landed on them. No injuries reported and no damage estimates available from any of the counties.	Peoria County, Tazewell County, Woodford County				NCDC Storm Events Website	several	several	Downed power lines	n/a	
	12/23/1996	Hail Storm	Magnitude: 1.00 in.	Peoria County				NCDC Storm Events Website					
	4/6/1997	High Wind	The combination of a strong area of low pressure over Lake Superior and a strong area of high pressure over Texas created very high gradient winds over Central Illinois. Sustained winds averaged between 25 and 40 mph with higher gusts to 65 mph in some areas. These gradient winds blew down numerous trees, tree limbs, and power lines throughout Central Illinois. In Woodford County near El Paso a semi was blown over on US 24, but no injuries were reported. No damage estimates were available for this event.	Peoria County, Tazewell County, Woodford County				NCDC Storm Events Website	several	several	Downed power lines	n/a	
	4/30/1997	High Wind	Strong gradient winds in excess of 50 mph with gusts to around 70 mph followed behind a line of severe thunderstorms. The gradient winds lagged behind the thunderstorms by about 20 to 30 minutes and continued during the night finally letting up the next day, May 1st. Thousands of people across Central Illinois lost power for a time as hundreds of power lines were blown down. Several semis were blown over. Also, numerous trees and tree limbs were blown down and widespread structural damage was reported. The gradient winds blew down a 150 foot communications tower in Princeville. Numerous sheds, and grain bins were either blown over, damaged, or destroyed by the gradient winds. No deaths or serious injuries reported.	Peoria County, Tazewell County, Woodford County				NCDC Storm Events Website	numerous	numerous	Downed power lines		
	8/24/1997	Hail Storm	Peoria magnitude: 1.75 in.; One inch hail fell in East Peoria, Morton, and Delavan as the severe thunderstorms moved southeast across Tazewell county: magnitude 1.00 in.; 1.25 in.	Peoria County, Tazewell County				NCDC Storm Events Website					
	9/29/1997	High Wind	Low pressure over Lake Superior created strong gradient winds over a large portion of the upper Midwest. Sustained winds ranged from 25 to 35 mph with gusts to over 60 mph. Numerous trees, tree limbs, and power lines were blown down. In Chillicothe, a large tree fell down damaging a garage and a nearby shed. No injuries reported. No damage estimates available.	Peoria County, Tazewell County, Woodford County				NCDC Storm Events Website	several		Downed power lines	n/a	
	4/7/1998	Hail Storm	Magnitude: 1.25 in.(Peoria); 1.75 in.(Tazewell); 1.75 in. (Woodford)	Peoria County, Tazewell County, Woodford County				NCDC Storm Events Website					
	4/15/1998	Hail Storm	Magnitude: 1.75 in.	City of Pekin, Tazewell County				NCDC Storm Events Website					
	4/20/1998	Hail Storm	Golfball sized hail broke several windows on a car 5 miles east of Roanoke. No injuries reported and no damage estimate available. Magnitude: 1.75 in.	Woodford County				NCDC Storm Events Website					
	5/12/1998	Hail Storm	Magnitude: 1.00 in. (Peoria); 1.75 in. (Tazewell)	Peoria County, City of Pekin, Tazewell County				NCDC Storm Events Website					
	5/19/1998	Hail Storm	Magnitude: 0.75 in.	Peoria County				NCDC Storm Events Website					



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	6/11/1998	Hail Storm	Magnitude: 1.25 in.	Tazewell County				NCDC Storm Events Website					
	8/4/1998	Hail Storm	Magnitude: 1.00 in.	Peoria County				NCDC Storm Events Website					
	11/10/1998	High Wind	Winds gusted to over 50 mph at times with sustained winds well over 35 mph. Thousands of power lines and tree limbs were blown down throughout Central Illinois and hundreds of trees were blown over. High winds ripped sheet metal from a storage tank containing ammonia near Creve Coeur (Tazewell County). Some pieces of sheet metal sheared open two relief valves, releasing gas fumes into the air. Homes in the area were evacuated. No one was injured and the leak was soon fixed. The high winds prevented the gas fumes from stagnating over the area. 1 injury reported.	Peoria County, Tazewell County, Woodford County				NCDC Storm Events Website	several		Downed power lines	n/a	
	5/5/1999	Hail Storm	Magnitude: 1.75 in.	Woodford County				NCDC Storm Events Website					
	5/17/1999	Hail Storm	Magnitude: 0.88 in.	Tazewell County				NCDC Storm Events Website					
	6/4/1999	Hail Storm	Dime size hail fell in East Peoria, Washington, and 4 miles east northeast of Delavan. Golfball sized hail was reported in Tremont. Magnitude 1.75 in.(Tazewell & Woodford)	Tazewell County, Woodford County				NCDC Storm Events Website					
	4/20/2000	Hail Storm	Magnitude: 1.00 in.(Peoria); 1.75 in.(Tazewell)	Peoria County, Tazewell County				NCDC Storm Events Website					
	5/8/2000	Hail Storm	Magnitude: 0.75 in. (Peoria); 1.00 in.(Tazewell)	Peoria County, Tazewell County				NCDC Storm Events Website					
	5/12/2000	Hail Storm	Over 100 cars sustained hail damage in the Eureka and Roanoke areas. Magnitude: 1.25 in., 1.50 in.(Tazewell); 2.50 in. (Woodford)	Tazewell County, Woodford County				NCDC Storm Events Website				\$300,000	
	5/18/2000	Hail Storm	Magnitude: 0.75 in.; 0.88 in. (Peoria); 1.75 in. (Tazewell); 1.00 in.(Woodford)	Peoria County, Tazewell County, Woodford County				NCDC Storm Events Website					
	6/23/2000	Hail Storm	Magnitude: 1.75 in.(Peoria); 0.88 in.(Woodford)	Peoria County, Woodford County				NCDC Storm Events Website					
	4/10/2001	Hail Storm	Hail ranging from pea to golf ball size fell for at least 20 minutes in parts of Minonk and piled several inches deep. Widespread damage was noted to vehicles, with some minor roof damage to homes. At least 50 vehicles were reported to have between \$2000 and \$4000 in damage each. Damage estimates are based on minimum damage figures available and is likely higher. Magnitude: 1.75 in (Woodford); 1.00 in.(Tazewell)	Tazewell County, Woodford County				NCDC Storm Events Website				\$100,000	
	4/21/2001	Hail Storm	Numerous reports of hail were reported in the Spring Lake, Pekin and Mackinaw areas. Magnitude: 1.25 in.(Tazewell); 1.00 in.(Woodford)	City of Pekin, Tazewell County, Woodford County				NCDC Storm Events Website					
	6/17/2001	Hail Storm	Magnitude: 0.88 in.	Tazewell County				NCDC Storm Events Website					
	8/18/2001	Hail Storm	Magnitude: 2.50 in.	Tazewell County				NCDC Storm Events Website					
	8/30/2001	Hail Storm	Magnitude: 0.75 in.	Peoria County				NCDC Storm Events Website					

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	3/9/2002	High Wind	Magnitude 76 knots. 2 injuries reported.	Tazewell County, Woodford County				NCDC Storm Events Website					
	4/2/2002	Hail Storm	Magnitude: 0.75 in. (Peoria & Woodford)	Peoria County, Woodford County				NCDC Storm Events Website					
	4/27/2002	Hail Storm	Magnitude: 0.88 in. (Peoria); 0.75 in.(Tazewell & Woodford)	Peoria County, Tazewell County, Woodford County				NCDC Storm Events Website					
	5/11/2002	Hail Storm	Magnitude: 1.50 in.	Peoria County				NCDC Storm Events Website					
	5/13/2002	Hail Storm	Magnitude: 0.88 in.	Peoria County				NCDC Storm Events Website					
	6/4/2002	Hail Storm	Magnitude: 2.00 in.(Peoria); 0.88 in.(Woodford)	Peoria County, Woodford County				NCDC Storm Events Website					
	7/26/2002	Hail Storm	Magnitude: 2.00 in.(Peoria); 1.00 in.(Tazewell)	Peoria Co., Tazewell Co.				NCDC Storm Events Website					
	7/28/2002	Hail Storm	Magnitude: 1.75 in.	Peoria County				NCDC Storm Events Website					
	3/5/2004	High Wind	50 kts.	Peoria	6	1		NCDC Storm Events Website					
	6/8/2005	Tstm Wind	50 kts.	Peoria	1	0		NCDC Storm Events Website					
	9/19/2005	Tstm Wind	50 kts.	Tazewell				NCDC Storm Events Website				\$2,000	
	4/13/2006	Tstm Wind	52 kts.	Tazewell				NCDC Storm Events Website				\$30,000	
	7/17/2007	Thunderstorm Wind	55 kts.	Woodford				NCDC Storm Events Website				\$20,000	
	8/22/2007	Thunderstorm Wind	61 kts.	Tazewell				NCDC Storm Events Website				\$15,000	
	5/11/2008	High Wind	53 kts.	Tazewell				NCDC Storm Events Website				\$40,000	
	5/11/2008	Strong Wind	45 kts.	Tazewell				NCDC Storm Events Website				\$20,000	
	5/26/2008	Thunderstorm Wind	56 kts.	Woodford	0	0		NCDC Storm Events Website				\$9,000	
	5/26/2008	Thunderstorm Wind	56 kts.	Tazewell	0	0		NCDC Storm Events Website				\$2,000	
	6/3/2008	Thunderstorm Wind	61 kts.	Peoria	0	0		NCDC Storm Events				\$1,000	

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								Website					
	6/13/2008	Thunderstorm Wind	50 kts.	Peoria	0	0		NCDC Storm Events Website				\$15,000	
	6/15/2008	Thunderstorm Wind	61 kts.	Tazewell	0	0		NCDC Storm Events Website				\$75,000	
	6/15/2008	Thunderstorm Wind	61 kts.	Woodford	0	0		NCDC Storm Events Website				\$40,000	
	6/15/2008	Thunderstorm Wind	61 kts.	Woodford	0	0		NCDC Storm Events Website				\$30,000	
	6/15/2008	Thunderstorm Wind	61 kts.	Tazewell	0	0		NCDC Storm Events Website				\$20,000	
	6/15/2008	Thunderstorm Wind	62 kts.	Tazewell	0	0		NCDC Storm Events Website				\$20,000	
	6/15/2008	Thunderstorm Wind	61 kts.	Peoria	0	0		NCDC Storm Events Website				\$20,000	
	6/15/2008	Thunderstorm Wind	52 kts.	Tazewell	0	0		NCDC Storm Events Website				\$10,000	
	6/15/2008	Thunderstorm Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$2,000	
	6/25/2008	Lightning	Lightning struck a house in Germantown Hills and started a fire. The house and its contents were destroyed in the fire. There were no injuries.	Woodford	0	0						\$300,000	
	6/26/2008	Lightning	Lightning struck a tree next to a house, setting the house ablaze. Two rooms were burned, and damage was done to the house roof and siding. Damage was also done to a vehicle parked nearby. There were no injuries. A lightning strike from one of the storms started a house fire in Tazewell County.	Tazewell	0	0						\$50,000	
	7/7/2008	Lightning	Lightning struck an apartment complex near Bradley University setting fire to a third floor apartment ceiling, the attic and the roof. There were no injuries. Two thunderstorms, one near Peoria and the other in southern Champaign County produced lightning strikes which caused damage.	Peoria	0	0						\$15,000	
	7/21/2008	Thunderstorm Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$30,000	
	7/21/2008	Thunderstorm Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$30,000	
	7/21/2008	Thunderstorm Wind	70 kts.	Woodford	0	0		NCDC Storm Events Website				\$30,000	
	7/21/2008	Thunderstorm Wind	61 kts.	Woodford	0	0		NCDC Storm Events Website				\$25,000	
	7/21/2008	Thunderstorm Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$15,000	

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	7/21/2008	Thunderstorm Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$15,000	
	7/21/2008	Thunderstorm Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$2,000	
	7/21/2008	Thunderstorm Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$2,000	
	8/5/2008	Thunderstorm Wind	61 kts.	Peoria	0	0		NCDC Storm Events Website				\$25,000	
	8/5/2008	Thunderstorm Wind	61 kts.	Peoria	0	0		NCDC Storm Events Website				\$25,000	
	8/5/2008	Thunderstorm Wind	61 kts.	Woodford	0	0		NCDC Storm Events Website				\$15,000	
	8/5/2008	Thunderstorm Wind	61 kts.	Woodford	0	0		NCDC Storm Events Website				\$10,000	
	8/5/2008	Thunderstorm Wind	61 kts.	Woodford	0	0		NCDC Storm Events Website				\$10,000	
	8/5/2008	Thunderstorm Wind	61 kts.	Tazewell	0	0		NCDC Storm Events Website				\$2,000	
	8/5/2008	Thunderstorm Wind	61 kts.	Peoria	0	0		NCDC Storm Events Website				\$2,000	
	8/5/2008	Thunderstorm Wind	61 kts.	Peoria	0	0		NCDC Storm Events Website				\$1,000	
	8/13/2008	Lightning	Lightning struck two houses in the same neighborhood in the far northern sections of the city of Peoria. Both houses were set on fire as a result of the lightning. One house had minor damage to the roof and siding, while the other house lost the entire roof. There were no injuries.	Peoria	0	0						\$45,000	
	9/12/2008	Thunderstorm Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$5,000	
	12/27/2008	Thunderstorm Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$15,000	
	3/8/2009	High Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$25,000	
	3/8/2009	Thunderstorm Wind	52 kts.	Woodford	0	0		NCDC Storm Events Website				\$25,000	
	3/8/2009	Thunderstorm Wind	52 kts.	Woodford	0	0		NCDC Storm Events Website				\$10,000	
	3/8/2009	Thunderstorm Wind	52 kts.	Woodford	0	0		NCDC Storm Events Website				\$10,000	

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	3/24/2009	High Wind	52 kts.	Woodford	0	0		NCDC Storm Events Website				\$6,000	
	3/24/2009	High Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$4,000	
	4/23/2009	Thunderstorm Wind	61 kts.	Tazewell	0	0		NCDC Storm Events Website				\$10,000	
	5/12/2009	Lightning	Lightning struck a tree near a house in Kappa, setting the power lines and part of the house on fire. The kitchen, a staircase and the room above the kitchen were damaged. A man, who was asleep when the fire started, escaped unharmed.	Woodford	0	0						\$45,000	
	6/1/2009	Thunderstorm Wind	52 kts.	Tazewell	0	0		NCDC Storm Events Website				\$12,000	
	6/1/2009	Thunderstorm Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$2,000	
	6/18/2009	Thunderstorm Wind	61 kts.	Peoria	0	0		NCDC Storm Events Website				\$1,100,000	
	6/18/2009	Thunderstorm Wind	61 kts.	Peoria	0	0		NCDC Storm Events Website				\$100,000	
	6/18/2009	Thunderstorm Wind	61 kts.	Tazewell	0	0		NCDC Storm Events Website				\$50,000	
	6/18/2009	Thunderstorm Wind	61 kts.	Peoria	0	0		NCDC Storm Events Website				\$15,000	
	6/19/2009	Thunderstorm Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$10,000	
	6/19/2009	Thunderstorm Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$6,000	
	6/19/2009	Thunderstorm Wind	52 kts.	Woodford	0	0		NCDC Storm Events Website				\$3,000	
	6/27/2009	Thunderstorm Wind	52 kts.	Tazewell	0	0		NCDC Storm Events Website				\$35,000	
	6/27/2009	Thunderstorm Wind	52 kts.	Woodford	0	0		NCDC Storm Events Website				\$20,000	
	6/27/2009	Thunderstorm Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$3,000	
	7/24/2009	Thunderstorm Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$25,000	
	7/24/2009	Thunderstorm Wind	52 kts.	Tazewell	0	0		NCDC Storm Events Website				\$5,000	
	7/24/2009	Thunderstorm Wind	52 kts.	Peoria	0	0		NCDC Storm Events				\$5,000	

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HIRA Category	Date	Event Type	Event Description	Affected Communities	# of Injuries	# of Deaths	Affected Infrastructure	Data Source	Affected Homes	Affected Businesses	Power Disruption	Es. Damage \$	Flood Height (Peoria)
								Website					
	8/4/2009	Thunderstorm Wind	61 kts.	Tazewell	0	0		NCDC Storm Events Website				\$25,000	
	8/4/2009	Thunderstorm Wind	52 kts.	Woodford	0	0		NCDC Storm Events Website				\$3,000	
	8/4/2009	Thunderstorm Wind	52 kts.	Tazewell	0	0		NCDC Storm Events Website				\$2,000	
	8/4/2009	Thunderstorm Wind	61 kts.	Woodford	0	0		NCDC Storm Events Website				\$2,000	
	8/19/2009	Thunderstorm Wind	52 kts.	Tazewell	0	0		NCDC Storm Events Website				\$65,000	
	8/19/2009	Thunderstorm Wind	52 kts.	Woodford	0	0		NCDC Storm Events Website				\$20,000	
	8/19/2009	Thunderstorm Wind	52 kts.	Tazewell	0	0		NCDC Storm Events Website				\$15,000	
	8/19/2009	Thunderstorm Wind	52 kts.	Tazewell	0	0		NCDC Storm Events Website				\$12,000	
	8/19/2009	Thunderstorm Wind	52 kts.	Tazewell	0	0		NCDC Storm Events Website				\$8,000	
	8/19/2009	Thunderstorm Wind	52 kts.	Woodford	0	0		NCDC Storm Events Website				\$5,000	
	8/19/2009	Thunderstorm Wind	52 kts.	Peoria	0	0		NCDC Storm Events Website				\$2,000	
<b>Tornado</b>	4/29/1947	Tornado	2 separate tornados hit Kingston Mines and Glasford; 1 tavern demolished, public garage, office buildings, horse killed, 1 barn leveled on farm. 2 reported injuries.	City of Peoria				City of Peoria HVA 1983	1	4	Phones/ power lines down	\$120,000	
	11/13/1951	Tornado	Most damage in Peoria County near Edelstein (all rural); minor damage	Peoria County, City of Peoria				City of Peoria HVA 1983		Farms			
	5/28/1954	Tornado	F1. No injuries reported.	Woodford County				NCDC Storm Events Website				\$25,000	
	5/26/1955	Tornado	F2. 1 injury reported.	Tazewell County				NCDC Storm Events Website				\$250,000	
	8/13/1956	Tornado	F3. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$25,000	
	4/16/1960	Tornado	F1. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$3,000	
	5/16/1960	Tornado	F2. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$25,000	

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	5/25/1960	Tornado	F2. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$25,000	
	5/14/1961	Tornado	F3 tornado 5 miles west of Princeville; Baptist Church blown off foundation. No injuries reported.	Peoria County, City of Peoria, Woodford County				City of Peoria HVA 1983; NCDC Storm Events Website	1 farmhouse, 2 outbuildings			\$2,500,000	
	8/1/1961	Tornado	F0	Woodford County				NCDC Storm Events Website				\$3,000	
	5/28/1962	Tornado	F0. No injuries reported.	Peoria County				NCDC Storm Events Website				\$0	
	9/14/1966	Tornado	An F3 tornado destroyed Hiram Walker Cooperage Plant, Norwood Grade School; Peoria Union Stockyard ripped apart; roof of Belwood Nursing Home damaged; major damage. 28 injuries reported.	Peoria County, City of Peoria			Airport tower out of commission due to building movement	City of Peoria HVA 1983	144	20	CILCO out, phones out in Elmwood, Hanna City, Elmwood, Trivoli	\$1,500,000	
	1/24/1967	Tornado	F2. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$3,000	
	10/10/1969	Tornado	F2. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$250,000	
	5/9/1970	Tornado	F1. No injuries reported.	Woodford County				NCDC Storm Events Website				\$250,000	
	6/15/1971	Tornado	F0. No injuries reported.	Woodford County				NCDC Storm Events Website				\$0	
	6/18/1973	Tornado	F0. No injuries reported.	Woodford County				NCDC Storm Events Website				\$0	
	3/31/1973	Tornado	F1. No injuries reported.	Peoria County				NCDC Storm Events Website					
	9/4/1973	Tornado	F0. No injuries reported.	Tazewell County, Woodford County				NCDC Storm Events Website				\$0	
	6/8/1974	Tornado	F0. No injuries reported.	Peoria County				NCDC Storm Events Website				\$0	
	6/22/1974	Tornado	F2. No injuries reported.	Woodford County				NCDC Storm Events Website				\$25,000	
	4/18/1975	Tornado	F1. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$25,000	
	4/30/1975	Tornado	F0. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$0	

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	5/25/1975	Tornado	F0. No injuries reported.	Woodford County				NCDC Storm Events Website				\$0	
	3/26/1976	Tornado	F2. No injuries reported.	Woodford County				NCDC Storm Events Website				\$250,000	
	3/26/1976	Tornado	F1. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$250,000	
	6/29/1976	Tornado	F4. No injuries reported.	Peoria County				NCDC Storm Events Website				\$250,000	
	6/29/1976	Tornado	F0. No injuries reported.	Woodford County				NCDC Storm Events Website				\$3,000	
	9/7/1977	Tornado	F1. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$250,000	
	9/16/1980	Tornado	F0. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$0	
	4/13/1981	Tornado	F1. No injuries reported.	Woodford County				NCDC Storm Events Website				\$25,000	
	5/27/1981	Tornado	F0. No injuries reported.	Peoria County				NCDC Storm Events Website				\$0	
	6/8/1981	Tornado	F1. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$25,000	
	7/25/1981	Tornado	F2. No injuries reported.	Peoria County				NCDC Storm Events Website				\$250,000	
	9/24/1986	Tornado	F2. No injuries reported.	Woodford County				NCDC Storm Events Website				\$250,000	
	9/29/1986	Tornado	F2. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$2,500,000	
	5/20/1987	Tornado	F1. No injuries reported.	Woodford County				NCDC Storm Events Website				\$3,000	
	6/2/1987	Tornado	F0. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$0	
	6/13/1990	Tornado	F0 Estimated damage \$3,000 in Peoria. No injuries reported.	Peoria County, Woodford County				NCDC Storm Events Website				\$3,000	
	6/19/1990	Tornado	F1. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$2,500,000	
	6/22/1990	Tornado	F1. No injuries reported.	Woodford County				NCDC Storm Events Website				\$25,000	
	11/27/1990	Tornado	F2. 2 deaths reported.	Tazewell County				NCDC Storm Events Website				\$2,500,000	



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	4/29/1991	Tornado	F0. No injuries reported.	Woodford County				NCDC Storm Events Website				\$0	
	5/14/1991	Tornado	F0. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$0	
	5/31/1991	Tornado	F0. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$0	
	10/4/1991	Tornado	F1. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$250,000	
	5/4/1992	Tornado	F0. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$3,000	
	7/20/1994	Tornado	Trees were blown down. Power lines were blown down. Lightning started a tree on fire.	Peoria County				Peoria County Packet, NCDC Storm Events Website				\$100	
	5/13/1995	Tornado	An F1 tornado touched down 1 W of Princeville and traveled to the east northeast. Two homes were destroyed and two homes had major damage. Several outbuildings were either damaged or destroyed, as well as numerous trees. A country club in Edelstein sustained major roof damage. Numerous power poles were blown down as well. No injuries were reported and no damage estimate was available.	Peoria County				NCDC Storm Events Website					
	5/13/1995	Tornado	An F0 tornado briefly touched down 2 SW of Congerville damaging one home and five outbuildings. The roof of a mobile home was blown off and several trees and power poles were blown over. No one was injured and no damage estimate was available.	Woodford County				NCDC Storm Events Website	several				
	6/26/1995	Tornado	An F0 tornado briefly touched down twisting a trampoline around a tree, throwing a swing set 40 to 50 feet, and blew down one tree. No damage estimate was available. No injuries reported.	Woodford County				NCDC Storm Events Website					
	4/19/1996	Tornado	An F2 tornado touched down just south of the Logan/Tazewell County line (on 1350E), causing minor damage to three homes. Then the tornado travelled to the northeast, through the south side of Armington, destroying one home as well as several outbuildings. Also, 2 homes sustained major damage and 5 homes sustained minor damage. After moving through the Armington area, the tornado moved into southwestern McLean County. Damage was estimated around \$1 million in Tazewell County. No injuries reported.	Tazewell County				NCDC Storm Events Website				\$1,000,000	
	4/19/1996	Tornado	An F0 tornado touched down 1 mile southwest of Brimfield and moved to the northeast into the south side of Brimfield, causing minor damage. The tornado then lifted to tree top level and caused some damage to trees in Jubilee State Park before lifting completely. The tornado uprooted a 12 inch diameter pine tree in Brimfield, caused rivets to pop out of the metal siding on one business, and damaged a steeple on one church. Also, a van parked in a driveway was moved sideways up against a bush in the yard. No injuries were reported and no damage estimate was available.	Peoria County				NCDC Storm Events Website				n/a	
	6/6/1996	Tornado	An F0 tornado touched down 1 mile south southwest of Mossville in the Brookview Estates Subdivision. Most of the damage occurred to trees, which caused some minor damage to a few homes in the area. The tornado was only on the ground for a half a mile before lifting. No injuries were reported and no damage estimate was available.	Tazewell County				NCDC Storm Events Website				n/a	

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	4/30/1997	Tornado	An F0 tornado touched down 1 mile east of Yates City and 3 miles west northwest of Brimfield (Peoria County), knocking down several power poles in both locations. Four miles northwest of Brimfield, the tornado touched down again, ripping the top floor of a split level home off and destroyed a nearby shed and garage. No injuries reported.	Peoria County				NCDC Storm Events Website				\$25,000	
	4/30/1997	Tornado	A F0 tornado briefly touched down 7 miles southwest of Pekin in the Country View Estates Subdivision severely damaging a home under construction causing around \$90,000 in damage. Also, the tornado damaged a garage across the street and four other homes in the area sustained minor roof damage with shingles missing. A 20 inch diameter tree was blown down blocking Bass Road. The total dollar amount of damage is estimated around \$115,000. Severe thunderstorms developed resulting in numerous reports of trees, tree limbs, and power lines knocked down. Also, 6 tornadoes were reported across the area. A few minor injuries and 1 death were reported.	Tazewell County				NCDC Storm Events Website				\$115,000	
	4/7/1998	Tornado	An F0 tornado briefly touched down in a field 3 miles west of Hanna City. No injuries or damage were reported.	Peoria County				NCDC Storm Events Website				\$0	
	6/29/1998	Tornado	An F1 tornado formed over Marquette Heights downing numerous trees and power lines. Numerous homes and businesses sustained minor to moderate damage in the Groveland area. The tornado intensified over Morton, causing considerable damage to a 30 store shopping center, tearing half the roof off and breaking windows. In this same area it also caused moderate damage to a cinema, several restaurants and other businesses, as well as approximately 24 homes. A large bow echo system developed. Wind speeds were measured or estimated to be between 60 to 80 mph. Hundreds of trees fell onto structures and vehicles, and numerous sheds, and silos were either damaged or destroyed. Considerable crop damage was sustained in most areas. In some areas, microbursts about 1/2 mile wide caused intense structural damage. Speeds of these microbursts were measured or estimated in these areas at 100 to 110 mph. Spin-up tornadoes occurred along the leading edge of the bow echo structure causing significant damage in narrow swaths. No injuries reported.	Peoria County, Tazewell County				NCDC Storm Events Website				\$1,000,000	
	6/4/1999	Tornado	An F0 tornado touched down one mile southwest of Washburn. It caused extensive damage to one house's roof when it blew down several nearby trees, which then fell onto the house. It then moved into the Snag Creek Golf Course and blew down several more trees before lifting and dissipating. No injuries were reported.	Woodford County				NCDC Storm Events Website					
	6/4/1999	Tornado	An F1 tornado touched down on the northwest side of Delavan, uprooting several large trees. The only structural damage in this area was due to tree branches. As it travelled to the east southeast, it blew a small outdoor amphitheater into a nearby creek. As the tornado moved into the northeast side of town, it knocked down numerous trees. One tree fell onto an unoccupied truck, another one fell onto the roof of a house, and still another one fell onto a mobile home. Several other homes sustained minor damage to their roofs and siding on a few homes was ripped off. A small shed was destroyed 2 miles east southeast of Delavan. No injuries were reported.	Tazewell County				NCDC Storm Events Website				\$0	
	5/8/2000	Tornado	An F1 tornado briefly touched down 1.5 miles west of Parkland on a farm. It destroyed 4 large grain bins and blew a machine shed 100 yards from where it had been. A garage nearby sustained minor damage with siding and a door blown off. No injuries were reported.	Tazewell County				NCDC Storm Events Website				\$275,000	
	5/18/2000	Tornado	An F0 tornado briefly touched down half a mile west of Metamora just south of Illinois Route 116. 1 injury reported.	Woodford County				NCDC Storm Events Website				\$5,000	

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	5/8/2002	Tornado	A weak tornado touched down in extreme southeastern Woodford County near the intersection of County Road 700N and 2500E. It was on the ground for a mile knocking down some power poles. It then lifted briefly before touching down again 1.8 miles southeast of El Paso. As it travelled to the northeast, it crossed into the extreme northwestern corner of McLean County. At this location, it took the roof off of a barn, damaged two other barn roofs, tipped over a grain auger, as well as, blowing down trees and tree limbs. It hit another farm with only minor tree limb and house guttering damage before lifting and dissipating. No injuries were reported.	Woodford County				NCDC Storm Events Website					
	5/10/2003	Tornado	This long track tornado first touched down 3 miles southwest of South Pekin and traveled to the northeast. It destroyed several homes before reaching the eastern sections of South Pekin where it intensified to F3 strength. The tornado destroyed 50 homes, caused minor to major damage on an additional 80 homes before exiting the town. As the tornado approached Morton, it weakened briefly but quickly intensified again as it crossed the intersection of I-74 and I-155. When it crossed the highways, 8 vehicles were damaged and one injury was sustained when a car was overturned by the tornado as it crossed I-74. It destroyed several three story apartment buildings and severely damaged several others in the complex. A couple of businesses in the area were destroyed as well. It then moved through several subdivisions, damaging over 100 homes, some severely. The tornado eventually weakened and lifted 2.5 miles north of Morton. In all, 32 people were injured by the tornado, three seriously, but they have since recovered.	Tazewell	32	0						\$10,000,000	
	5/10/2003	Tornado	As the tornado crossed from Tazewell County into Woodford County it increased in intensity. It destroyed several homes, outbuildings and businesses along US 24 before clipping the northwestern side of Eureka damaging several homes there. As it traveled to the northeast, additional homes sustained damage as well as trees, power lines, power poles, sheds and outbuildings. It moved through the extreme northern portions of Roanoke before lifting and dissipating one mile north of Roanoke. Several homes in this area sustained damage. Overall, 4 people sustained minor injuries.	Woodford	4	0							
	7/8/2003	Tornado	A tornado touched down near the Powerton power plant throwing chunks of coal into the air. It traveled northeast towards a lumber yard. It destroyed the roofs on a couple of sheds, before lifting and dissipating. No injuries were reported.	Tazewell	0	0						\$25,000	
	5/18/2004	Tornado	The tornado touched down about half a mile west of Fondulac dam. It traveled down Coventry Lane for about a quarter of a mile before lifting and dissipating. The damage was mainly to large trees, with a number of them falling on homes. Two homes had their roofs lifted off, with several others having minor roof damage. No injuries were reported.	Tazewell	0	0							
	7/13/2004	Tornado	The tornado touched down around 234 pm CDT approximately 1.75 miles north-northeast of Metamora in western Woodford County. The tornado traveled southeast for about 2.5 miles, before beginning a temporary eastward jog between county roads 1300E and 1400E. The tornado curved southeast again, striking the Parsons Company, Inc.'s manufacturing plant around 241 pm CDT. The plant was severely damaged by the tornado. Approximately 140 people were in the plant at the time, but all personnel made it to storm shelters in time (approximately 3 to 5 minutes before the tornado arrived). Steel beams and metal siding from the plant were found approximately three quarters of a mile east in a farm field. From the plant, the tornado continued east, just south of Illinois Route 116/117, affecting 4 farmsteads approximately 1/2 to 1 mile east of the plant. Two of the farmsteads closest to the plant (about 1/2 to 3/4 mile east) had the 2-story houses completely blown away, with only debris remaining in the basements and nearby property. The other two farmsteads had significant damage to the 2-story houses with outbuildings demolished. The center of the tornado tracked about 100 yards south of the houses located on the south side of the road. From the plant to the farmsteads, the average width of the tornado was 400 yards and was close to 1/4 mile wide at	Woodford	3	0							

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			southeast and caused significant damage to a barn near the intersection of County Roads 1300N and 1600E, about 2.5 miles southwest of Roanoke. The tornado continued to move east-southeast and damaged a house about 1.25 miles south-southwest of Roanoke, near the intersection of County Roads 1300N and 1700E. The tornado crossed 1300N shortly afterward and curved sharply to the southeast. The tornado lifted around 254 pm about 2 miles southeast of Roanoke, at County Road 1900E.										
	1/7/2008	Tornado	A tornado touched down for a few minutes near Mackinaw and moved through a farmstead. The tornado destroyed a pole barn and damaged a house and a few other outbuildings. In addition, a chain link fence and a few tree limbs were blown down.	Tazewell	0	0						\$30,000	
Winter Storm	4/8/1938	Ice Storm	Streetcar wires encased in ice, phone, telegraph, and power lines down, average damage.	City of Peoria			Trains/streetcars stopped	City of Peoria HVA 1983			Lines down		
	1/26/1967	Blizzard	8 inches of snow on ground as paper went to press; still falling & blowing.	City of Peoria	3		Roads and airport closed	City of Peoria HVA 1983			Some CILCO and phone lines out		
	1/26/1978	Winter Storm	40 mph winds, -36 wind chill. 3 injuries reported.	City of Peoria			Roads closed	City of Peoria HVA 1983					
	12/8/1995	Winter Storm	A winter storm brought one to five inches of snow to Central Illinois during the day and evening of the 8th. A sharp cold front moved through during the evening of the 8th dropping temperatures as much as 25 degrees in three hours. Strong winds developed behind the front at 20 to 30 mph overnight and during the day on the 9th, causing considerable blowing and drifting of the snow, especially in open areas. The brisk winds and temperatures near zero created wind chills as low as 45 degrees below zero. One death reported.	City of Pekin, City of Peoria, Peoria County, Tazewell County, Woodford County	0	1		NCDC Storm Events Website					
	12/18-19/1995	Winter Storm	A winter storm brought heavy rains the evening of the 18th, which changed to freezing rain overnight before changing to all snow by 0700 on the 19th. Snowfall ranged from one inch in Mason County to six inches in Edgar County. Numerous accidents were reported, though only one fatality occurred. Numerous power lines were knocked down throughout Central Illinois, due to the freezing rain and strong winds of 20 to 30 mph. The strong winds also caused considerable blowing and drifting of snow closing some roads in Central Illinois until the winds subsided in the evening on the 19th.	Peoria County, Tazewell County, Woodford County	0	1	Some roads closed	NCDC Storm Events Website			Some downed power lines		
	1/4/1996	Winter Storm	Following on the heels of the January 2nd/3rd storm, another winter storm moved through Central Illinois on January 4th. Snowfall ranged from 2 to 7 inches. Numerous minor accidents were reported across the area, though no major injuries were reported.	Peoria County, Tazewell County, Woodford County	0	0		NCDC Storm Events Website					
	1/18-19/1996	Winter Storm	A major winter storm moved through Central Illinois January 18th and 19th. Severe thunderstorms moved through the area during the late morning and early afternoon hours. Afterward, temperatures began to drop quickly. Most locations recorded a 60 degree drop over a 12 hour period. The rain changed to ice than snow causing numerous power outages and minor accidents. Gusty winds of 25 to 35 mph created wind chills near 40 below zero across most of Central Illinois.	Peoria County, Tazewell County, Woodford County	0	0		NCDC Storm Events Website			Power outages		

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	2/2-4/1996	Extreme Cold	Bitterly cold weather took hold of Central Illinois on the 2nd, 3rd, and 4th of this month. New record low temperatures were made with a low of minus 19 in both Peoria and Springfield on February 3rd. Also, new record low high temperatures were made when the temperatures at Peoria and Springfield never went above zero on the 2nd and 3rd. Many people experienced problems with cars and frozen pipes. However, two deaths were reported due to the extreme cold.	Peoria County, Tazewell County, Woodford County	0	2		NCDC Storm Events Website					
	1/8-9/1997	Heavy Snow	A winter storm developed over the southern Plains and tracked to the northeast across southern Illinois. The storm dumped between 3 and 11 inches of snow over central Illinois. The heaviest snow fell in a corridor just north of I-70. Charleston in Coles County reported the most snow with 11 inches. Numerous accidents were reported throughout central Illinois. However, only 6 minor injuries were reported.	Peoria County, Tazewell County, Woodford County	6	0		NCDC Storm Events Website					
	1/15-17/1997	Winter Storm	A winter storm developed over the central Rockies and moved east into the Midwest. The storm brought between 4 and 6 inches of snow to a large part of central Illinois north of I-70. South of I-70 a mixture of freezing rain, sleet, and snow occurred with snow totals of 1 to 3 inches. After the snow stopped, the winds picked up to between 20 and 30 mph with higher gusts, causing near whiteout conditions. Also, temperatures fell below zero across the entire area, so with the strong winds and cold temperatures, wind chill readings dipped well below minus 40 degrees in many locations. Numerous accidents were reported along with 6 minor injuries, 1 serious injury and 1 death.	Peoria County, Tazewell County, Woodford County	7	1		NCDC Storm Events Website					
	1/24/1997	Winter Storm	A winter storm developed over the central Rockies and moved into southern Illinois on the 24th. Central Illinois received a mix of rain, freezing rain, sleet, and snow with the system which caused numerous accidents though no injuries were reported. Snow amounts were on the light side, up to 2 inches. However, some scattered areas in west central Illinois reported up to half an inch of ice accumulation.	Peoria County, Tazewell County, Woodford County	0	0		NCDC Storm Events Website					
	1/26-27/1997	Winter Storm	A winter storm developed over the southern Plains and moved east, to the south of Illinois. One area of snow moved through central Illinois on the 26th with snow amounts ranging from 1 to 4 inches. Then the snow let up around 4 pm on the 26th. A mixed bag of precipitation began to fall over the southern areas of central Illinois around 4 am on the 27th and spread north into the rest of central Illinois. By the time the precipitation ended in the evening of the 27th, another 1 to 5 inches of snow had fallen. Numerous accidents were reported, especially in the morning hours on the 27th. Nine minor injuries were reported	Peoria County, Tazewell County, Woodford County	9	0		NCDC Storm Events Website					
	1/10-11/1997	Heavy Snow	An early spring snow storm dumped between 4 and 13.5 inches of heavy wet snow over northern portions of Central Illinois. A 30 mile wide band centered along a line from just south of Galesburg to just north of Peoria received from 10 to 13.5 inches of snow. Numerous trees, tree branches, and power lines collapsed due to the weight of the heavy wet snow. Some caused damage to vehicles and homes. Also, numerous accidents occurred throughout the area with a few minor injuries reported.	Peoria County, Tazewell County, Woodford County	9	0		NCDC Storm Events Website			Downed power lines		
	12/9-10/1997	Heavy Snow	A strong low pressure system moving northeast through Southern Illinois and into Central Indiana spread a band of heavy snow in about a 50 mile wide swath centered along the Illinois River. Most locations reported about 5 inches of snowfall with some locally heavier amounts around 6 inches. Numerous traffic accidents were reported, one resulted in a death in Peoria County.	Peoria County, Tazewell County, Woodford County	0	1		NCDC Storm Events Website					
	12/24/1997	Heavy Snow	A winter storm system produced a band of heavy snow in areas mainly northwest of the Illinois River on Christmas Eve. Snow fall began around noon and ended by mid evening. Snow amounts ranged from 2 inches along the Illinois River with up to 5 inches across Knox County. Numerous traffic accidents were reported due to the slick roads but no serious injuries resulted.	Peoria County, Tazewell County	0	0		NCDC Storm Events Website					

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HIRA Category	Date	Event Type	Event Description	Affected Communities	# of Injuries	# of Deaths	Affected Infrastructure	Data Source	Affected Homes	Affected Businesses	Power Disruption	Es. Damage \$	Flood Height (Peoria)
	1/8/1998	Heavy Snow	Rain across Central Illinois quickly changed over to snow northwest of a line from Springfield to Bloomington during the early morning hours. Heavy snow amounts occurred across these areas before ending by early evening. Snowfall amounts of greater than 3 inches occurred in these areas. the heaviest snow occurred along and northwest of the Illinois River with total snowfall amounts of 4 to 8 inches. Numerous traffic accidents were noted but no serious injuries were reported.	Peoria County, Tazewell County, Woodford County	0	0		NCDC Storm Events Website					
	1/14/1998	Winter Storm	A winter Storm across much of Central Illinois produced widespread Freezing Rain, Sleet and Snow mainly affecting areas northwest of a Taylorville to Champaign line. The precipitation spread from west to east across the area during the morning hours. This resulted in several traffic accidents across the area, but no serious injuries were reported.	Peoria County, Tazewell County	0	0		NCDC Storm Events Website					
	3/8-9/1998	Winter Storm	A storm over the Southern Plains moved northeast bringing rain to the area which switched over to snow in the evening on March 8th. The snowfall persisted overnight with a mixture of freezing rain and snow in our southeastern counties. By the time the snow tapered off, snowfall amounts ranged from 2 inches in Coles county to over 6 inches in Knox, Peoria, and Fulton counties. Numerous accidents were reported with dozens of minor injuries. Two men died in separate traffic accidents in Peoria County. Even after the snowfall subsided, gusty winds to 50 mph created near white-out conditions in most locations, before subsiding during the evening hours on the 9th.	Peoria County, Tazewell County, Woodford County	dozens	2		NCDC Storm Events Website					
	1/1-3/1999	Heavy Snow	A major winter storm paralyzed much of the region during the first few days of 1999. Locations near and south of Charleston/Mattoon saw periods of mixed precipitation, including freezing rain, while farther north snow was predominate. After the snowfall and precipitation diminished, winds increased from the northwest and temperatures dropped, causing dangerous wind chills and treacherous driving conditions with extensive blowing and drifting snow through January 3rd. Total snow accumulations topped 6 inches mainly along and north of Interstate 70. Lesser amounts fell to the south, where more freezing precipitation was reported. The heaviest snow band in Central Illinois was found west and north of a line from Quincy to Virginia (Cass County) to Peoria to Bloomington to Champaign where reports of 14 or more inches of snow were common. The weight of the heavy snow and ice caused many roofs to collapse. In Pekin (Tazewell County), a storage building roof collapsed. No damage estimates were available. In addition, many locations sustained temporary or extended power outages during the storm.	City of Pekin, City of Peoria, Peoria County, Tazewell County, Woodford County	0	0		NCDC Storm Events Website			Power outages		
	1/5/1999	Extreme Cold	A clear sky, light winds and thick snow cover set the stage for record cold morning temperatures across the region. A new state record low was set at Congerville, 36 degrees below zero. Other bitterly cold record readings came from Peoria with 19 degrees below zero.	Peoria County, Tazewell County, Woodford County	0	0		NCDC Storm Events Website					
	3/8-9/1999	Heavy Snow	A winter storm developed in the Southern Rockies and moved northeast into Illinois. The heaviest snow fell mainly north of interstate I-72/I-74 from Jacksonville to Danville. Wet snowfall amounts ranged from 6-11 inches in a little over 12 hours, though the snow fell for 24 hours. Light freezing rain was also reported in some locations with the snow. 7.5 inches of snow fell in Chillicothe (Peoria County), 9 inches in South Pekin (Tazewell County). Snowfall amounts averaged between 2 to 4 inches between I-72 and I-70 with less than 1 inch of snow southeast of I-70 where rain generally fell. Some light freezing rain was also reported south of I-72/I-74 but ice accumulations were less than a quarter inch. Dozens of accidents occurred throughout the area during the event with numerous minor injuries.	Peoria County, Tazewell County, Woodford County	5	0		NCDC Storm Events Website					

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

HIRA Category	Date	Event Type	Event Description	Affected Communities	# of Injuries	# of Deaths	Affected Infrastructure	Data Source	Affected Homes	Affected Businesses	Power Disruption	Es. Damage \$	Flood Height (Peoria)
	1/19/2000	Winter Storm	During the day and early evening hours on the 19th, a winter storm with heavy snow affected Central Illinois with 4 to 6 inches of snow across a large area. Blowing and drifting of snow was reported as well. The storm caused numerous road closures as well as accidents. Two injuries were reported with a couple of the accidents (one in Peoria Co. and one in Vermilion Co.).	Peoria County, Tazewell County, Woodford County	1	0	Numerous roads closed	NCDC Storm Events Website					
	3/17-18/2000	Ice Storm	An ice storm affected central parts of Illinois, near the Illinois River Valley, from late in the evening on February 17th through the late afternoon hours of February 18th. A quarter to half an inch of ice resulted in numerous reports of downed power lines and tree limbs, extended power outages and traffic accidents.	Peoria County, Tazewell County, Woodford County	0	0		NCDC Storm Events Website			Downed power lines		
	12/11/2000	Winter Storm	Between 6 and 10 inches of snow accumulated within 24 hours on Monday, December 11, 2000 along and north of a Canton to Morton to Gridley line. Freezing rain and sleet mixed in with the snow, especially along and south of this line. Peoria set a new daily record snowfall of 8 inches nearly doubling the previous record of 4.4 inches set in 1932. The snow started falling around 1 AM, reaching 6 inch amounts by 6 pm and ending by 11 pm on December 11. Northwest winds of 25 to 35 mph with gusts to 45 mph produced considerable blowing and drifting snow along with wind chills of 30-40F below zero. Numerous minor vehicle accidents were reported in this first heavy snow event of the 2000-2001 winter season in Central Illinois.	Peoria County, Tazewell County, Woodford County	0	0		NCDC Storm Events Website					
	January 2001	Snow Storm	Declared disaster for snow storm. Assistance from FEMA received.	Peoria County				Peoria County Packet					
	1/30-31/2002	Winter Storm	Between a quarter and half inch of ice accumulated across the northern two thirds of Tazewell County. Between 6 and 9 inches of snow accumulated across Knox, Stark, Marshall and northern Peoria counties along with a quarter to half inch of ice. The southern half of Peoria county had around a half inch of ice along with 1 to 2 inches of snow. There were local three quarter to 1.5 inches of ice across higher terrain (Illinois River bluffs) near Mapleton. Several trees and power lines were downed from ice accumulations across Peoria and surrounding counties lasting from several hours to a couple of days.	Peoria County, Tazewell County, Woodford County	0	0		NCDC Storm Events Website			Downed power lines		
	3/1-3/2002	Heavy Snow	Snowfall totals of 6 to 8 inches were measured in the central Illinois counties along and west of the Illinois River from early in the evening on the 1st through the 2nd. Strong northwest winds, with gusts approaching 40 mph produced significant blowing and drifting snow. Most roads were snow and ice covered, with numerous traffic accidents reported.	Peoria County, Tazewell County, Woodford County	0	0		NCDC Storm Events Website					
	3/25/2002	Winter Storm	Snowfall totals of 2 to 4 inches, along with significant blowing and drifting snow, created near whiteout conditions in Peoria, Woodford, northern Tazewell and northwest McLean counties the morning of the 25th. Numerous accidents occurred as a result of the snow covered roads and decreased visibility. Ice accumulations around one-quarter inch were observed at the ASOS in Champaign.	Peoria County, Tazewell County, Woodford County	0	0		NCDC Storm Events Website					

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

HIRA Category	Date	Event Type	Event Description	Affected Communities	# of Injuries	# of Deaths	Affected Infrastructure	Data Source	Affected Homes	Affected Businesses	Power Disruption	Es. Damage \$	Flood Height (Peoria)
	11/24/2004	Winter Storm	A strong area of low pressure tracked into the Ohio River Valley from the southern Plains on the 24th. This storm brought a combination of heavy snow, high winds and heavy rain to central Illinois. The precipitation began as rain in the morning, but quickly changed to wet snow across much of the region. The snow became heavy at times by midday as isolated bands of thunder snow developed. 4 to 6 inch snow totals were common across much of west central Illinois by the time the snow ended in the evening, with localized 7 to 8 inch accumulations noted across portions of Tazewell, Woodford, and McLean counties. Sustained winds of 20 to 30 mph with gusts to 40 to 50 mph caused considerable blowing and drifting of the snow in west central Illinois. In addition, the high winds and the weight of the wet snow downed numerous trees and power lines. One fatality (indirect) each was reported in McLean, Peoria and Tazewell counties as a result of traffic accidents. Numerous injuries (indirect) were reported as a result of traffic accidents. Four injuries (direct) occurred at the Howlett Building in downtown Springfield (Sangamon County) when a portion of the roof collapsed under the weight of the wet snow.	Peoria County, Tazewell County, Woodford County	4	0							
	12/18/2008	Ice Storm	A powerful storm system produced between one quarter and three quarters of an inch of ice across parts of central Illinois on December 18th. Areas along and north of I-72 were most severely impacted, with widespread tree damage and power outages reported. Increasing west to northwest winds in the wake of the departing storm system resulted in additional downed tree branches and power outages into December 20th. At the height of the storm, over 30,000 customers were reported to be without power across central Illinois. Preliminary damage estimates are approximately 2 million dollars	Peoria County, Tazewell County	0	0						\$150,000	
	1/15/2009	Extreme Cold/wind Chill	A man was found dead outside near a pond at an apartment complex in Normal on the morning of January 15th. An autopsy report indicated he died due to exposure to the extreme cold. Low temperatures were around 20 below zero with wind chills of 35 below to 40 below zero.	Peoria County, Tazewell County, Woodford County	0	1							



**Hazard Identification and Ranking Worksheet**

HAZARD ANALYSIS WORKSHEET - TRI-COUNTY AREA

Hazard Type	Probability	Impact			Total Score	Hazard Level
		Affected Area	Primary Impact	Secondary Impacts		
FLOODING	8	3.2	2.1	2	58	Highly Likely
SEVERE STORMS & TORNADO	8	3.2	2.1	1.5	54	Highly Likely
WINTER STORM	8	3.2	0.7	1.5	43	Highly Likely
LAND SUBSIDENCE/MINE SUBSIDENCE	6	2.4	2.1	1	33	Critical
LANDSLIDES	6	1.6	2.1	0.5	25	Possible
DROUGHT	4	3.2	2.1	1	25	Possible
HEAT WAVE	4	3.2	0.7	1	20	Possible
WILDFIRE	4	0.8	1.4	1.5	15	Possible
EARTHQUAKE	2	3.2	1.4	1.5	12	Possible
SOIL EROSION	2	1.6	1.4	0.5	7	Unlikely

**Probability** Importance

*Based on estimated likelihood of occurrence from historical data*

Level	Probability	Score
1	Less than 1% occurrence	2
2	Between 1% and 10% occurrence	4
3	Between 10% and 100% occurrence	6
4	Near 100% occurrence	8

**Affected Area** Importance

*Based on size of geographical area of community affected by hazard*

Level	Affected Area	Score
1	Isolated	0.8
2	Small	1.6
3	Medium	2.4
4	Large	3.2

**Primary Impact** Importance

*Based on percentage of damage to typical facility in community*

Level	Impact	Score
1	Negligible - less than 10% damage	0.7
2	Limited - between 10% and 25% damage	1.4
3	Critical - between 25% and 50% damage	2.1
4	Catastrophic - more than 50% damage	2.8

**Secondary Impacts** Importance

*Based on estimated secondary impacts to community at large*

Level	Impact	Score
1	Negligible - no loss of function, downtime, and/or evacuations	0.5
2	Limited - minimal loss of function, downtime, and/or evacuations	1
3	Moderate - some loss of function, downtime, and/or evacuations	1.5
4	High - major loss of function, downtime, and/or evacuations	2

**Total Score = Probability x Impact**, where:

Probability = (Probability Score x Importance)

Impact = (Affected Area + Primary Impact + Secondary Impacts), where:

Affected Area = Affected Area Score x Importance

Primary Impact = Primary Impact Score x Importance

Secondary Impacts = Secondary Impacts Score x Importance

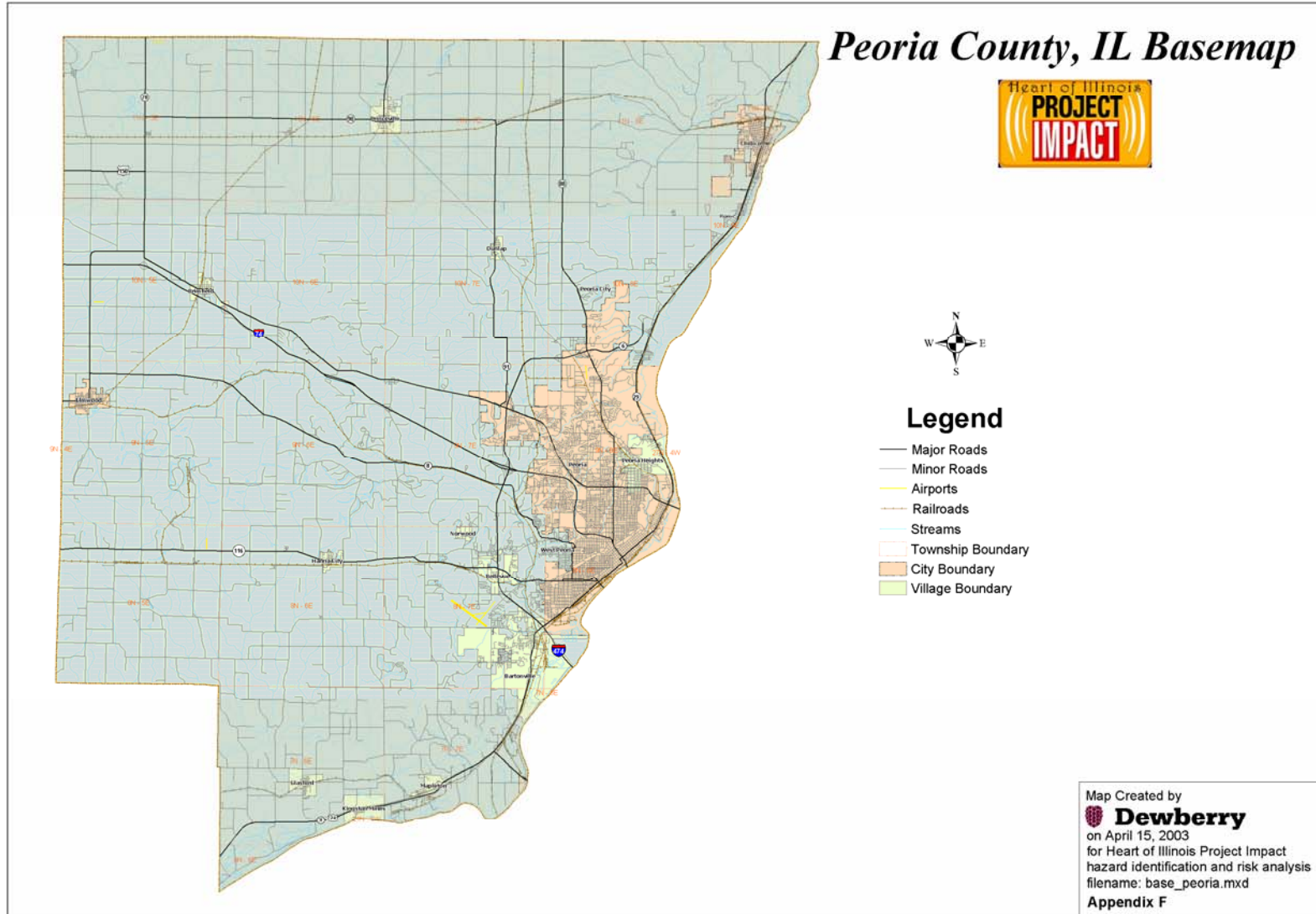
**Hazard Level**

Total Score	(Range)	Distribution	Hazard Level
0.0	12.0	1	Unlikely
12.1	32.0	5	Possible
32.1	39.6	1	Critical
39.7	64.0	3	Highly Likely

**2004 Base Maps**

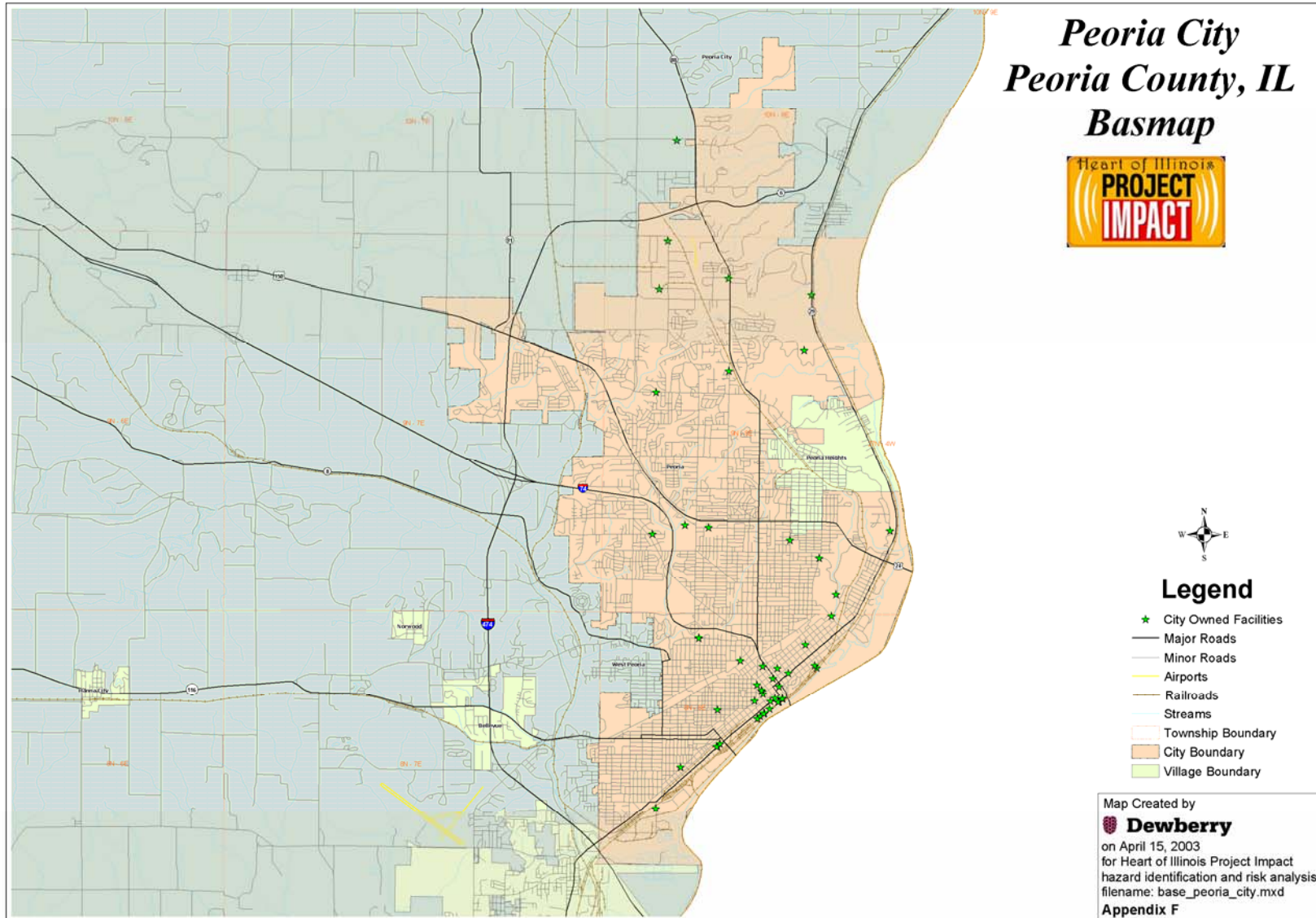
Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan

Peoria County



Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan

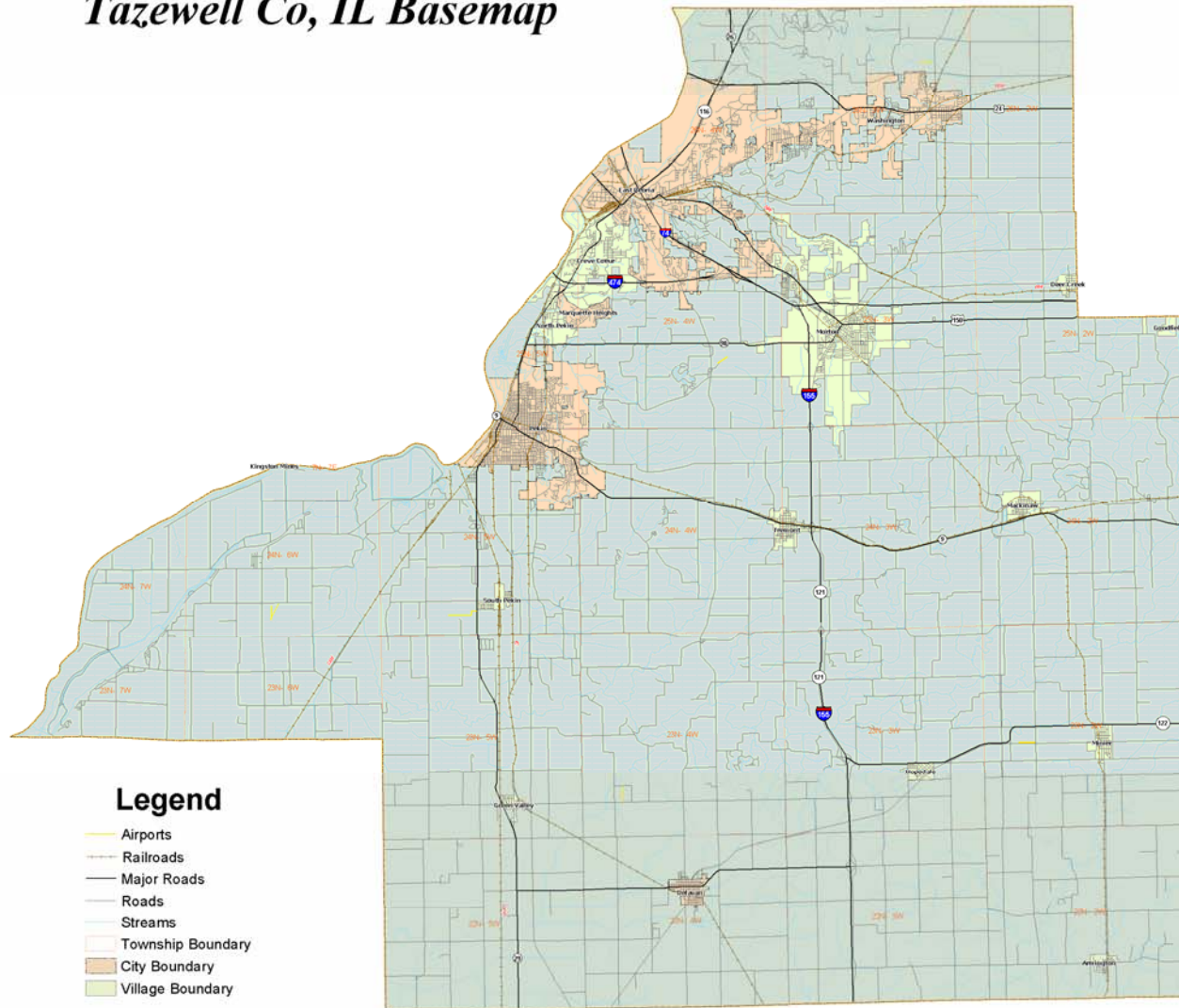
City of Peoria



Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan

Tazewell County

*Tazewell Co, IL Basemap*



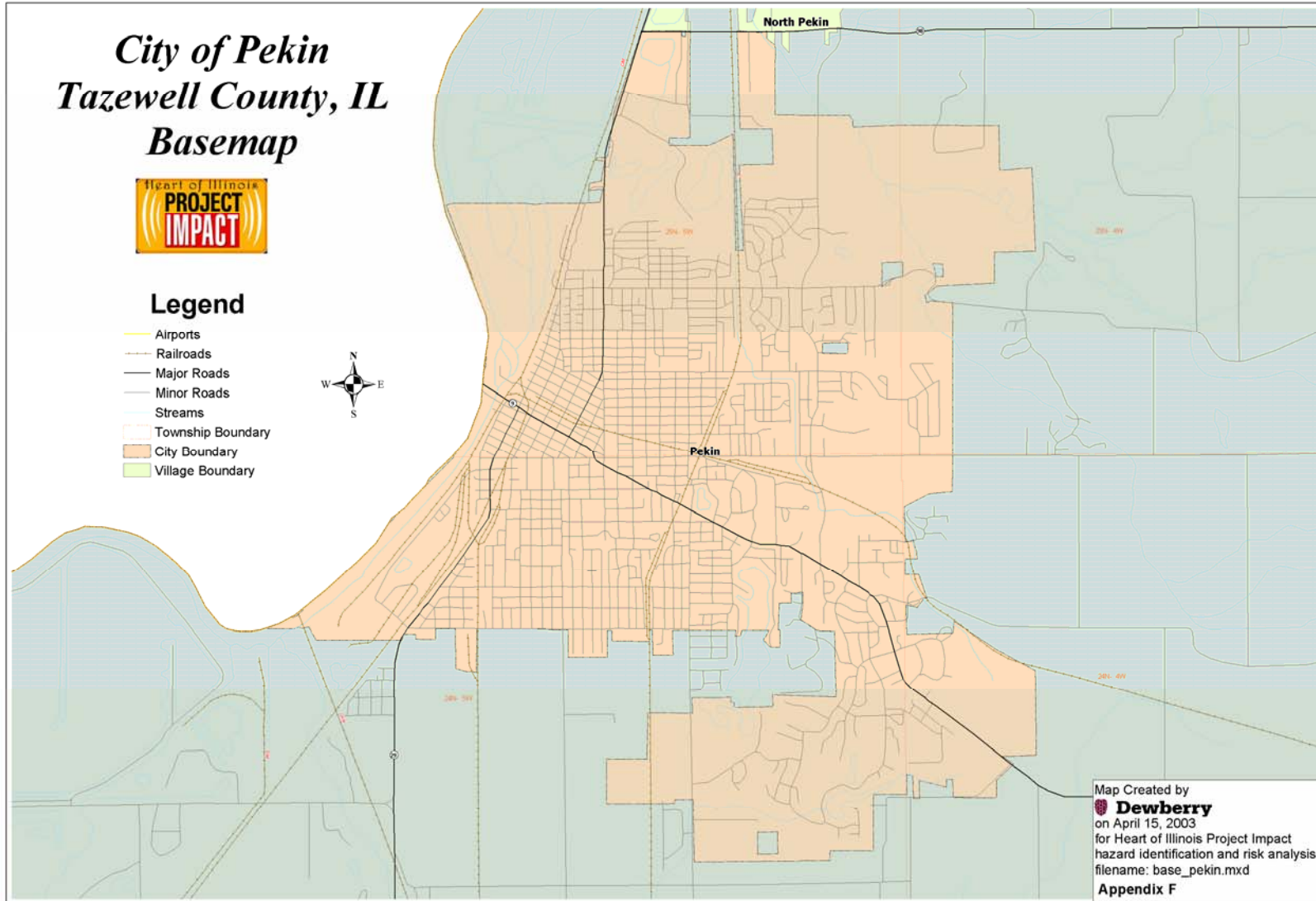
**Legend**

- Airports
- Railroads
- Major Roads
- Roads
- Streams
- Township Boundary
- City Boundary
- Village Boundary



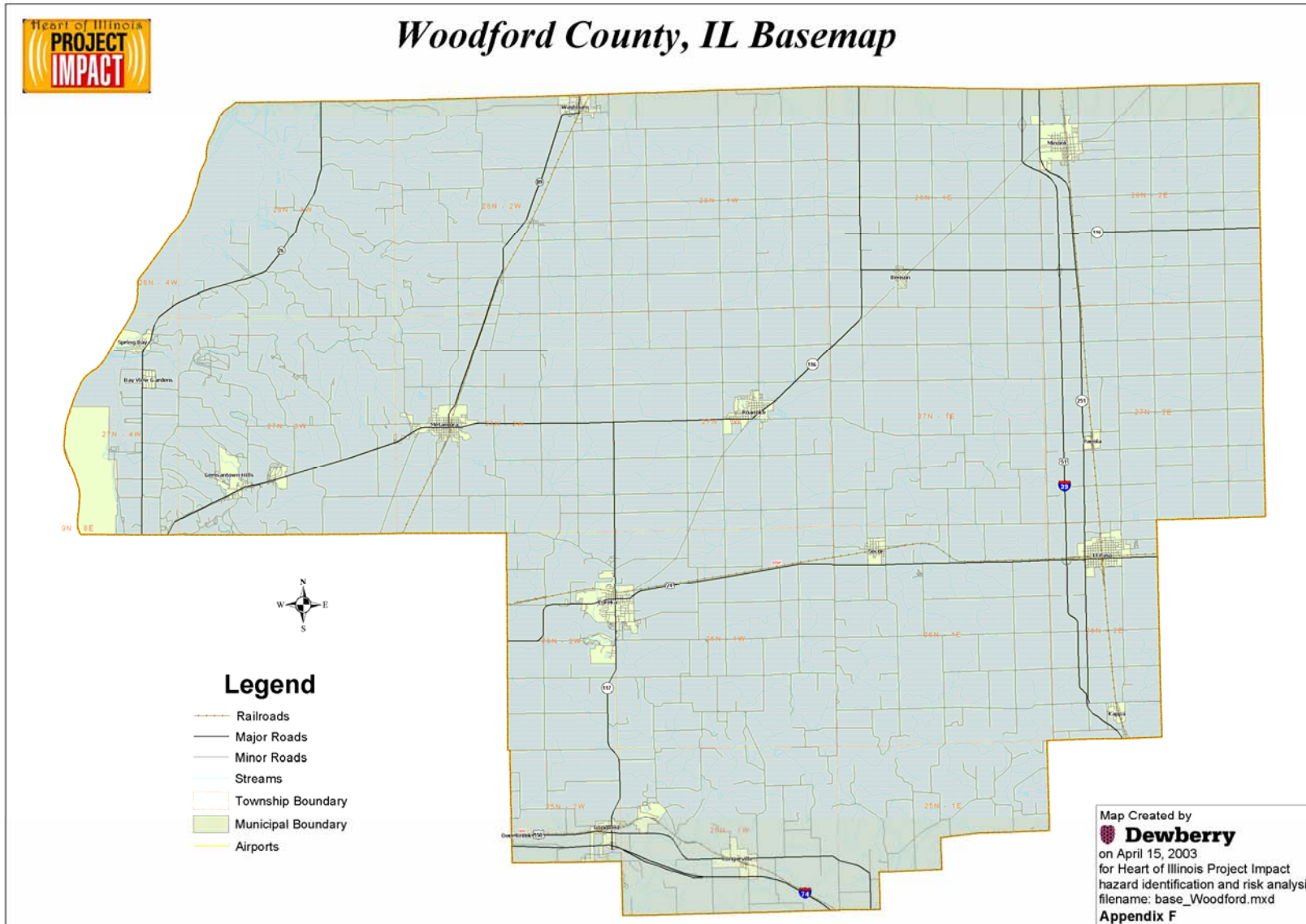
Map Created by  
**Dewberry**  
on April 15, 2003  
for Heart of Illinois Project Impact  
hazard identification and risk analysis  
filename: base\_tazewell.mxd  
**Appendix F**

City of Pekin



Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan

Woodford County



**2004 Flood Maps**

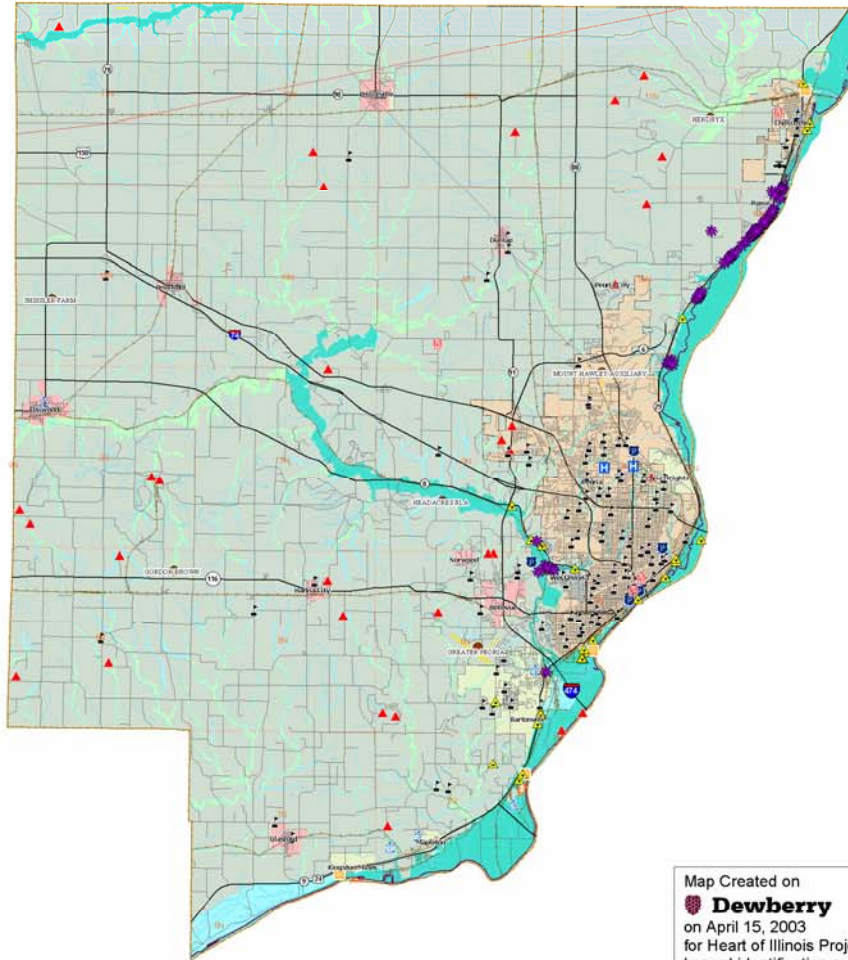


Peoria County

**Q3 Flood Data &  
 HAZUS Critical Facilities**  
 Peoria County, IL

**Legend**

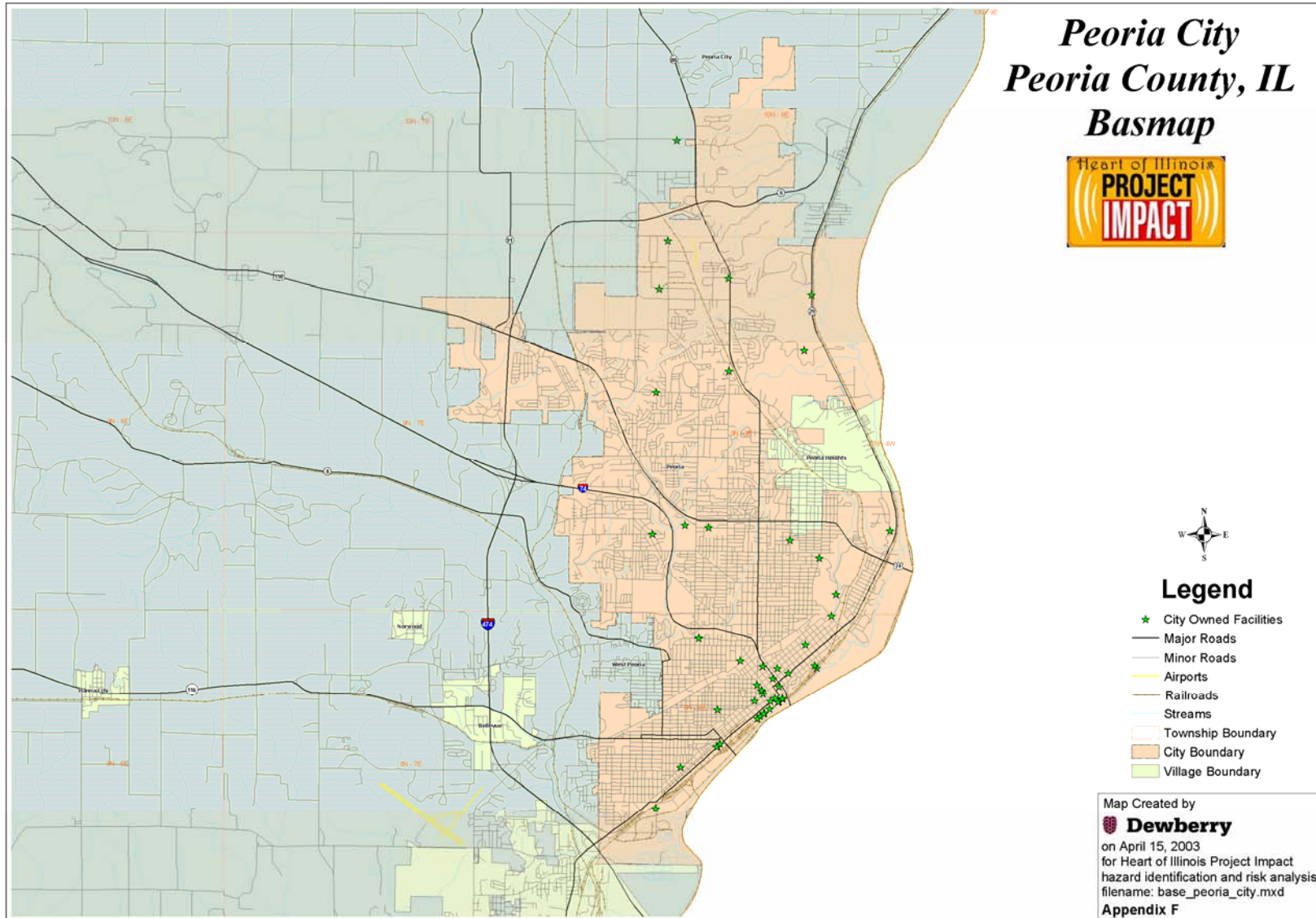
- HAZMAT Site In 100-Year Floodplain
  - Repetitive Loss Properties
  - Fire
  - Police
  - Schools
  - Water and Sewage
  - Oil Facilities - Tank Farm
  - Port - Docking
  - Hospitals
  - Electric Facilities
  - Dams
  - Airports
  - Electric High Voltage Line
  - Railroads
  - Airports
  - Major Roads
  - Minor Roads
  - Stream
  - Shoreline
  - Township Boundary
  - City Boundary
  - Village Boundary
- Q3 Flood Data**
- Floodway
  - Zone A
  - Zone AE
  - Zone AH
  - Zone AO
  - Area Not Included
  - Zone X500



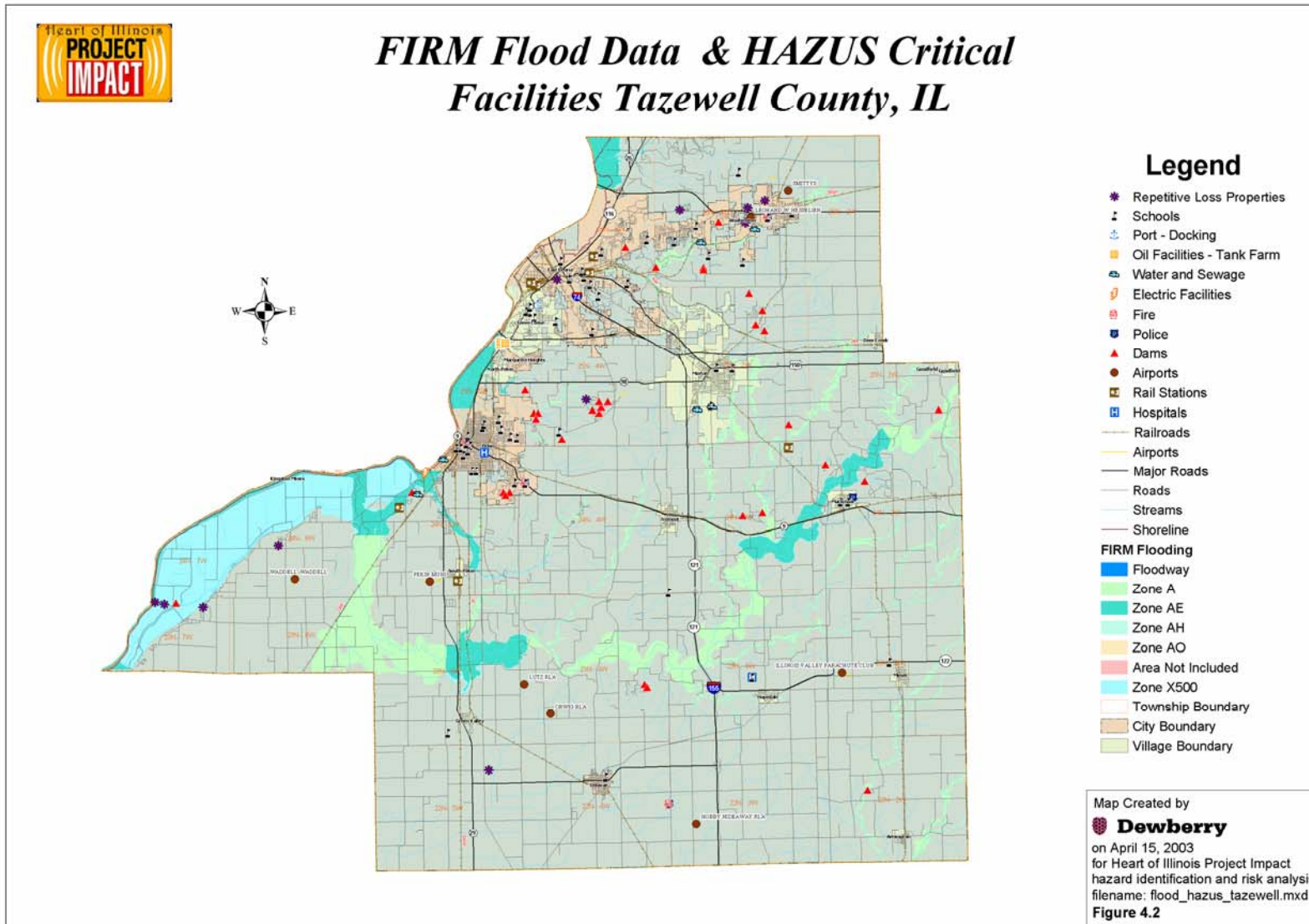
Map Created on  
**Dewberry**  
 on April 15, 2003  
 for Heart of Illinois Project Impact  
 hazard identification and risk analysis  
 filename: flood\_hazus\_peoria.mxd  
**Figure 4.1**

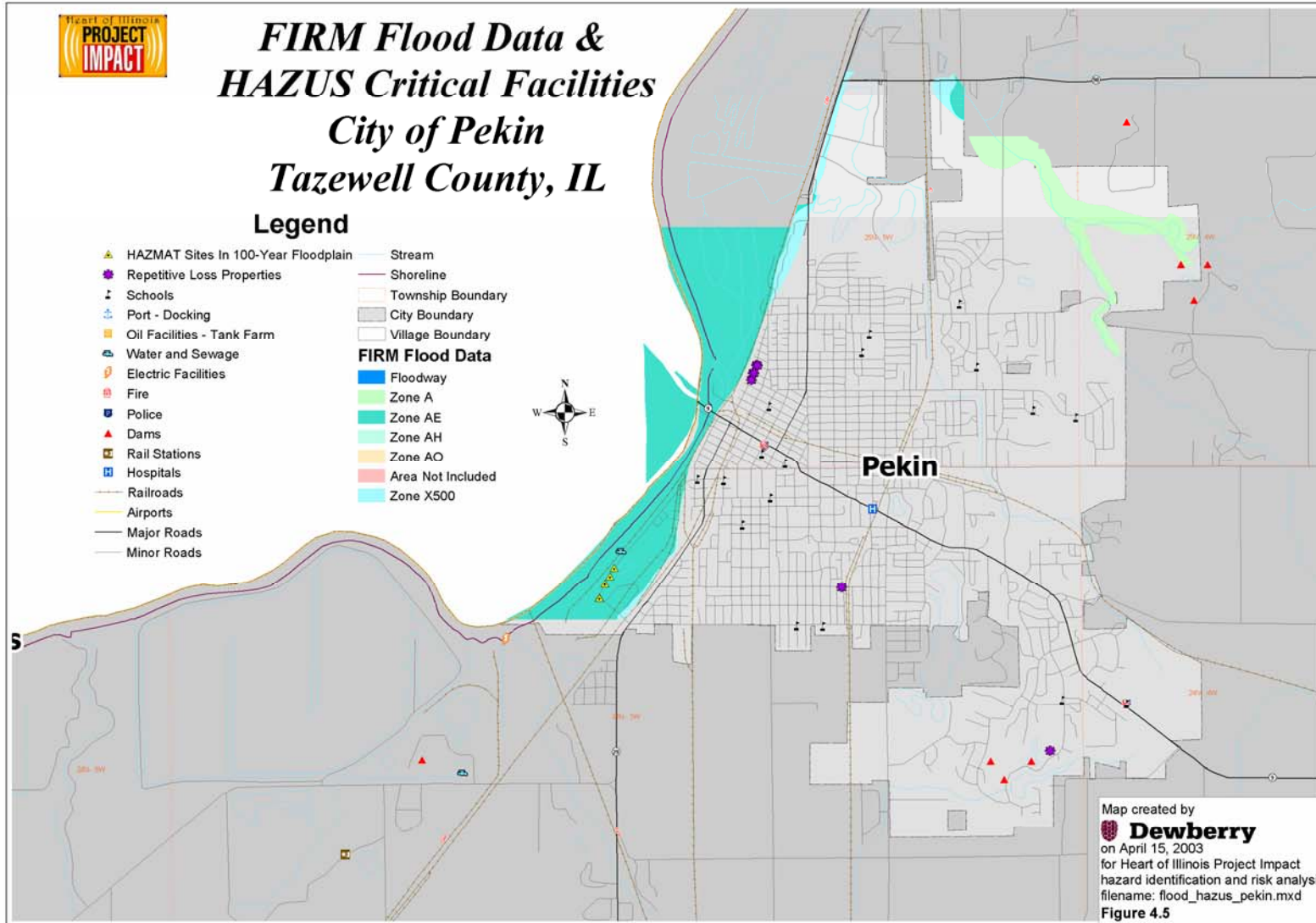
Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan

City of Peoria



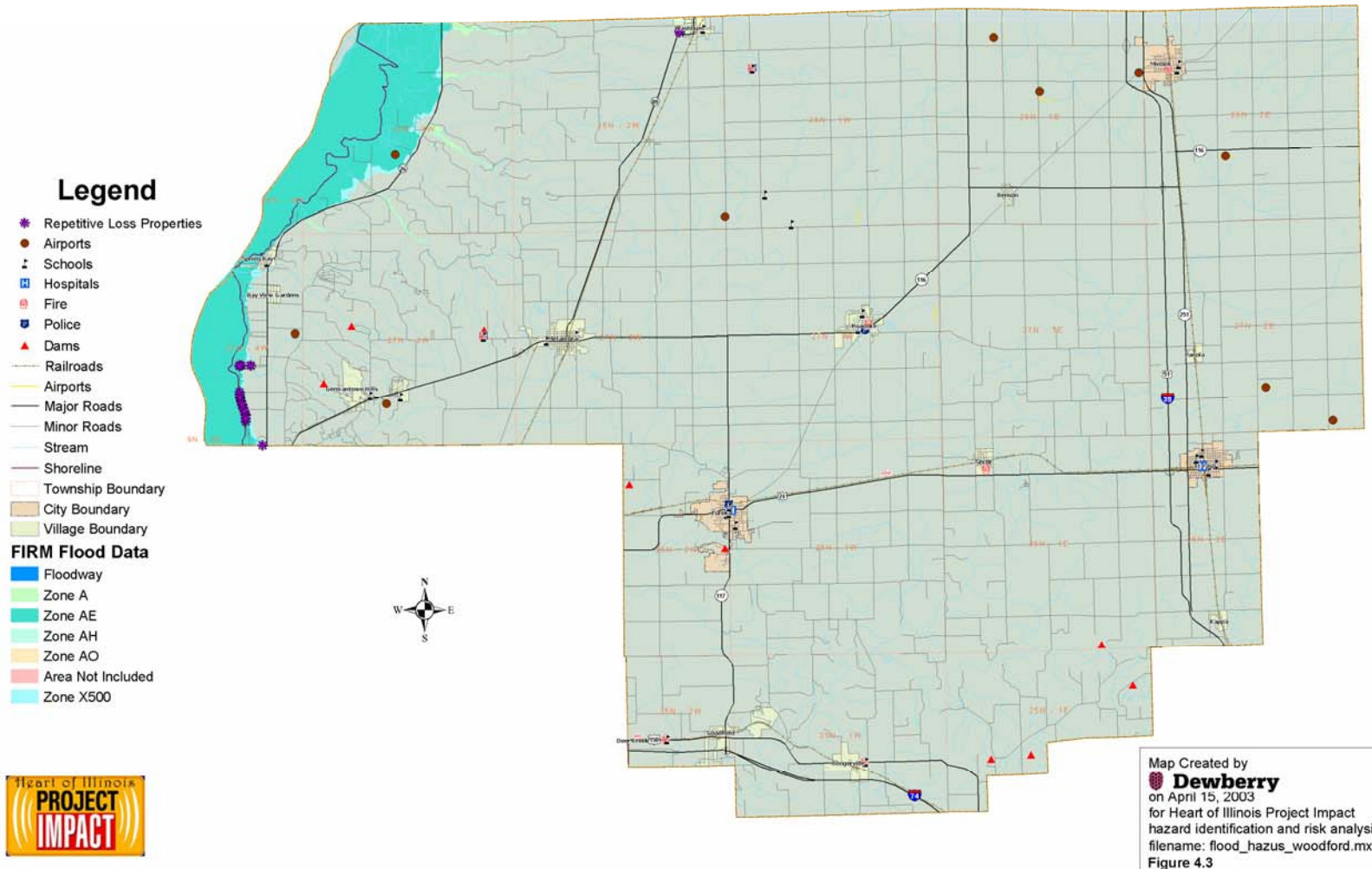
Tazewell County



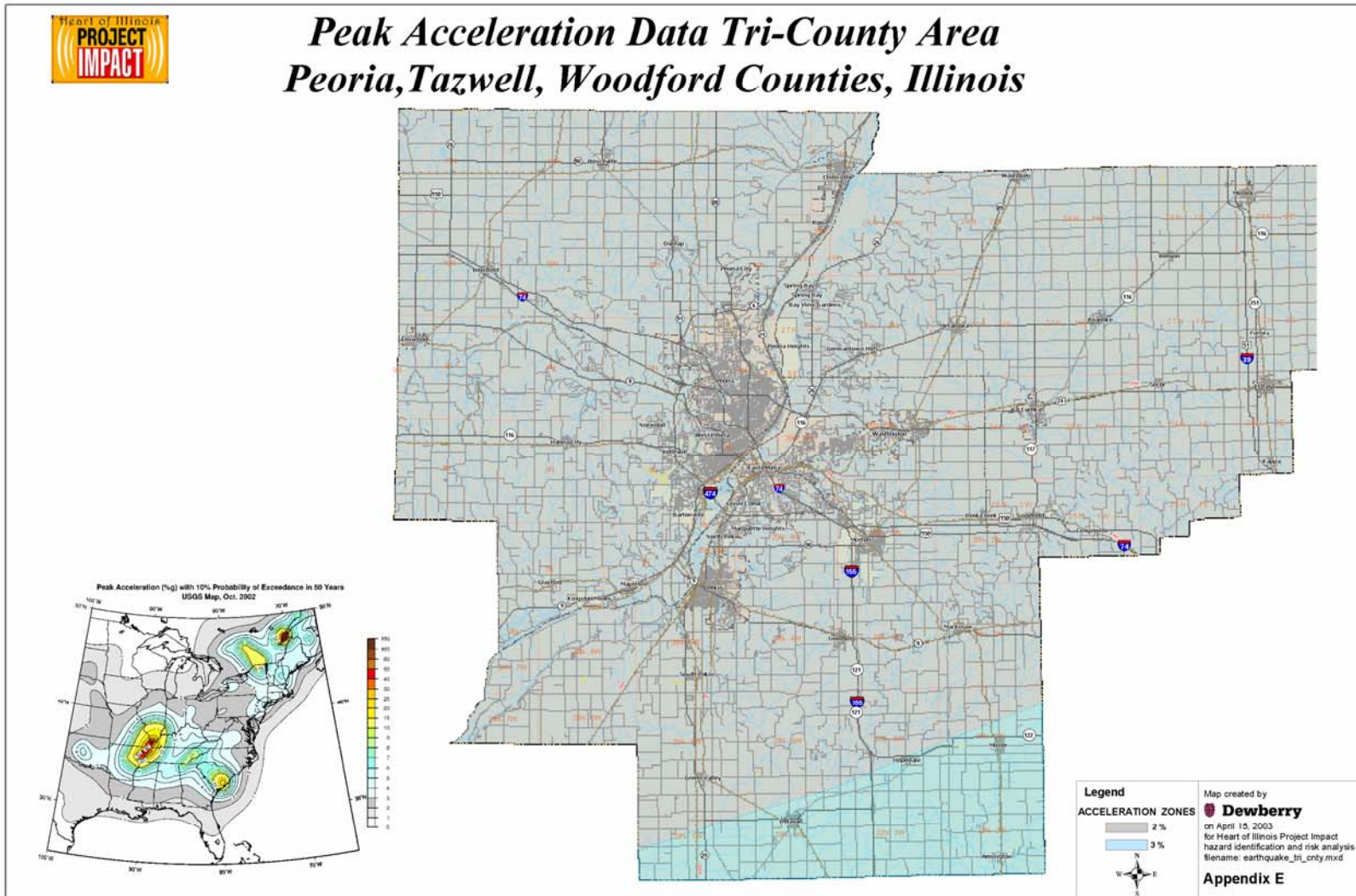


Woodford County

*FIRM Flood Data & HAZUS Critical Facilities Woodford County, IL*



2004 Earthquake Map



**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

**2004 HOIPI Community Surveys**

**HEART OF ILLINOIS PROJECT IMPACT RESIDENT OPINION SURVEY**

- yes  no  no opinion  I agree that my community has a high probability for natural disasters
- yes  no  no opinion  I agree that the most likely natural disaster in my community is flooding
- yes  no  no opinion  I agree that the second most likely natural disaster in my community is tornadoes or severe wind events
- yes  no  no opinion  I agree that the third most likely natural disaster in my community is winter storms
- yes  no  no opinion  I agree that the fourth most likely natural disaster in my community is land subsidence
- yes  no  no opinion  I believe the two most important natural disasters for my neighborhood are \_\_\_\_\_
- \_\_\_\_\_
- yes  no  no opinion  I agree that my county and city have the resources in place to handle the most common natural disasters
- yes  no  no opinion  I agree that my county and city should recommend actions people can take to lessen the impact of these natural disasters
- yes  no  no opinion  My county and city should spend tax dollars or provide grants to residents to make the homes and businesses in my county and city less prone to damage by natural disasters
- yes  no  no opinion  I agree that the public needs more education on how they can improve the disaster resistance of their homes and businesses
- yes  no  no opinion  I agree that distributing NOAA weather radios will help decrease the economic and personal loss in a natural disaster
- yes  no  no opinion  I agree that putting more disaster resistance requirements in building codes will lessen the economic and personal loss in a natural disaster for my community
- yes  no  no opinion  I agree that my community has the right number of policies and regulations to manage natural disasters

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

yes  no  no opinion  I agree that my community needs to update the regulations and policies that manage natural disasters

yes  no  no opinion  I believe the weakest area of regulation for natural disasters in my community is \_\_\_\_\_

yes  no  no opinion  I agree that the older developments in my community are the most vulnerable to natural disasters and agree that someone needs to develop a granting program to upgrade the businesses and homes in those areas

yes  no  no opinion  I agree that my community could easily evacuate to safety if threatened by a natural disaster

yes  no  no opinion  I agree that my community has enough safe shelter that people could find if threatened by a natural disaster

yes  no  no opinion  I agree that the government should leave things as they are and if a natural disaster happens then the community will take care of the cost to rebuild

yes  no  no opinion  I agree that natural disasters happen and people can do very little to lessen their impact

yes  no  no opinion  I agree that my family can live wherever they want and if they choose to live where natural disasters usually happen it's our problem and not the government's responsibility to help us financially

yes  no  no opinion  I agree that my community should create no-build zones where homes or businesses probably will get damaged by natural disasters

yes  no  no opinion  I believe that my community enforces the building and zoning ordinances well

yes  no  no opinion  I believe that natural disasters happen and there's nothing you can do to lessen their economic or personal cost

Other comments:

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**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

Information about the survey taker:

Male

Female

Homeowner

Renter

Business owner

Over 21 yes  no

Live in Peoria County

Tazewell County

Woodford County

Other  \_\_\_\_\_

City of Pekin

City of Peoria

Other  \_\_\_\_\_

Name \_\_\_\_\_

Survey developed for



HEART OF ILLINOIS PROJECT IMPACT

PO BOX 9331 PEORIA IL 61612

C/O Lynn Linder, Development Coordinator

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

**2010 Capability Matrix Questionnaire**

<b>Table VI-1 - CAPABILITY MATRIX - Plans and Ordinances (from 2004 HMP)</b>					
Plan or Ordinance	City of Pekin	City of Peoria	Peoria County	Tazewell County	Woodford County
Comprehensive Land Use Plan	x	x	x	x	
Local Hazard Mitigation Plan		x	x		
Emergency Operations Plan	x	x	x	x	x
Floodplain Management Plan					
Stormwater Management Plan					
Open Space Plan					
Watershed Protection Plan					
Flood Damage Prevention Ordinance	x	x	x	x	x
Subdivision Ordinance	x	x	x	x	x
Building Code	x	x			
Land Use Regulation		x	x*	x	
Zoning Ordinance	x	x	x	x	x
Stormwater Ordinance					

\* Governed by zoning ordinance

Name, Contact Information & Locality: \_\_\_\_\_

1. Any local plan or ordinance changes to the 2004 Capability Matrix?

2. Additional plans or ordinances that should be added to the Matrix?

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

**2010 Areas of Development Questionnaire**

*The following basemaps have been extracted from the 2004 Tri-County Hazard Mitigation Plan.*

*Please highlight/circle areas in your community that have experienced or are projected to experience growth and development.*

*If your locality has related mapping or text describing these areas it would be beneficial to the 2010 revision to have this information included. This information can be provided to:*

*Rachael Herman*

*[rherman@dewberry.com](mailto:rherman@dewberry.com)*

*716-949-6327 (mobile)*

*585-429-7448 (office)*

[BASE MAPS WERE ATTACHED HERE]

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**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

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**2010 Meeting Agendas & Minutes**

# AGENDA

## HAZARD MITIGATION PLAN PRELIMINARY PLANNING MEETING

10:00 AM  
JUNE 12, 2009

- Introductions
- Purpose of the Plan
- Finalize communities included in plan
- Finalize Match Requirements
- Mitigation Advisory Committee
  - Members
  - Meeting Dates/Times
- Other

Cleighton Smith of PSA Dewberry will be available via telephone at 609-610-4452 (cell).

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**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

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**TRI-COUNTY HAZARD MITIGATION PLAN**

**NOTES FROM JUNE 12, 2009 PRE-PLANNING MEETING**

**IN ATTENDANCE:**

- Maggie Martino, TCRPC
  - Matt Wahl, Peoria County Zoning
  - Andrew Braun, Peoria County Zoning
  - Dwain Deppolder, City of Peoria EMA Director
  - Vickie Turner, Peoria County EMA Director
  - Dawn Cook, Tazewell County EMA Director
  - Bob Hix, Woodford County EMA Director
1. Introductions
    - a. Everybody was introduced
  2. Purpose of the Plan
    - a. General discussion of why the plan is needed, how much it will cost, who will do it, etc. to get everybody up to speed.
    - b. TCRPC will handle project coordination, meeting notes, FEMA reporting requirements, etc.
    - c. PSADewberry will be hired to write the plan. Maggie handed out copies of PSADewberry's budget.
    - d. The Plan is due in December 2010; we will want it finished by late summer 2010 to give participating jurisdictions time to adopt it.
  3. Finalize Communities Included in Plan
    - a. Andrew Braun stated that he sent out letters in late December 2007/early January 2008 to determine which communities were interested in participating. The cost estimate from Dewberry and the grant application included only those jurisdictions who responded in the affirmative.
    - b. The group decided to contact all communities again. Andrew will work with Maggie, who will send out letters.
    - c. Maggie will contact Cleighton Smith and PSADewberry to find out how much their fee will increase if we add municipalities.
  4. Finalize Match Requirements
    - a. This cannot be done until we know exactly which jurisdictions will participate in the plan.
    - b. The match will be required to be given to TCRPC by July 1, 2010.
  5. Mitigation Advisory Committee
    - a. There is no requirement that we have private partners on the MAC; therefore, we will not invite them to participate.
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**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

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- b. Before the MAC is formed, a Preliminary Interest Meeting will be held on Monday, July 13, 2009 at 9:30am in the offices of TCRPC. Staff from municipalities will be invited to find out more about the program so they can determine if they want to participate.
  - c. This Hazard Mitigation planning effort will be presented to the Illinois River Valley Council of Governments on Monday, July 13, 2009. Planning team members are encouraged to attend.
  - d. Matt Wahl will attend city council meetings as necessary to explain the program and the need for cash match.
  - e. Maggie will develop a handout for public officials. She would like examples of specific benefits to counties or municipalities.
6. Other
- a. We will need to coordinate this plan with Community Rating System (CRS) process.

DRAFT

# NATURAL HAZARD MITIGATION PLAN

## INFORMATIONAL MEETING

Monday, July 13, 2009  
Tri-County Regional Planning Commission

- |      |   |              |
|------|---|--------------|
| I.   | Welcome and Introductions                       | Andrew Braun |
| II.  | Purpose of Natural Hazard Mitigation Plan       | Ron Davis    |
| III. | Responsibilities of Participating Jurisdictions |              |
|      | a. Match (handout)                              | Andrew Braun |
|      | b. Mitigation Advisory Committee                | Ron or Matt  |
| IV.  | Questions and Answers                           | All          |
| V.   | Other   |              |
|      | a. Meeting Times                                |              |
|      | b. Meeting Locations                            |              |
|      | c. Hazus Analysis ?                             | Greg Sachau  |



**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

## Meeting Agenda

<b>Subject:</b>	<i>Tri-County Regional Commission Hazard Mitigation Plan Update</i>	<b>Date &amp; Time:</b>	Thursday August 13, 2009 9:30 am – 12:00 pm
<b>Location:</b>			
<b>Purpose:</b>	<i>Tri-County Regional Commission Hazard Mitigation Revision Kick-Off Meeting</i>		
<b>Attendees:</b>	Hazard Mitigation Team Members FEMA (if invited) Illinois Office of Emergency Management (if invited) Illinois NFIP Coordinator (if invited – Paul Osman) Dewberry		
Description		Lead	Est. Time
1	Call to Order / Complete Sign-in-Roster	Maggie Martino	9:30
2	Welcome and Introductions	Maggie Martino/Deborah Mills	9:35 – 10:00
3	Overview of Plan Update Process <ul style="list-style-type: none"> <li>• Mitigation vs. Other Phases of Emergency Management</li> <li>• Plan Update Requirements</li> <li>• Identified Weaknesses of Existing Plan</li> <li>• Planning Process</li> <li>• Public/Stakeholder Participation</li> <li>• Documentation of Process and Participation</li> <li>• Approval Process</li> <li>• General Questions/Discussions</li> </ul>	Deborah Mills	10:00 – 10:30
4	Dewberry's Role	Deborah Mills	10:30 – 10:35
5	BREAK		10:35 – 10:45

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

6	<p>Role of SHMT Members /Stakeholders Discussion</p> <ul style="list-style-type: none"> <li>• Consensus on who to involve and at what points</li> <li>• How much if any public involvement</li> <li>• Surveys, media and other potential outlets</li> </ul>	Maggie Martino, Deborah Mills and Steering Committee	10:45 – 11:00
7	<p>Working Together</p> <ul style="list-style-type: none"> <li>• Introduction of Project Share Site</li> <li>• Report of Data Collected</li> <li>• Discuss Data Needs</li> <li>• Capability Assessment Questionnaire will be developed for local input via Share Point site or email</li> </ul>	Rachael Heltz Herman	11:00– 11:20
8	<p>Hazard Selection</p> <ul style="list-style-type: none"> <li>• Assure Comprehensive Natural Hazard Analysis consistent with State Hazards</li> <li>• Review Method for Risk Assessment for Obvious Hazards (i.e. those known to be included before meeting)</li> </ul>	Rachael Heltz Herman / All	11:20 - 11:45
9	Project Schedule - Milestones	Deborah Mills	11:45 – 11:50
13	<p>Wrap Up and Future Meetings</p> <ul style="list-style-type: none"> <li>• Individual meetings with each jurisdiction</li> <li>• Next Steering Committee Meeting</li> <li>• Overview of Action Items</li> </ul>	Deborah Mills Rachael Heltz Herman Maggie Martino	11:50 – 12:00

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

**Tri-County Regional Commission Hazard Mitigation Plan Revision Kick-Off**

Meeting Minutes

**Location:** Tri-County Regional Planning Commission Office

**Date:** August 13, 2009

**Time:** 9:30am – 12:00pm

**Call to Order**

Name	Organization	Email
Maggie Martino	Planning Program Manager for TCRPC	mmartino@tricityrpc.org
Greg Sachau	GIS Manager for TCRPC	gsachau@tricityrpc.org
Jim Webb	Planner for TCRPC	
Jared Owens	IEMA Hazard Mitigation Planner	jared.owen@illinois.gov
Matt Wahl	Peoria County Planning & Zoning	mwahl@co.peoria.il.us
Dwain Deppolder	City of Peoria EMA	ddeppolder@ci.peoria.il.us
Vicky Turner	Peoria County - EMA	vturner@mtco.com
Deborah Mills	Dewberry	dmills@dewberry.com
Rachael Herman	Dewberry	rherman@dewberry.com

**Welcome and Introductions**

Maggie Martino welcomed everyone to the first meeting for the Tri-County hazard mitigation 2009/2010 plan revision. Each participant introduced themselves and spoke briefly about their role in the 2004 hazard mitigation plan and what they will be able to assist with in the current revision.

Maggie also stated that Tazewell County and Woodford County both have committed to being a part of the plan update and that the City of Pekin recently expressed a concern about not wanting to participate in the planning process. Maggie will follow up with the localities about this plan and future meetings. Deborah Mills (Dewberry) offered to host a web-based meeting in the coming weeks to ensure participation of all the localities. Dewberry will work with TCRPC to arrange this.

Jared Owen (IEMA) will act as the State resource for State and FEMA regulations and approval of this revision. IEMA stressed the importance of accountability of the plan. They want to see

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**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

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evaluation of the old plan (i.e. what worked, what didn't, why, successes...) and the ability to make these mitigation plans and actions sustainable.

Dewberry will be setting up a SharePoint site that will be used to provide the steering committee and Dewberry with an open line for communications for sharing information (reports, data, comments, etc.) related to this project. Information about this will be emailed to the committee members in the coming weeks.

### **Overview of Plan Update Process**

There are several major components to updating the hazard mitigation plan. Deborah went through each of the items in terms of how they pertain to the Tri-County plan update.

Jared mentioned that the plan is adopted by the localities after they have received a conditional approval from the state and FEMA. He will be able to provide an adoption template that has been approved by IEMA and FEMA.

### **Roles of Dewberry & SHMT Members /Stakeholders**

Dewberry has been contracted by the TCRPC to help facilitate and revise the 2004 hazard mitigation plan. They will be responsible for creating the document and assuring that state and federal regulations are met.

Steering committee members are essential to the success and sustainability of this plan. They will be relied on for the “ground-truthing” of the analysis and feasibility of the mitigation strategies.

### **Hazard Identification and Risk Assessment (HIRA)**

Rachael Herman (Dewberry) walked the committee through the natural hazards covered in the 2004 plan and compared them to the 2007 Illinois State plan. Jared mentioned that he will be able to provide data (i.e. NCDC database, tornado probabilities, repetitive loss properties) that was used in the state plan. This data will need to be supplemented with events that have happened since 2007.

One of the main focuses for this update will be aligning the local hazard analysis with the state HIRA. As part of the TCRPC project match, TCRPC GIS staff will be working with Dewberry to complete the data collection and hazard analysis (HAZUS-MH runs).

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Cities with populations <500,000 were not included as separate entities in the state plan. For the local plan the cities of Peoria and Pekin will be analyzed separately from the county they reside in. The cities will have/continue to have their own mitigation actions.

The meeting PowerPoint presentation illustrates comparisons with the state plan and hazard graphics. This is available for download at: <https://projects.dewberry.com/tricounty>

\*You will be receiving a username and password to access this.

### **Project Schedule**

Risk Assessment: August 2009 – December 2009

Hazard Mitigation Strategy: December 2009 – February 2010

Plan Maintenance: February 2010

Develop Plan Document: November 2009 – February 2010

Plan Reviews & Revisions: February 2010 – June 2010

Adoption & Final Plan Submittal: May 2010 – August 2010

### **Wrap Up and Future Meetings**

- September 2010: web-based make-up meeting for localities/representatives not currently present. Date will be announced once Maggie is able to contact the localities to determine if they want to participate in the plan.
- January 2010: present revised HIRA and begin Goal & Strategy revision
- March: local visits and refine local strategies
- May: final plan meeting and public outreach

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

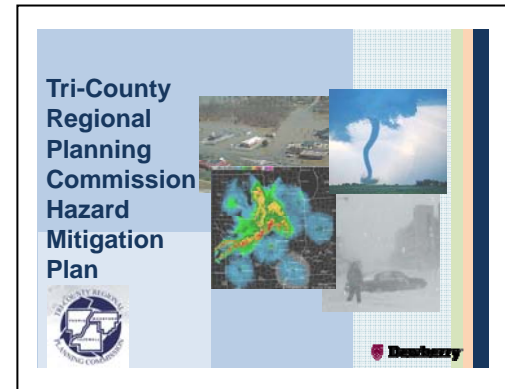
## Meeting Agenda

**Subject:** *Tri-County Regional Hazard Mitigation Plan Update*      **Date & Time:** *Monday September 28, 2009  
3pm – 4pm*

**Location:** *Offices of Tri-County Regional Planning Commission*

**Purpose:** *Mitigation Advisory Committee (MAC)  
Kick-Off Meeting*

**Attendees:** *Mitigation Advisory Committee Members  
Dewberry Consultants*



### Description

#### Overview of Plan Update Process

- Mitigation vs. Other Phases of Emergency Management
- Plan Update Requirements
- Identified Weaknesses of Existing Plan
- Planning Process
- Public/Stakeholder Participation
- Documentation of Process and Participation
- Approval Process
- General Questions/Discussions

#### Role of Mitigation Advisory Committee (MAC)/ Stakeholders Discussion

- Consensus on who to involve and at what points
- How much if any public involvement
- Surveys, media and other potential outlets

#### Working Together

- Introduction of Project Share Site
- Report of Data Collected
- Discuss Data Needs
- Capability Assessment Questionnaire will be developed for local input via Share Point site or email

#### Hazard Selection

- Assure Comprehensive Natural Hazard Analysis consistent with State Hazards
- Review Method for Risk Assessment for Obvious Hazards (i.e. those known to be included before meeting)

#### Project Schedule – Milestones

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

Wrap Up and Future Meetings

- Individual meetings with each jurisdiction
- Next Steering Committee Meeting
- Overview of Action Items

# AGENDA

## HAZARD MITIGATION PLAN COMMITTEE

Monday, February 8, 2010

1:30pm

Tri-County Regional Planning Commission

- I. Welcome and Introductions
- II. Report on Accomplishments since 2004
  - a. Please review the following documents before the meeting:  
2004\_Mitigation\_Actions  
3\_Draft\_Goals\_and-Objectives\_01-07-04
- III. Review Capability Assessment
  - a. Please review Capability\_Matrix\_ReviewQuestions.pdf
  - b. Also review the following pages of the 2004 Plan:  
City of Pekin pages VI-4 through VI-14  
City of Peoria pages VI-14 through VI-25  
Peoria County pages VI-25 through VI-40  
Tazewell County pages VI-40 through VI-50  
Woodford County pages VI-50 through VI-60
- IV. Update Basemaps to include Areas of Future Development
  - a. Review BaseMaps\_AreasofFutureDevelopment
- V. Other
- VI. Adjournment

**ALTHOUGH THE MEETING WILL BE FOCUSED ON THE JURISDICTIONS INCLUDED IN THE 2004 PROJECT IMPACT PLAN, IT IS IMPERATIVE THAT ALL JURISDICTIONS ATTEND AS EACH WILL BE DEVELOPING SIMILAR DOCUMENTS FOR THE 2010 PLAN.**



## Meeting Minutes

# HAZARD MITIGATION PLAN COMMITTEE

Monday, February 8, 2010

1:30pm – 3:15 pm

Tri-County Regional Planning Commission

### Those in attendance:

Maggie Martino – TCRPC

Jim Webb – TCRPC

Andrew Braun - Peoria County

Vicky Turner – Peoria County EMA

Dwain Deppolder – City of Peoria EMA

Dawn Cook – Tazewell County EMA

Mike Vaugh – City of Washington

Matt Fick – City of Peoria Heights

John Myers – City of Chillicothe

Rachel Herman – Dewberry (phone)

1.) The committee reviewed the draft goals and objectives from the 2004 plan.

Changes were made which included:

- a. Adding “natural” before hazards for goal 1
- b. Combining goals 1 and 2 for simplicity
- c. Changing city to local in goal 3
- d. Combining goals 5 and 6 for simplicity

2.) The committee then went through the mitigation actions from the 2004 plan

- a. Action one was completed
- b. Action two was completed
- c. Action three has not been completed and its purpose was questioned
- d. Action four was not done and was deemed not worthwhile
- e. Action five was completed by Peoria and Tazewell Counties
- f. Action six was completed by Peoria County
- g. Action seven was not completed
- h. Action eight was not completed but needs to be
- i. Action nine was completed in part through action item six
- j. Action item ten was not completed
- k. Action item eleven was partially completed

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

**Next Steps:**

- 1.) Individuals need to log into the Dewberry SharePoint site to access documents
- 2.) If any individual has GIS data with locations of their critical facilities please forward this to Rachel
- 3.) When the community summaries are available on the SharePoint site please review for accuracy

----- Compiled by Jim Webb

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

**TRI-COUNTY REGIONAL PLANNING COMMISSION  
UPDATE TO THE 2004 LOCAL HAZARD MITIGATION PLAN  
PRESENTATION OF HAZARD IDENTIFICATION & RISK ASSESSMENT**

Tri-County Regional Planning Commission  
211 Fulton Street, Suite 207  
Peoria, IL 61602



**April 6, 2010  
10am – 12pm**

Meeting Agenda

Welcome and Introductions	Maggie Martino & Jim Webb TCRPC
Overview of Hazard Identification and Risk Assessment Results	Rachael Heltz Herman
Hazard Ranking and Data Availability	Dewberry
Vulnerability of Infrastructure and Population	
Land Use & Development	
HAZUS-MH	Matt Junker & Greg Sachau
Flood	TCRPC
Earthquake	
Hazard Identification and Risk Assessment Results	Rachael Heltz Herman
Hazard Specific Results	Dewberry
• Flood	
• Wind	
• Rotational [Tornado]	
• Non-Rotational	
• Land/Mine Subsidence	
• Winter Storms	
• Landslide	

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**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

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- Wildfire
- Drought and Extreme Heat
- Earthquake

Overall Hazard Rankings

Using HIRA Results to Develop Mitigation Strategies

Rachael Heltz Herman

2004 Goals and Strategies

Dewberry

Jurisdictional Meetings for Projects/Actions

Discuss responsibilities, timeline, and future meetings/conference calls.

IEMA Expectations

Jared Owen (if available)

Mitigation Actions & Strategies

IEMA

Plan Maintenance

Next Steps...

- Jurisdictional Meetings
- Review of Draft Plan
- Plan Submittal & Adoption
- Final Submission to IEMA & FEMA

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

<b>JURISDICTIONAL MEETINGS:</b> <i>Discussion of specific mitigation projects</i>		
<p><b>4/6/2010</b> <b>12:00 – 2:00 pm</b></p>	<p><b>PEORIA COUNTY</b></p> <ul style="list-style-type: none"> <li>* Community Profiles</li> <li>* Jurisdictional Specific Mitigation Projects/Actions</li> <li>* Capability Assessments</li> <li>* Plan Maintenance: Point of Contact</li> <li>* Plan Adoption</li> </ul> <p><b>Location:</b> TCRPC</p>	<p><u>Jurisdictions Included:</u> Peoria County City of Peoria Village of Peoria Heights City of Chillicothe</p>
<p><b>4/7/2010</b> <b>9:30 -11:30 am</b></p>	<p><b>TAZEWELL COUNTY</b></p> <ul style="list-style-type: none"> <li>* Community Profiles</li> <li>* Jurisdictional Specific Mitigation Projects/Actions</li> <li>* Capability Assessments</li> <li>* Plan Maintenance: Point of Contact</li> <li>* Plan Adoption</li> </ul> <p><b>Location:</b> TCRPC</p>	<p><u>Jurisdictions Included:</u> Tazewell County City of East Peoria City of Washington City of Pekin</p>
<p><b>4/7/2010</b> <b>1:30 -3:30 pm</b></p>	<p><b>WOODFORD COUNTY</b></p> <ul style="list-style-type: none"> <li>* Community Profiles</li> <li>* Jurisdictional Specific Mitigation Projects/Actions</li> <li>* Capability Assessments</li> <li>* Plan Maintenance: Point of Contact</li> <li>* Plan Adoption</li> </ul> <p><b>Location:</b> Roanoke EOC</p>	<p><u>Jurisdictions Included:</u> Woodford County Village of Roanoke</p>

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

**TRI-COUNTY REGIONAL PLANNING COMMISSION  
UPDATE TO THE 2004 LOCAL HAZARD MITIGATION PLAN  
PRESENTATION OF HAZARD IDENTIFICATION & RISK ASSESSMENT**

Tri-County Regional Planning Commission  
211 Fulton Street, Suite 207  
Peoria, IL 61602



**April 6, 2010  
10am – 12:15pm**

**Meeting Minutes**

**Attendance:**

Maggie Martino (TCRPC)  
Jim Webb (TCRPC)  
Matt Junker (TCRPC)  
Greg Sachau (TCRPC)  
John Hamann (Woodford County, Zoning)  
John Myers (City of Chillicothe)  
Jon Oliphant (City of Washington)  
Robert L. Isaia (Village of Roanoke)  
Bob Hix (Woodford County, EMA)  
Jon Hodel (Woodford County, Highway)  
Dwain S. Deppolder (City of Peoria, OEM)  
Dawn Cook (Tazewell County, EMA)  
Andrew Braun (Peoria County, Planning & Zoning)  
Matt Wahl (Peoria County, PAZ)  
Vicky Turner (Peoria County, EMA)  
Jared Owen (IEMA)

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**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

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Ron Davis (IEMA)

Rachael Heltz Herman (Dewberry)

### **Hand-Outs:**

Agenda2004 Prioritized Actions & February 2010 steering committee review

Capability Assessment Matrix

### **Welcome and Introductions**

Maggie Martino from TCRPC provided a brief background of the update to the Tri-County Hazard Mitigation Plan and welcomed back the steering committee members.

Hazard Identification and Risk Assessment (HIRA): Overview & Results

*The PowerPoint presentation is available on the Tri-County SharePoint site. Refer to this for specifics on hazard analysis and ranking.*

Rachael Herman from Dewberry provided an overview of what was completed for the update of the HIRA portion of the plan. Several new jurisdictions have been added since the plan was completed in 2004. These jurisdictions were encouraged to review the community profiles and capability assessments (meeting hand-out) posted on the Tri-County SharePoint site to ensure accuracy.

The table on Page 3 shows the ranking results presented and the comparisons to the 2004 Tri-County plan and 2007 Illinois State Plan ranking. The committee agreed with the consolidation of hazard types and relative ranking of the hazards. Discussions ensued about mitigating hazards and types of funding available. Jared Owen with IEMA was able to provide clarification.

TCRPC HAZUS-MH results were discussed in depth and the limitations of using the annualized loss values. IEMA indicated that the loss values, although required by the FEMA cross-walk, should only be an indicator to determine where to focus mitigation actions and the committee shouldn't get bogged down with the actual numbers provided by HAZUS.

NCDC data was used to provide general annualized loss assumptions for the remaining hazards. Critical facility and Infrastructure loss was updated in the plan, where applicable and/or significant changes have occurred since the last plan updated.

The committee was encouraged to review and comment on the plan once it is posted to the SharePoint site. This link will be provided to committee members in the upcoming weeks.

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

**Using HIRA Results to Develop Mitigation Strategies & IEMA Expectations**

After the HIRA results were presented the committee began the initial discussions of what mitigation projects would reduce risk in the future. The committee reviewed the 2004 HMP goals and objectives to make sure they liked the language. The STAPLE/E (Social, Technical, Administrative, Political, Legal, Economic, and Environment) criteria for ranking the projects was discussed and will be used, in some variation, to rank projects for the 2010 update. Proposed projects will be solidified at the jurisdictional meetings.

2010 Hazard Categorization	TRCPC 2010 Update	State of Illinois HMP 2007	2004 Hazard Type	HOI Project Impact 2004
Flood	High	Primary Hazard	Flood - Flash	Medium-High
			Flood - Riverine	High
Severe Storms & TORNADOS	High	Primary Hazard	Severe Thunderstorm	Medium-High
			Wind Event - Microburst/Straight-line	High
			Tornado - All Other Categories	Medium-High
			Tornado (F0)	High
			Tornado (F1)	High
			Tornado (F2)	Medium-High
Winter Storms	High	Primary Hazard	Winter Storms	Medium-High
Land/Mine Subsidence	Medium-High	Low Probability and/or Minor Impact	Land/Mine Subsidence	Medium-High
Landslide	Medium	Low Probability and/or Minor Impact	Landslide	Medium
Drought	Medium	Primary Hazard	Drought	Medium



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2010 Hazard Categorization	TRCPC 2010 Update	State of Illinois HMP 2007	2004 Hazard Type	HOI Project Impact 2004
Extreme Heat	Medium	Primary Hazard	Extreme Heat	Medium
Wildfire	Medium	Low Probability and/or Minor Impact	Wildfire	Medium
Earthquake	Medium	Primary Hazard	Earthquake	Medium

**Next Steps & Timeline**

Jurisdictional Meetings have been scheduled to take place over the next two days to review local information and develop specific mitigation projects for each of the participating communities.

The table below outlines the remaining milestones left until the completion of the plan update. The draft plan will be submitted to IEMA in July for their conditional approval. TCRPC will then work with the localities to ensure that each of the participating localities to adopt the plan.

Peoria County (Matt Wahl & Andrew Braun) has volunteered to head the Mitigation Advisory Committee (MAC). This will include facilitating committee meetings, compiling the annual reports, and helping to secure funds for updating the plan. Peoria County will draw on other departments and municipalities for assistance in monitoring the plans implementation and for updating the plan. The committee will meet twice per year with their jurisdictions and once per year with the MAC to monitor the plans implementation. Additional information on this will be available for review of the Plan Maintenance and Plan Update Sections of the report.

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

<b>Planning Steps</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>August</b>
Planning Process						
Risk Assessment	HAZUS Runs Completed (3/25/2010)	<b>HIRA Presentation (4/6/2010)</b>				
Hazard Mitigation Strategy		<b>Meet with Localities</b> [Community Profiles, Capability Assessment & Actions]	Action/Implementation Ranking <i>via SharePoint</i>			
Plan Maintenance						
Develop Plan Document	Maggie will provide background text for Project Impact Dissolution & Tri-County Management for 2010 HMP Update					
Plan Review & Revisions				Review & Comments by committee <i>via SharePoint</i>		
Submit Plan to IEMA & FEMA						
Adoption & Final Plan Submittal						TCRPC work with localities to get resolutions
Plan Reproduction						

## **Jurisdictional Meetings**

Meetings with the localities provided opportunity to address specific mitigation needs. Below are bulleted lists of the brainstormed projects for each of the localities. Specifics on the projects will be fully flushed out in the plan. Once this is available they will be posted on the SharePoint site for additional comments/revisions. Representatives from the communities will need to determine the priorities for the brainstormed projects.

The first four mitigation actions are the same for all of the participating jurisdictions. Each of the localities agreed that these are high priorities for the overall success of this planning effort.

These include:

1. Formal Recognition of MAC
2. Update of the 2010 HMP
3. Rep-Loss Properties
4. NFIP Education

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

4/6/2010 12-2pm at TCRPC:

Attendance:

- Peoria County
  - Vicki Turner
  - Matt Wahl
  - Andrew Braun
- City of Peoria
  - Dwain S. Deppolder
- City of Chillicothe
  - John Myers
- *Village of Peoria Heights (not represented)*

Mitigation Projects Proposed:

- **Peoria County**
  1. Formal Recognition of MAC
  2. Update of the 2010 HMP
  3. Rep-Loss Properties
  4. NFIP Education
  5. Universal Siren Protocol for Tri-County
  6. CRS: Continued compliance and increase rating score
  7. Investigate continuous load construction
  8. Building Codes
  9. Investigation of safe rooms and public information
  10. Identify existing buildings as shelters and/or retrofitting. Getting facilities generator ready. Improve shelter capabilities
  11. Investigate shelters to see how safe they really are
  12. Secure additional funds for weather radios. Determine what facilities currently have weather radios. (Hard-wiring?)
  13. Hazard Education (website, libraries, newspaper, post office...). When you hear a siren... Incorporate a technology component (i.e. Code Red)
  14. Additional HAZUS analysis with TCRPC
  15. Increase GIS capabilities (creation & maintenance) within the County locally or through TCRPC

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- **City of Peoria**
  1. Formal Recognition of MAC
  2. Update of the 2010 HMP
  3. Rep-Loss Properties
  4. NFIP Education
  5. Universal Siren Protocol for Tri-County
  6. Building Codes
  7. Secure additional funds for weather radios. Determine what facilities currently have weather radios.
  8. Hazard Education (website, libraries, newspaper, post office...)
  9. Storm Ready
  10. Energy Assurance Plans
  11. Increase GIS capabilities (creation & maintenance) within the City locally or through TCRPC
- **City of Chillicothe**
  1. Formal Recognition of MAC
  2. Update of the 2010 HMP
  3. Rep-Loss Properties
  4. NFIP Education
  5. Universal Siren Protocol for Tri-County
  6. Investigate potential of becoming CRS community
  7. Building Codes
  8. Secure additional funds for weather radios. Determine what facilities currently have weather radios.
  9. Hazard Education (website, libraries, newspaper, post office...)
  10. Long and short term shelter needs
  11. Increase GIS capabilities (creation & maintenance) within the City locally or through TCRPC
- ***Village of Peoria Heights (not represented)***
  1. Formal Recognition of MAC
  2. Update of the 2010 HMP
  3. Rep-Loss Properties
  4. NFIP Education
  5. Universal Siren Protocol for Tri-County
  6. Building Codes
  7. Hazard Education (website, libraries, newspaper, post office...)
  8. Increase GIS capabilities (creation & maintenance) within the Village locally or through TCRPC

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

4/7/2010 9:30 – 11:30am at TCRPC:

Attendance:

- Tazewell County (*not represented but Dewberry will follow-up with Dawn Cook*)
- City of East Peoria
  - Bill Darin
- City of Washington
  - Jon Oliphant
- *City of Pekin (not represented)*

Mitigation Projects Proposed:

- ***Tazewell County (not represented)***
  1. Formal Recognition of MAC
  2. Update of the 2010 HMP
  3. Rep-Loss Properties
  4. NFIP Education
  5. Universal Siren Protocol for Tri-County
  6. Secure additional funds for weather radios. Determine what facilities currently have weather radios.
  7. Investigate feasibility of safe rooms in schools
  8. Identify existing buildings as shelters and/or retrofitting. Getting facilities generator ready. Improve shelter capabilities
  9. Hazard Education (website, libraries, newspaper, post office...)
  10. Increase GIS capabilities (creation & maintenance) within the County locally or through TCRPC
- **City of East Peoria**
  1. Formal Recognition of MAC
  2. Update of the 2010 HMP
  3. Rep-Loss Properties
  4. NFIP Education
  5. Universal Siren Protocol for Tri-County Secure additional funds for weather radios. Determine what facilities currently have weather radios.
  6. Investigate feasibility of safe rooms in schools

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

7. Identify existing buildings as shelters and/or retrofitting. Getting facilities generator ready. Improve shelter capabilities
  8. Hazard Education (website, libraries, newspaper, post office...)
  9. Increase GIS capabilities (creation & maintenance) within the City locally or through TCRPC
- **City of Washington**
    1. Formal Recognition of MAC
    2. Update of the 2010 HMP
    3. Rep-Loss Properties
    4. NFIP Education
    5. Universal Siren Protocol for Tri-County Secure additional funds for weather radios. Determine what facilities currently have weather radios.
    6. Investigate feasibility of safe rooms in schools
    7. Identify existing buildings as shelters and/or retrofitting. Getting facilities generator ready. Improve shelter capabilities
    8. Hazard Education (website, libraries, newspaper, post office...)
    9. Increase GIS capabilities (creation & maintenance) within the City locally or through TCRPC
  
  - ***City of Pekin (not represented)***
    1. Formal Recognition of MAC
    2. Update of the 2010 HMP
    3. Rep-Loss Properties
    4. NFIP Education
    5. Universal Siren Protocol for Tri-County
    6. Secure additional funds for weather radios. Determine what facilities currently have weather radios.
    7. Investigate feasibility of safe rooms in schools
    8. Identify existing buildings as shelters and/or retrofitting. Getting facilities generator ready. Improve shelter capabilities
    9. Hazard Education (website, libraries, newspaper, post office...)
    10. Increase GIS capabilities (creation & maintenance) within the City locally or through TCRPC

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

4/7/2010 1:30 – 3:30pm at Roanoke EOC:

Attendance:

- Woodford County
  - John Hamann
  - Bob Hix
  - Jon Hodel
- Village of Roanoke
  - Robert L. Isaia

Mitigation Projects Proposed:

- **Woodford County**
  1. Formal Recognition of MAC
  2. Update of the 2010 HMP
  3. Rep-Loss Properties
  4. NFIP Education
  5. Universal Siren Protocol for Tri-County
  6. Building Codes – July 2011 IL State law will require all contractor to meet standard building codes
  7. Update floodplain ordinances
  8. Further investigate properties located in the floodplain. County already has FFE for structures in the floodplain.
  9. Create ordinance that states that new critical facilities have to have reinforced walls that can withstand xx high winds. The Roanoke EOC has been designed for up to 160 mph winds.
  10. Require tie-downs for mobile homes
  11. Have taken classes for CRS, continue to look into becoming CRS
  12. Hazard Education (website, libraries, newspaper, post office...)
  13. Identify existing buildings as shelters. Currently the county does not have any tornado shelters.
  14. Investigation of encouraging or requiring commercial buildings to have tornado shelters
  15. Secure additional funds for weather radios. Determine what facilities currently have weather radios.
  16. Investigate adding ordinance that would make any new developments have to be within xx distance of sirens and dry hydrants. Developers would install and then turn rights over to the county/village for maintenance.



17. Increase GIS capabilities (creation & maintenance) within the County locally or through TCRPC

- **Village of Roanoke**

1. Formal Recognition of MAC
2. Update of the 2010 HMP
3. Rep-Loss Properties
4. NFIP Education
5. Universal Siren Protocol for Tri-County
6. Retention ponds for Panther Creek on north end of town(or other options to mitigate flooding)
7. Village Hall and Ambulance shed are in the floodplain. Co Highway 13 floods and emergency services are on north side of town – mitigation options
8. Village currently used BOCA Building Codes
9. Electricity redundancy (commonwealth edison, cornbelt electric, wind farm)
10. Create floodplain ordinances
11. Floodplain and Mine Collapse – if a critical facility is involved in a mine collapse/significant flooding need to investigate ways to not allow it to be rebuilt in the same spot. Look at including this in a zoning ordinance.
12. Investigate to see if critical facilities should have riders on insurance policies (mine collapse)
13. Secure additional funds for weather radios. Determine what facilities currently have weather radios.
14. Investigate adding ordinance that would make any new developments have to be within xx distance of sirens and dry hydrants. Developers would install and then turn rights over to the county/village for maintenance.
15. Increase GIS capabilities (creation and maintenance) within the village locally or through TCRPC

**Flood Map Repository**

**Peoria County:** Planning and Zoning Department  
Peoria County Courthouse  
324 Main Street  
Room 301  
Peoria, IL 61602

**City of Peoria:** Planning and Zoning Department  
419 Fulton Street  
Peoria, IL 61602

**City of Pekin:** Administrative Department  
111 South Capitol Street  
Pekin, IL 61554

**Tazewell County:** Planning and Zoning Department  
11 South 4<sup>th</sup> Street  
Pekin, IL 61554

**Woodford County:** Zoning Department  
114 South Main Street  
Eureka, IL 61530

**Tri-County Regional Planning Commission  
Natural Hazards Mitigation Plan**

**Acronym List**

**AEC** – Area of Environmental Concern  
**ASFPM** – Association of State Floodplain Managers  
**BDEGS** – Building Code Effectiveness Grading Schedule  
**BFE** – Base Flood Elevation  
**CIP** – Capital Improvement Plan  
**CIS** – Community Information System  
**CRS** – Community Rating System  
**DMA2K** – Disaster Mitigation Act of 2000  
**EMI** – Emergency Management Institute  
**EOC** – Emergency Operations Centers  
**ESDA** – Emergency Services and Disaster Agencies  
**FEMA** – Federal Emergency Management Agency  
**FIA** – Flood Insurance Administration  
**FIRM** – Flood Insurance Rate Map  
**FMA** – Flood Mitigation Assistance  
**GIS** – Geographical Information System  
**HAZUS** – Hazards U.S.  
**HIRA** – Hazard Identification Risk Assessment  
**HMGF** – Hazard Mitigation Grant Program  
**IBC** – International Building Code  
**IDNR** – Illinois Department of Natural Resources  
**IEMA** – Illinois Emergency Management Agency  
**IMSF** – Illinois Mine Subsidence Fund  
**ISGS** – Illinois State Geological Survey  
**ISO** – Insurance Services Office  
**IT** – Information Technology  
**LEOP** – Local Emergency Operations Plan  
**LEPC** – Local Emergency Planning Committee  
**MAC** – Mitigation Advisory Committee  
**NAI** – No Adverse Impact  
**NCDC** – National Climatic Data Center  
**NFIP** – National Flood Insurance Program  
**NOAA** – National Oceanic Atmospheric Administration  
**NPDES** – National Pollutant Discharge Elimination System  
**NWS** – National Weather Service  
**PDM** – Pre-Disaster Mitigation  
**SBA** – Small Business Administration  
**SFHA** – Special Flood Hazard Area  
**SOP** – Standard Operating Procedures  
**STAPLE/E** – Social, Technical, Administrative, Political, Legal, Economic and Environmental  
**USACE** – United States Army Corps of Engineers  
**USGS** – United States Geological Survey